

## Bearded Vulture European Endangered Species Programme (EEP): Annual report 2017

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### SUMMARY

2017 was the third consecutive year with a high stable production of nestlings inside the EEP: 25 produced fledglings. In total 39 bearded vulture pairs laid 67 eggs, from which 27 hatched and 25 surviving juveniles were produced (one died during hatching and the other during the adoption phase). Unfortunately one chick from a private collection could not be included in the EEP because of an agreement of assignment for another use. From the final 24 chicks 18 were released in four on-going reintroduction projects, and six were added to the breeding network. 17 came from the specialized captive breeding centres (20 laying pairs), and 7 from zoos (18 laying pairs).

Three new pairs (from Tierpark Friedrichsfelde, Liberec and Helsinki zoo) started to reproduce and a founder male from Richard Faust Center successfully reproduced for the first time. At Helsinki Zoo a female started to lay for the first time although the male was only three years old.

For the first time an obstructed egg was surgically removed from a Bearded vulture (Parco Natura Viva).

West Nile Virus caused the death of two fledglings at the Richard Faust Centre and for the first time at the Breeding Centre in Vallcalent an infected bird was successfully treated.

From the six birds reserved for the EEP, only two could be included in the EEP, with next season being the priority to meet the EEP needs.

13 birds have been transferred during 2017, making it possible to establish four new pairs.

During this year six birds died (four adults and two juveniles). On the other hand five new birds could be included in the EEP (two injured Pyrenean birds, one Alpine fledgling and a pair of adults in Novosibirsk zoo).

Oasi di Sant' Alessio (Italy) completely rebuilt its aviary and Aachener zoo started to rebuild their aviary for receiving a couple of young birds in 2018. Asters breeding centre has been completely newly built in the same place as the old centre.

Thanks to the financial support from EEP zoos, and other organizations the VCF managed to establish an effective EEP coordination which kept the specialized breeding centre Vallcalent in Catalonia open for 2017 - we thank you for your support, without this the future of the Bearded Vulture in Europe would look bleaker!

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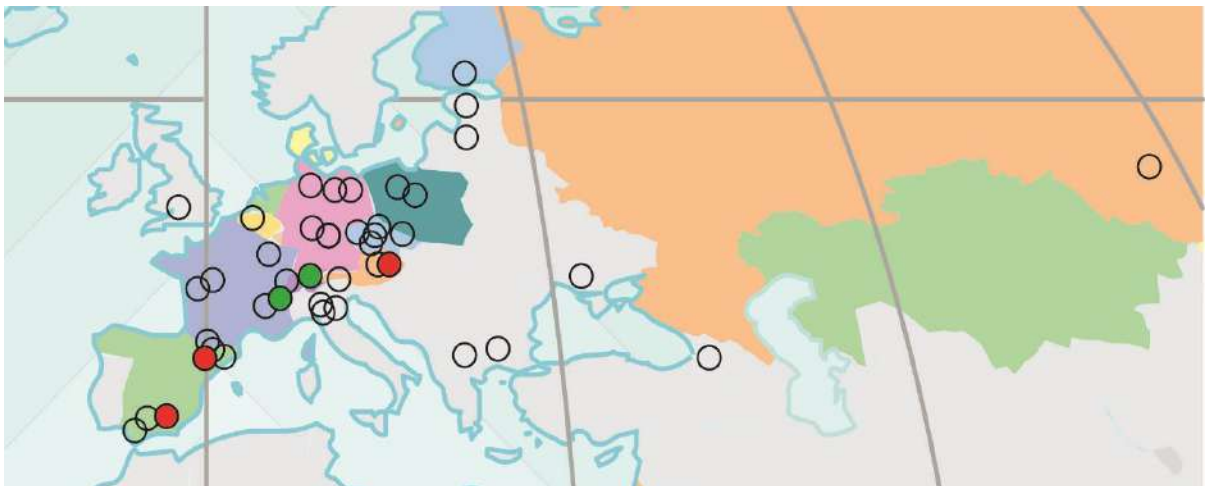
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## INTRODUCTION

In 1978 the Bearded Vulture Reintroduction Project started in the Alps (FZG 832/78; WWF 1567/78) based on a captive breeding program. This Bearded Vulture captive network has been included in the European Endangered Species programme (EEP) since the EEP began, and is a VCF-coordinated network of zoos, animal parks, captive breeding centres and private collections aiming to breed this species in captivity for conservation purposes. In 1978 it was clear that only offspring from zoos could be used, because the autochthonous populations were threatened. At that time nearly 40 bearded vultures were still distributed throughout European zoos, including only one successful brooding pair. From the beginning it was possible to convince all European zoos to cede their birds for this conservation goal and to transfer most of these birds to the Richard Faust Centre in Austria. Paired birds and juveniles went back to the zoos, and so from 1978-1985 the European breeding network emerged and was a precursor of the later established EEP. The Vulture Conservation Foundation's final goal is to restore the species across its former range in Europe, and establish an European Bearded Vulture meta-population, with connections between the current European autochthonous isolated populations (Pyrenees, Corsica and Crete) with the reintroduced populations, in a continuum that goes from northern Africa (Morocco) to Asia (Turkey & the Caucasus).

The Bearded Vulture EEP network is composed of a huge number of different types of institutions: private and municipal Zoos, private collections, NGO and Governmental wildlife recovery centres, and several of them are not EAZA (European Aquaria and Zoo Association) members. That's why an international foundation structure (Vulture Conservation Foundation) was created to make sure that all partners accept, respect and follow the guidelines of the EEP.

By the end of June 2017 the EEP included 34 zoos (mainly European), three large (red spots) and two smaller (green spots) specialized captive breeding centres, and three private keepers, keeping a total of 167 birds. 80% of these are owned by the VCF.



*The distribution of the captive stock over many zoos reduces bulk risks, e.g. epidemic diseases.*

Because pair formation in Bearded Vultures can be complicated and dangerous, the EEP decided that it was necessary to create a distinction between centres dedicated exclusively to breeding (zoos and private centres) and centres dedicated to breeding and pair formation (Specialized Breeding Centres: SBCs). The role of the former is to house already established pairs and to breed the maximum number of offspring from them, while

## Bearded Vulture EEP: results for 2017

the latter, where specialized staff are working, are responsible for establishing new pairs, taking in new founders (injured birds from the wild), adopting chicks, housing problematic birds, and creating a genetic reserve by receiving specimens from all of the genetic lineages that make up the EEP.

Between 1978 and 2017, 512 juveniles were reared successfully as part of the programme, creating the possibility to broaden the initial goals and continue with the new reinforcement project started the year before in Corsica. The reared offspring have been used for reintroduction projects in Europe: in the Alps (216), Andalucía (50), Grands Causses (15), Sardinia (3), Corsica (4), and for the captive breeding network (224).

## BREEDING RESULTS 2017

### Specialized captive breeding centres

- Richard Faust Bartgeier Zuchtzentrum Haringsee (RFZ)

The RFZ, headquarters of the EEP and with a captive stock of 31 birds at the end of 2016, is specialized in the reproduction of founder birds. During the last breeding season discordances between several pairs were observed being necessary to try new pair bonding. Finally seven pairs laid in the breeding season 2016/17. Three of these are experienced old breeding pairs. A fourth is an adult pair which started to reproduce on 2013. The other three are new pairs. Two of them composed by two old birds and the third a young pair which produced for the first time a chick.



All together 11 eggs were produced and from them five chicks hatched and all survived. From the five nestlings, four have been released (three in Grands Causses -framework LIFE project GypConnect and one in Andalusia) and the chick from the new young pair was included in the EEP because the male is a new founder.



*One of the breeding males from Richard Faust Centre (40km from Vienna, Austria).*



## Bearded Vulture EEP: results for 2017

- Centro de Cría de Guadalentín (CCG)

From the beginning the CCG was the basis of the Andalusia Bearded Vulture reintroduction project. In 1999 CCG became officially the second largest Bearded vulture specialized captive breeding centre with the goal to support the EEP. With a captive stock of 23 birds at the end of 2016, the number of breeding pairs is seven since 2013. During this breeding season again the male of one breeding pair has been removed because he persistently chased the female, leaving the clutch uncubated as in previous years. From the 14 laid eggs seven chicks hatched and all fledged. Thanks to the fluid information exchange between EEP partners, the staff from Guadalentín were informed what happened in Vallcalent and reacted quickly in response to a hole in the egg-shell for one of the chicks which showed hatching problems. The chick could be saved and well reared.



*The Guadalentín Breeding Centre is situated in the heart of the N.P. from Cazorla at 1300m a.s.l. (Andalusia).*

All seven nestlings have been released (two in Baronnies, two in Vercors and one in Grands Causses – all five included in the framework LIFE project GypConnect, one in Corsica and one in Andalusia). Further a chick hatched in Centre de Fauna Vallcalent was transferred to Guadalentín for adoption. This chick has been released in Switzerland.

- Centre de Fauna Vallcalent (CFV)

This centre is one of the five rehabilitation stations from the Generalitat of Catalonia, located in Lleida (Spain), and has a Bearded Vulture captive breeding Unit, which is managed by the EEP species coordinator (staff from the Vulture Conservation Foundation).

During summer 2016 two adult pairs coming from the breeding centre Asters arrived at CFV, because Asters' centre was planned to rebuild completely new. Further to analyse the low breeding success by the older pair and why the younger has not laid until now, having observed years before mating attempts. At the beginning of the breeding season 15 birds housed in CFV facilities (four coming from Asters). Four of them are from the Pyrenees.



*The arrival to Vallcalent (Lleida, Spain) of one of the birds coming from Asters breeding centre (2016).*

## Bearded Vulture EEP: results for 2017

During 2017 three pairs laid six eggs, from which four were fertile and three nestlings hatched and survived. Unfortunately the only viable egg from Asters' breeding pair (the second was half the expected size), the chick was not able to hatch. It was too big and could not move its head to break the egg-shell with its beak. This bad experience made it possible to react correctly when the first egg from the older breeding pair also showed hatching problems. Two days before the hatching date, the chick suddenly decreased the chirping frequency and intensity, making it necessary to open a hole in the egg-shell. A day later the chick was assisted with hatching and survived with success.



*Chick BG 960 needed special hatch assistance because of his big size (Centre de Fauna Vallcalent, Lleida, Spain).*

This egg was removed from the nest four hours after being laid because the female again buried it under the wool and stopped incubating. The egg was adopted by the pair with the injured mandible female. This pair incubated three eggs during this breeding season: the first and second egg of the older breeding pair and their own egg. From all three a chick hatched.

"Kazajo", the human imprinted male, again was stimulated by their human keeper. Unfortunately "Kazajo" stopped incubating the dummy egg making it impossible to adopt the third chick. This third chick had to be transferred to CC Guadalentín for its adoption.

Both chicks from the old breeding pair have been released in Central Switzerland. The chick from the mandible injured female has been included in the EEP.



## Bearded Vulture EEP: results for 2017



*One of the double breeding modules in Vallcalent Bearded vulture breeding Unit (Catalonia, Spain).*

- Breeding center Asters (Conservatoire d'Espaces Naturels Haute Savoie)

During the summer 2016 all three couples were transferred because the centre had to be completely newly rebuilt. The two older pairs were sent to Centre de Fauna Vallcalent for analysing the low breeding success by the older pair and to ascertain why the second pair has not successfully laid despite having observed mating attempts in previous years. The third pair was transferred to Academie de Fauconnerie du Puy du Fou (France).

During this breeding season the staff from Vallcalent could clarify why the female from the older pair has such a low breeding success. She is limping on her left leg, making it impossible to build a bowl in the nest for stabilizing the eggs. Consequently the eggs are rolling in the nest with high probability of rupture and can only incubate one egg, making it necessary to always remove the first egg before she lays the second one.

For the second pair it was confirmed that the female doesn't accept the male being very dominant, not letting him go up the platform. The male mostly spends the whole time in the bottom area of the aviary, being necessary to exchange the female, which was done after finishing the breeding season.

- Breeding center in Arth-Goldau (Natur und Tierpark Goldau)

This small breeding centre is keeping three pairs. Each pair laid a single clutch from which two chicks hatched. One of them was necessary to transfer to Richard Faust Centre for adoption. During the blood sample extraction for sex determination, it was observed that the right claw of this second chick was completely mummified (see attached picture). We suppose a wool threat entangled the claw preventing its release. Both chicks are included in the captive breeding network.



## Bearded Vulture EEP: results for 2017

- ☞ **Summary** 20 breeding pairs in the specialized captive breeding centres laid 34 eggs. 17 offspring were successfully reared (8 males and 9 females). From them 13 were released (4 in Grands Causses, 2 in Baronnies and 2 in Vercors -framework LIFE project GypConnect-, 1 in Corsica, 2 in the Alps and 2 in Andalusia) and 4 kept for the EEP.



*Richard Faust Centre (Austria).*

### Zoos, animal parks & private collections

- Zoos & animal parks

The zoos play a crucial role in the EEP and in the conservation of Bearded Vultures. Although the success rate is on average lower than in the specialized breeding centres, they still contribute substantially to the number of young birds raised annually. Furthermore, by maintaining a captive stock distributed in several separate locations, we decrease the risks (for example in case of epidemic diseases). In addition, by showing this species as well as publicizing the in-situ conservation efforts to large audiences in several countries, they contribute significantly to raise public awareness about the species. The zoos help to build core support for vulture conservation that would otherwise be impossible to achieve.

During the 2017 breeding season seven zoos (Chomutov, Liberec, Ostrava, Tierpark Friedrichsfelde, Nuremberg and Yerevan zoos, and the Recovery Center Green Balkans) produced 7 fledglings (4 males and 3 females).

Unfortunately in Ostrava zoo a second hatchling died in the nest during the hatching process. Further the chick from the Recovery center Torreferrussa (Catalonia, Spain) died during the adoption by his own parents. It was the first time that the pair adopted a chick and unfortunately during the night the male stopped showing interest in the chick, which died due to cooling. Really a pity because the father is a founder Pyrenean bird and it was the second chick of this pair.

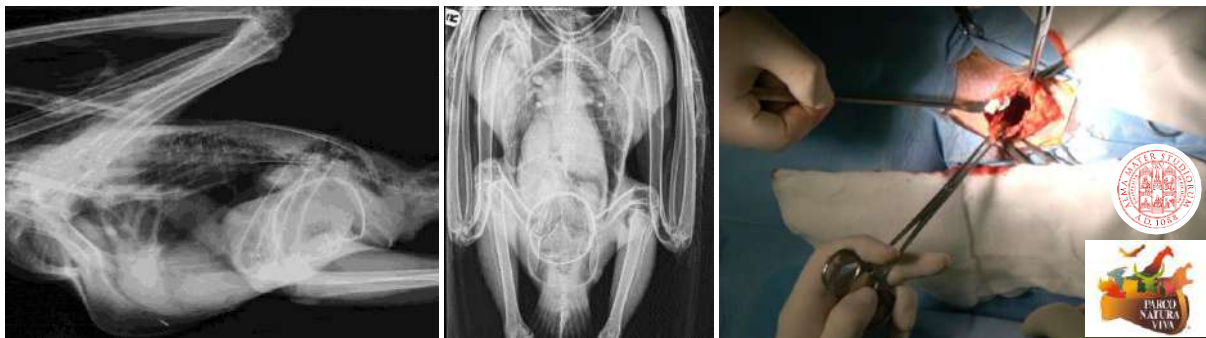
This year again breeding success could be achieved in Green Balkans by following the EEP coordinator's recommendations. The chick had hatching problems being necessary to intervene and extract the chick from its egg in the nest. Further the day after the chick was too weak and was necessary to remove and hand-rear it for a few days until was strong enough for adoption. This could be only done thanks to video surveillance and monitoring by the EEP coordinator.



## Bearded Vulture EEP: results for 2017

The pairs in Helsinki, La Garenne, Riga, Schönbrunn and Torreferrussa failed to produce a young. The pair from Zoo Berlin didn't reproduce this season because was removed from its aviary since works were performed in its aviary nearness.

Further the young pair from Parco Natura Viva started to mate and build a nest after remodelling the aviary following the EEP coordinator's advice. Around the 20<sup>th</sup> of February the female was lying in the nest. A few days later she abandoned and only a few copulas could be observed. Suddenly she became worse and on the 8th of March was captured, falling down to the ground. The X-Ray showed a broken egg in the pelvis region. The egg was removed on the 11<sup>th</sup> of March by surgery by M. Delogu and his team from the Wildlife and Exotics Animal Service, Department of Veterinary Medical Sciences, Bologna University (Italy). The content of the egg was completely absorbed and the egg-shell was strongly connected with the oviduct. Inside there was an embryo. On the 9<sup>th</sup> of April the female was returned to her male. This was the first time this procedure was achieved successfully with a bearded vulture.



*Surgery intervention by Parco Natura Viva female with obstructed egg (fotos: Vet. Uni. Bologna & Parco Natura Viva).*

- ☞ **Summary** 16 breeding pairs in the zoos laid 28 eggs. From the 28 eggs, 9 almost hatched and 7 offspring were successfully reared. Five of them have been released (4 in Andalusia and 1 in Corsica) and 2 kept for the EEP.

- Private collections:

Three pairs from three private collections (Czech Republic, England and Monticello, Italy) laid five eggs. Unfortunately the only hatched chick could not be included in the EEP because of loan agreement's conditions.

**So in total, in 2017 39 pairs laid a total of 67 eggs, which resulted in 25 surviving juveniles and 24 included in the EEP (see Table 1 in Annex I Breeding pairs in 2017). 18 of these 24 were released, 6 were added to the breeding network (see Table 2 in Annex I – Offspring in 2017).**

From the 41 unhatched eggs one fertile egg broke in the middle of incubation and 12 eggs aborted. One aborted in the middle of the incubation and four in the end of incubation with the yolk-sack still completely outside. Three others died just before breaking the air cell. One of these died because of faeces aspiration. Further three more died after breaking the air cell and chirping could be heard but was not able to hatch because of its big size being unable to turn the head inside the egg. And the last one opened a whole in the egg-shell in the nest, but was not able to hatch and died inside.

## Bearded Vulture EEP: results for 2017



*One of the releases in Calfeisental (Central Switzerland). Currently there are more than 250 Bearded Vultures in the Alps. This reintroduction project represents one of the most successful wildlife comebacks in recent history, and is based on the successful work of the EEP (Photo: Hansruedi Weyrich).*

From the six chicks kept for the EEP only two new pairs could be established (only two males). Further other birds have been transferred during this period to establish new pair bonding. The male from Vallcalent - descendant from a founder bird- was sent to Guadalentín to try pair bonding with the female coming from a recovery clutch from Corsica 2016.

### TRANSFERS / INCREASES / LOSSES

#### Transfers

During 2017 13 birds (five males and eight females) have been transferred, with the aim to build four new pairs.

On the 7<sup>th</sup> of April the pair BG 914 x BG 903 from 2016 formed by a male from Green Balkans (Bulgaria), reared at Richard Faust Centre (RFZ), and a female from Tierpark Goldau has been transferred to Plock zoo (Poland) after that the aviary has been remodelled completely following the EEP coordinator suggestions.



The pair BG 844 x BG 673 from Centro de Cría Guadalentín (CCG) formed by a male from 2015 and a female from 2011 has been sent to RFZ on the 27<sup>th</sup> of April, with the goal to be sent to Nikolaev zoo.



### Bearded Vulture EEP: results for 2017

At the end of April female exchange was done between CF Vallcalent and RFZ with the aim that the male from the second pair of Asters would receive the new female from RFZ (BG 502, 2006), because his female (BG 518, 2007) was too dominant and injured him several times. New pair bonding was done on the 5<sup>th</sup> of May.

On the 6<sup>th</sup> of June the female BG 892 from 2016 and descendant from the Pyrenean mandible injured female, BG 725, was sent to RFZ to maintain the captive stock distributed in several separate locations for decreasing the risks (for example in case of epidemic diseases). In return the male BG 947 from this breeding season and descendant from the same female was transferred to Guadalentín on the 27<sup>th</sup> of June to try pair bonding with the female coming from a recovered wild clutch from Corsica in 2016, BG 908.

On the 21<sup>st</sup> of September Moscow zoo received the pair BG 748 x BG 832 formed by a male coming from RFZ from 2013 and a recovered female released in 2015 from Liberec zoo. Moscow zoo prepared an enclosure specific for holding a bearded vulture pair in their breeding unit closed for the public.



On the 7<sup>th</sup> of November the pair BG 860 x BG 622 formed by a male from 2015 and descendant from Recovery Centre Torreferrussa pair and a female from 2010 and descendant from the old breeding pair from CFV was transferred to the new centre from Asters.

Asters  
Conservatoire  
d'espaces naturels  
Haute-Savoie



*The Breeding center Asters has been completely new rebuilt in 2017.*



## Bearded Vulture EEP: results for 2017

And finally on the 15th of December the young female BG 956 from Tierpark Goldau was transferred to Green Balkans with the goal to build a second breeding pair in the future.

### Increases:

During 2017 five new birds could be included in the EEP. Four of them are new founders, two of them coming from the Pyrenees.

The first bird is a nestling male named Flamadel which was recovered on the 25th of May from a nest located in Aude Department (French eastern pre-Pyrenees). This nestling was removed because 10 days before it was observed to be limping on his left leg. This breeding pair is included in the monitoring program, as part of the LIFE GYPCONNECT project, where last year a nestling, Roc Gènese, was tagged. Once removed Flamadel was transferred to the recovery centre from LPO Hérault. But suddenly the chick stopped eating, losing weight in the following days. Knowing that chicks still required social contact for their welfare it was decided to transfer it to the Catalonia recovery center Vallcalent, one of the three large specialized Bearded vulture captive breeding centers included in the EEP, where a specialized vet on this species is working. The X-Rays confirmed that the bird suffered a fracture distal from the left tibia, between diaphysis and epiphyses, which was fully welded but inclined inwards, preventing the extension of the leg.



The first objective was to assure the survival of the bird and it was decided to realize a conservative therapy bandaging the leg with a splint trying to relocate it in an anatomical position and to stretch the articulation, and to postpone the surgery to a later stage when the bird would be adapted completely to his new surroundings. Finally on the 18th of September surgery was done to Flamadel, because the unbandaged leg remained stretched in front of his body hindering the displacement. It was decided to perform a double fracture and try to relocate the leg. It was fractured in the middle of the tibia -turning towards the outside the distal part of the tibia- and the tarsus turning inwards the distal part of the tarsus-.



### Bearded Vulture EEP: results for 2017

Unfortunately the surgery did not give the expected result being necessary to try an arthrodesis in a near future.

The second bird is an adult male recovered on the 14<sup>th</sup> of September in the Catalonia Pyrenees with a weight less than 4kg. In the recovery centre from Vallcalent it could be observed that the bird suffered an inflammation of the left tibia-tarsal joint, with almost completely lost of the articulation.



As soon the inflammation was controlled and the bird won on weight, surgery was performed trying to fix the joint (Arthrodesis).



Surgery to this bird did also not give the expected result and it will be necessary to repeat it removing previously the whole articulation. Nevertheless by keeping both birds together and with visual contact with



## Bearded Vulture EEP: results for 2017

other con-specifics they immediately adapted in their new captive condition recovering in short time their weight, giving us the possibility to perform surgery in the best fitness conditions.



*Both Pyrenean recovered wild birds sharing one of the facilities in CF Vallcalent.*

On the 28th of September a fledgling from breeding pair Bargy nord (France) was covered because after two month flying was still making only short flights, with intensive wing flapping, losing altitude and landing always 20 to 50 m lower. This pair was monitored by the Asters team. On the 26 of July the fledgling was found at the bottom of the cliff under the nest assuming that fledged around middle of July. Once the bird was transferred to the recovery centre Le Tichodrome it could be found that the feathers have no barbules, absent or atrophied and this alteration affected only part of the plumage. The bird named Gyphep is a male and on the 8<sup>th</sup> of November was transferred to the new breeding centre of Asters to see if by the next moult process new feathers will show the same anomaly.



In December 2017 a pair of adult founder birds arrived at Novosibirsk zoo through Almaty zoo (Kazakhstan). The male arrived at Almaty zoo in 1999 as chick and caught in Kazakhstan, Almaty district. Before its departure to Novosibirsk zoo was kept with another female. The female, supposedly born in 2000 and coming from the wild, arrived to Almaty zoo in spring 2017 with another bird from Dushanbe zoo. This bird also before to be sent to Novosibirsk zoo was kept with another male.





## Bearded Vulture EEP: results for 2017

### Losses:

Six birds died in 2017, four males and two females. From this six, four were adult birds (three males and one female) and two juvenile's half year old (one male and one female).

BG 725 is the famous mandible injured Pyrenean female named Kirma. She was recovered in 2012 with a severe diagnosis - total loss of sensitivity of its left leg, large necrosis area at the distal part of the third finger of its left foot, and that horrific beak injury. For more information see

<http://www.4vultures.org/2015/02/12/on-kirma-and-commitment-to-a-cause-how-intensive-care-and-a-lot-of-expertise-rehabilitated-a-severely-injured-bearded-vulture-back-into-breeding/>

Suddenly on the 28<sup>th</sup> on August she was laying in the nest with her head down and breathing heavily (severe dyspnoea). The throat was swollen and with secretion. X-ray showed dense areas in the lungs and air sacs, which together with the clinical profile suggested aspergillosis. Further she showed a weight from 4328 g, 1.5 Kg less as usual. Despite intensive treatment the bird died three days later, on the 31<sup>st</sup> of August. The necropsy confirmed that Kirma died because of a severe aspergillosis infection.

Although her incredible handicap we were able to reproduce with her. Since 2015 she laid yearly a single clutch producing one chick per year: two males and one female. Further she showed us her incredible learning potential during these three breeding seasons in captivity, being able during the last one to learn how to feed a chick having such an incredible handicap. We should remember that this female belonged to the Pyrenean floater population, being impossible for her to give descendants in the wild with her injured mandible. Because of her additional collision it was finally necessary to remove from the wild. However, that had also a positive effect for the species: she could assure that her genes will endure in the future as well *ex* and *in situ*.



Unfortunately a few days later, on the 5<sup>th</sup> of September, her male, BG 223, suddenly show weakness signs: hanging the wings and the head. Nevertheless during attempted capture he was able to fly without problems. The X-Rays didn't show any air sacs alterations. Only by the endoscopy it could be possible to observe a chronic air sack infection. The bird died on the 8<sup>th</sup> of September and by the necropsy aspergillum infection was again confirmed.



On the 4<sup>th</sup> and 14<sup>th</sup> of September two fledglings, BG 968 (male) and BG 966 (female), died at the Richard Faust Centre. The female was the first descendant of a new founder male. Both fledglings -the male one week and the female two weeks before- showed signs of weakness, always sitting on the ground apathetic with hanging head and wings but not showing any respiratory alteration. By the necropsy could be found a severe aspergillosis infection although no respiratory sings could be observed live. But by the pathological histology

## Bearded Vulture EEP: results for 2017

analysis could be found alterations of the Glia cells from brain, confirming that both birds suffered firstly an **infection of West Nile Virus** which provoked an immunosuppression followed with an aspergillosis infection. It's the first time after 40 years breeding this species in captivity that a fledgling suffered a WNV infection and died secondary because of an aspergillosis infection.

On the 25<sup>th</sup> of December the 29 years old male BG 202 from Oasi di Sant' Alessio (Italy) died because of a visceral gout. It died just one month after the aviary was completely rebuilt for receiving a female and attempts to build a new pair. Under this new circumstances it was accorded with the zoo to receive a young pair in 2018.

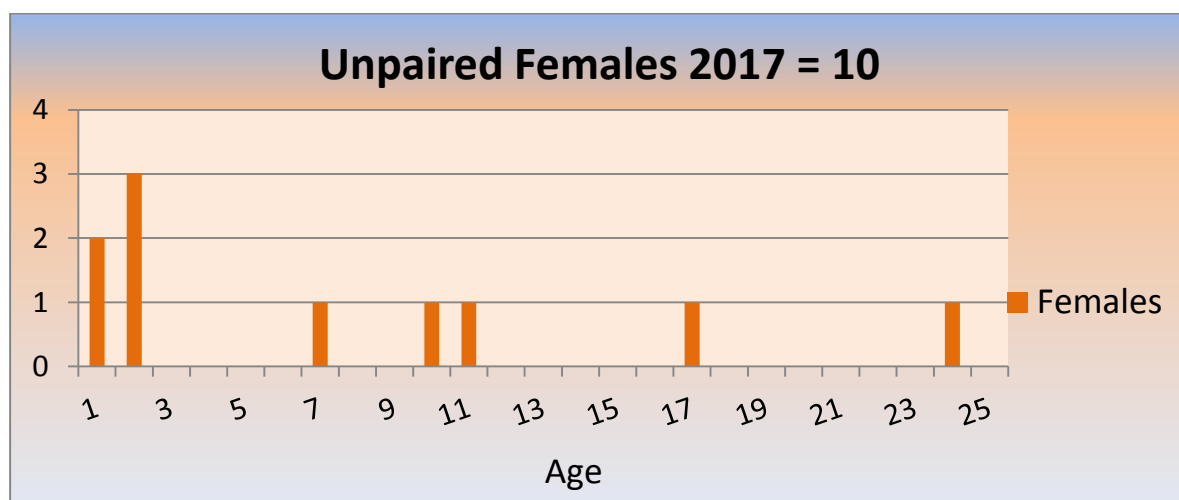
And finally the breeding male BG203 from the private collection of M. Hochlehnert (Germany) died in 2017 because it was killed by his female. The bird was 27 years old.

**Summarizing, during 2017 six birds died: two fledglings and four adult birds (three males and one female). In the other hand five new birds could be included. Unfortunately only two of them are intact birds (the pair from Novosibirsk zoo). The other three, all males, two of them have problems with their tibia-tarsal joint being not clear if they will be able to mate and the third has a problem with the feather structure, being not yet confirmed if it is a genetic problem.**

### SEX RATIO INSIDE THE EEP

Although a high number of birds could be include in the EEP (5 new birds and 4 fledglings), half of them have physical disabilities -unfortunately three of them are males. Finally only one intact founder pair and two intact fledglings (one male and one female) could be included in the EEP, not counterbalancing the number of losses suffered during this year (four males and 2 females), increasing again the existing sex imbalance inside the EEP.

**This will make necessary next breeding season to prioritize the EEP needs.**



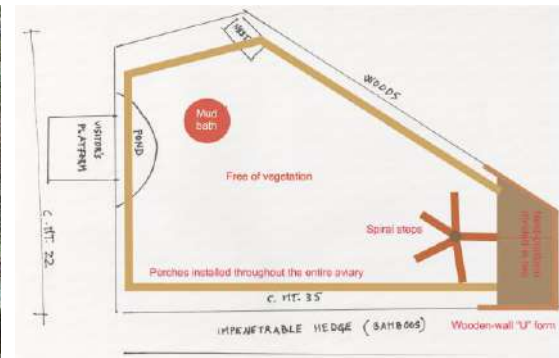
## Bearded Vulture EEP: results for 2017

### NEW PARTNERS

Every year new zoos are applying to join the Bearded Vulture EEP. In 2017 two new zoos expressed interest in collaborating: Tayto Park Ireland and Safaripark Beekse Bergen at Hilvarenbeek (Netherleand).

In July 2017 Aachener Tierpark Euregiozoo (Germany) received the visit by the EEP coordinator to evaluate directly the proposed aviary for housing Bearded Vultures. At the end of the month the EEP collaboration agreement was signed between the zoo and the VCF, giving the zoo the possibility to start with the rebuilding of the aviary in autumn.

During autumn 2017 Oasi di Sant' Alessio reconstructed its aviary following the exact improvements recommendations from the EEP coordinators with the goal to receive a young pair in the following breeding season.



*Oasi di Sant' Alessio: Above- view of the potential aviary for housing Bearded Vultures and suggested recommendations how to improve it. Below- view of the aviary after its reconstruction which has followed EEP recommendations.*



## PROBLEMS WITHIN THE BEARDED VULTURE EEP

### West Nile Virus appeared for the first time at the specialized breeding centre Vallcalent (Spain)

At the beginning of September the imprinted male named Kazajo, from the breeding center Vallcalent -which is use as foster male-, showed respiratory dyspnea and balance problems. A few weeks later it also showed no reaction on the left pupil. Although in endoscopy was not found aspergillum infection by the air sacks, a symptomatic treatment was started: Antibiotic during 15 days (Enrofloxacin 10mg/Kg 1x day), antimycotic during 20 days (Voriconazol 50mg tablet / 1x day) and anti-inflammatory during 1.5 months (Meloxidyl 5mg/Kg 1x day). On the 18<sup>th</sup> of October it was confirmed that the bird was suffering a West Nile Virus infection. Immediately all birds from the collection were analyzed (15 birds). Four of them showed to be seropositive to WNV and only the imprinted male was positive by the cloacal swab. Thanks to the intensive therapy the imprinted male could be recovered completely before the new breeding season started. He only showed a sequel on its left pupil.

Actually with Vallcalent there are two specialized breeding centers where WNV is present. Although in Vallcalent until today no losses have been recorded for this cause, there's the possibility in the future that losses for this cause can happen as it happened in Richard Faust centre, where five birds died between 2008 and 2017.

- In 2008 a 20 year old male died on the 29th August because of a bacterial fibrinous to diphtheroid enteritis.
- In 2019 a one year old male died on the 1<sup>st</sup> of September because of a severe aspergillosis infection
- In 2010 a 37 years old female died on the 29<sup>th</sup> of August because of a severe aspergillosis infection
- And as above mentioned in 2017 one male and one female, both 0.6 year olds died on the 4<sup>th</sup> and 14<sup>th</sup> of September respectively because of a severe aspergillosis infection
- 2017 female 0.6 year old died 14th September West-Nil virus infection / finally died because severe aspergillosis infection

For all five birds West Nile Virus could be found by the histopathology analysis, showing that all died after suffering primary a WNV infection which negatively influences the immune system. Additionally birds died in a precise period, corresponding to the highest mosquito activity.

### Transfer of chicks for adoption in airplane cabins is no longer allowed

One of the objectives of the EEP is to produce chicks that can reproduce as they reach sexual maturity and that are suitable for reintroduction, and this can be only achieved if chicks are naturally reared, fomenting the development of their natural behaviour. Consequently all chicks from double

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clutches or chicks which couldn't be adopted by its parents because they stopped breeding or rejected them are transferred for adoption by foster pairs. To reduce travel time and risks, most of these chicks in the past were transferred by plane in the cabins. But during the last years the first transport problems appeared and in 2016 because of new regulations it was definitively impossible to find an airline disposed to accept a hatchling in cabin, being necessary to transfer all chicks by car exposing them a higher risk.

#### New EEP structure and bird distribution strategy between specialized Breeding centres

Faced with these two new problems it makes it necessary in 2018 to redraft the EEP structure to reduce long journeys for chick adoptions and to assure the survival of fledglings, particularly those coming from less common blood lines inside the EEP.

#### OUTLOOK / NEWS

##### The Bearded Vulture EEP will collaborate in 2018 in a new reintroduction project.

Since 1986, when the first release took place in the Alps, three additional reintroduction projects have begun using the EEP as base for their releases: Andalusia, Grands Causses and Corsica. This was possible thanks to the continuously increasing captive breeding results. This resulted in an opportunity to start a new reintroduction project in Grands Causses in 2012 - since 2015 is included in the framework of the LIFE Project GypConnect (LIFE14 NAT/FR/000050) - and to start a reinforcement project in Corsica in 2016.

These improvements didn't stop during the last years, giving us the possibility to start in 2018 a new reintroduction project which will take in **Maestrazgo** region in eastern Spain. This project is led by the Generalitat of Valencia, in collaboration with the Autonomous Communities from Aragón and Catalonia, the Spanish Ministry of Agriculture, Fish, Food and Environment and the VCF. Its goal is to establish a wild breeding population in the region as bridge between the Pyrenean autochthonous and the Andalusia reintroduced populations, similar to what the LIFE project GypConnect is aiming to achieve between the Pyrenees and Alps. The Maestrazgo region is regularly visited by several individuals released in Andalusia and historically there was a breeding population of this species.





*Thanks to the good cooperation in the Bearded Vulture EEP, the goal to re-establish an European meta-population is getting closer.*

**We would like to thank our sponsors:**



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## ANNEX I

Table 1: BREEDING PAIRS IN 2017

AUSTRIA	PAIR	LAY DATE	HATCH DATE
Tiergarten Schönbrunn	BG 201 x BG 044002003	1 <sup>st</sup> : 27 <sup>th</sup> Dec 1 <sup>st</sup> : 09 <sup>th</sup> Jan	Aborted (end incubation) Broken
Richard Faust Zentrum	BG 108065040 x BG 175152153	1 <sup>st</sup> : 05 <sup>th</sup> Dec 2 <sup>nd</sup> : 12 <sup>th</sup> Dec	29 <sup>th</sup> Jan 05 <sup>th</sup> Feb
	BG 017019021 x BG 070022023	1 <sup>st</sup> : 02 <sup>nd</sup> Jan 2 <sup>nd</sup> : 12 <sup>th</sup> Jan	25 <sup>th</sup> Feb Aborted (middle incubation)
	BG 199 x BG 107150151	1 <sup>st</sup> : 01 <sup>st</sup> Jan 2 <sup>nd</sup> : 08 <sup>th</sup> Jan	24 <sup>th</sup> Feb Broken (17 <sup>th</sup> Feb, fertile)
	BG 087014010 x BG 006019020	1 <sup>st</sup> : 24 <sup>th</sup> Dec	Broken
	BG 399159270 x BG 278065074	1 <sup>st</sup> : 22 <sup>th</sup> Dec	Aborted (13 <sup>th</sup> Feb, by hatching)
	BG 681 x BG 560371103	1 <sup>st</sup> : 19 <sup>st</sup> Jan	13 <sup>th</sup> Mar
	BG 080019021 x BG 040034035	1 <sup>st</sup> : ?30 <sup>th</sup> Dec 2 <sup>nd</sup> : ?31 <sup>st</sup> Dec	Frozen Disappeared
GERMANY			
Tierpark Friedrichsfelde Berlin	BG 294017070 x BG 292199107	1 <sup>st</sup> : 17 <sup>th</sup> Jan 2 <sup>nd</sup> : ? Jan	Aborted (end incubation) 16 <sup>th</sup> -17 <sup>th</sup> Mar
	BG 437180274 x BG 503294292	1 <sup>st</sup> : 02 <sup>nd</sup> Feb 2 <sup>nd</sup> : 08 <sup>th</sup> ? Feb	Infertile Infertile
Berlin Zoo	BG 298122118 x BG 320018272	-	Removed because of construction
Nuremberg Zoo	BG 018019021 x BG 336201044	1 <sup>st</sup> : 13 <sup>th</sup> Feb	09 <sup>th</sup> Apr
SPAIN			
Centro de Cría Guadalentín	BG 286 x BG 153	1 <sup>st</sup> : 16 <sup>th</sup> Dec 2 <sup>nd</sup> : 23 <sup>rd</sup> Dec	Putrefied Putrefied
	BG 313009006 x BG 330108119	1 <sup>st</sup> : 23 <sup>rd</sup> Dec 2 <sup>nd</sup> : 01 <sup>st</sup> Jan	14 <sup>th</sup> Feb Putrefied
	BG 391124041 x BG 360018272	1 <sup>st</sup> : 04 <sup>th</sup> Jan 2 <sup>nd</sup> : 11 <sup>th</sup> Jan	27 <sup>th</sup> Feb 05 <sup>th</sup> Mar
	BG 337201044 x BG 317017070	1 <sup>st</sup> : 06 <sup>th</sup> Jan 2 <sup>nd</sup> : 11 <sup>th</sup> Jan	28 <sup>th</sup> Feb 06 <sup>th</sup> Mar
	BG 362080081 x BG 389199107	1 <sup>st</sup> : 16 <sup>th</sup> Dec	08 <sup>th</sup> Feb

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		2 <sup>nd</sup> : 21 <sup>st</sup> Dec	Infertile
	BG 410286153 x BG 290134135	1 <sup>st</sup> : 19 <sup>th</sup> Dec 2 <sup>nd</sup> : 29 <sup>th</sup> Dec	Putrefied Putrefied
	BG 124131132 x BG329043040	1 <sup>st</sup> : 05 <sup>th</sup> Dec 2 <sup>nd</sup> : 12 <sup>th</sup> Dec	28 <sup>th</sup> Jan Aborted (end incubation)
Centre de Fauna Vallcalent	BG 371105178 x BG 103065040	1 <sup>st</sup> : 08 <sup>th</sup> Jan 2 <sup>nd</sup> : 17 <sup>th</sup> Jan 3 <sup>rd</sup> : 28 <sup>th</sup> Jan	02 <sup>nd</sup> Mar 10 <sup>th</sup> Mar Putrefied (Infertile)
	BG 223014010 x BG 725	1 <sup>st</sup> : 12 <sup>th</sup> Dec	02 <sup>nd</sup> Feb
	BG 652 x BG 680	-	<i>mating &amp; nest building</i>
	BG 551 x BG 588371103	-	<i>mating &amp; nest building</i>
(Asters, housed temporally CFV)	BG 297086104 x BG 115019021	1 <sup>st</sup> : 16 <sup>st</sup> Dec 2 <sup>nd</sup> : 03 <sup>rd</sup> Jan	Aborted (06 <sup>th</sup> Feb died by hatching) Infertile
Centre de Fauna Torreferrussa	BG 500 x BG 513009006	1 <sup>st</sup> : 26 <sup>th</sup> Dec 2 <sup>nd</sup> : 01 <sup>st</sup> Jan	17 <sup>th</sup> Feb (22 <sup>nd</sup> Feb died by adoption) Aborted
<b>SWITZERLAND</b>			
Breeding Centre Goldau/Rigi	BG 174134135 x 118154155	1 <sup>st</sup> : 04 <sup>th</sup> Jan	25 <sup>th</sup> Feb
	BG 060034035 x BG 091005006	1 <sup>st</sup> : 05 <sup>th</sup> Jan	Broken 22 <sup>nd</sup> Feb
	BG 145131132 x BG 276199107	1 <sup>st</sup> : 05 <sup>th</sup> Feb	30 <sup>th</sup> Mar (right claw mummification)
La Garenne	BG 212152153 x BG 130150151	1 <sup>st</sup> : 16 <sup>th</sup> Feb 2 <sup>nd</sup> : 22 <sup>nd</sup> Feb	Infertile Infertile
<b>TS-REPUBLIC</b>			
Liberec Zoo	BG 180161162 x BG 274	1 <sup>st</sup> : 10 <sup>th</sup> Dec 2 <sup>nd</sup> : 16 <sup>th</sup> Dec 3 <sup>rd</sup> : 30 <sup>th</sup> Jan 4 <sup>th</sup> : 04 <sup>th</sup> Feb	Infertile Infertile 25 <sup>th</sup> Mar Infertile
	BG 654108175 x BG 656180274	1 <sup>st</sup> : 14 <sup>th</sup> Feb	Aborted (died faeces aspiration)
Chomutov Zoo	BG 340018272 x BG 338134135	1 <sup>st</sup> : 12 <sup>th</sup> Jan	07 <sup>th</sup> Mar
Ostrava Zoo	BG 207017070 x BG 233122118	1 <sup>st</sup> : 31 <sup>st</sup> Dec 2 <sup>nd</sup> : 07 <sup>th</sup> Jan	Infertile (22 <sup>nd</sup> Feb broken) 01 <sup>st</sup> Mar
	BG 325017070 x BG 322152153	1 <sup>st</sup> : 24 <sup>th</sup> Dec	Aborted (13 <sup>th</sup> Feb died by hatching)
Private Mr. Stika	BG 470159270 x BG 303009006	1 <sup>st</sup> : 06 <sup>th</sup> Jan	Aborted (just before hatching)



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		2 <sup>nd</sup> : ? <sup>th</sup> Jan	Aborted (just before hatching)
<b>ESTONIA</b>			
Tallinn Zoo	BG 431 x BG 436180274	1 <sup>st</sup> : 31 <sup>st</sup> Jan 2 <sup>nd</sup> : 07 <sup>th</sup> Feb	Aborted (just before hatching) Broken
<b>LATVIA</b>			
Riga Zoo	BG 327105178 x BG 381159270	1 <sup>st</sup> : 05 <sup>th</sup> Jan	Infertile
<b>ENGLAND</b>			
Private Center	BG 722154155 x BG 723154155	1 <sup>st</sup> : 31 <sup>st</sup> Jan 2 <sup>nd</sup> : 13 <sup>th</sup> -15 <sup>th</sup> Feb	Aborted (before pecking air cell) 08 <sup>th</sup> Mar (NO EEP)
<b>ITALY</b>			
Center Monticello (M. Albertini)	BG 234086104 x BG 397201044	1 <sup>st</sup> : 07 <sup>th</sup> Jan	Disappeared 02 <sup>nd</sup> Mar
Parco Natura Viva	BG 451108175 x BG 469018272	-	Egg-bound (female surgery)
<b>FINLAND</b>			
Helsinki	BG 788297115 x BG 281131132	1 <sup>st</sup> : 03 <sup>rd</sup> Mar	Putrefied
<b>ARMENIA</b>			
Yerevan zoo	BG 828 x BG 826	1 <sup>st</sup> : ?15 <sup>th</sup> Dec 2 <sup>nd</sup> : ?19 <sup>th</sup> Dec	05 <sup>th</sup> Jan Infertile
<b>BULGARIA</b>			
Rescue Center Green Balkans	BG 461199107 x BG 483108175	1 <sup>st</sup> : 12 <sup>th</sup> Jan 2 <sup>nd</sup> : 17 <sup>th</sup> Jan	Infertile 11 <sup>th</sup> Mar

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**TABLE 2. DESTINATION OFFSPRING IN 2017**

STUDBOOK	PARENTAGE	SEX	BREEDING	DESTINATION
BG 945	BG 124 x BG 329	m	Centro de cría	RELEASE (Aveyron, Grands Causses, FRANCE)
BG 946	BG 108 x BG 175	m	Richard-Faust-Zentrum	RELEASE (Aveyron, Grands Causses, FRANCE)
BG 947	BG 223 x BG 725	m	Centre de Fauna	<b>BREEDING</b> (Destination: Centro de cría Guadalentín)
BG 948	BG 108 x BG 175	m	Richard-Faust-Zentrum	RELEASE (Aveyron, Grands Causses, FRANCE)
BG 949	BG 826 x BG 828	?	Yerevan zoo	<b>BREEDING</b> (Destination: ?)
BG 950	BG 362 x BG 389	f	Centro de cría	RELEASE (Léoux Valley, Baronnies, FRANCE)
BG 951	BG 313 x BG 330	f	Centro de cría	RELEASE (Léoux Valley, Baronnies, FRANCE)
BG 952 <sup>1)</sup>	BG 500 x BG 513		CF Torreferrussa	<b>DIED</b>
BG 953 <sup>2)</sup>	BG 325 x BG 322		Ostrava	<b>DIED</b>
BG 954	BG 199 x BG 107	f	Richard-Faust-Zentrum	RELEASE (Aveyron, Grands Causses, FRANCE)
BG 955	BG 017 x BG 070	m	Richard-Faust-Zentrum	RELEASE (Guadalentín, Andalusia, SPAIN)
BG 956	BG 174 x BG 118	f	Tierpark Goldau	<b>BREEDING</b> (Green Balkans, Bulgaria)
BG 957	BG 391 x BG 360	m	Centro de cría	RELEASE (Guadalentín, Andalusia, SPAIN)
BG 958	BG 337 x BG 317	m	Centro de cría	RELEASE (Lozzi, Corsica, FRANCE)
BG 959	BG 207 x BG 233	f	Ostrava zoo	RELEASE (Lozzi, Corsica, FRANCE)
BG 960	BG 371 x BG 103	f	Centre de Fauna	RELEASE (Melchsee-Frutt, SWITZERLAND)
BG 961	BG 391 x BG 360	f	Centro de cría	RELEASE (Vercors, FRANCE)
BG 962	BG 337 x BG 317	f	Centro de cría	RELEASE (Vercors, FRANCE)
BG 963	BG 340 x BG 338	f	Chomutov zoo	RELEASE (P.N. Castril, Andalusia, SPAIN)
BG 964	BG 371 x BG 103	m	Centre de Fauna	RELEASE (Melchsee-Frutt, SWITZERLAND)
BG 965	BG 461 x BG 483	m	Green Balkans	RELEASE (P.N. Castril, Andalusia, SPAIN)
BG 966	BG 681 x BG 560	f	Richard-Faust-Zentrum	<b>BREEDING</b> (Destination: ?)
BG 967	BG 294 x BG 292	f	Tierpark Berlin	RELEASE (Guadalentín, Andalusia, SPAIN)
BG 968	BG 180 x BG 274	m	Liberec zoo	<b>BREEDING</b> (Green Balkans, Bulgaria)
BG 969	BG 145 x BG 276	f	Tierpark Goldau	<b>BREEDING</b> (Destination: ?)
BG 970	BG 722 x BG 723	?	Private M. H. & B.	<b>NO EEP</b>
BG 971	BG 018 x BG 336	m	Nuremberg zoo	RELEASE (Guadalentín, Andalusia, SPAIN)

1) died with an age from 5 days: during adoption by his own parents.

2) died during hatching.