



2nd Annual Report on vulture population status in Cyprus and  
state-of-play regarding poisoning and collision incidents

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*LIFE WITH VULTURES: SAVING GRIFFON VULTURES IN CYPRUS THROUGH  
CONCRETE CONSERVATION ACTIONS  
(LIFE18 NAT/CY/001018)*

**Prepared by: BirdLife Cyprus**

**Authors: Melpo Apostolidou, Christina Ieronymidou, Martha Petrou,  
Haris Hadjistyliis, Nikos Kassinis**

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## Authors

Melpo Apostolidou

Christina Ieronymidou

Martha Petrou

Haris Hadjistryllis

Nikos Kassinis

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## About the project

LIFE with Vultures is a targeted conservation project for the protection of the Griffon Vulture in Cyprus. In this four-year endeavor (2019-2023), [BirdLife Cyprus](#), the [Game and Fauna Service](#), [Terra Cypria – The Cyprus Conservation Foundation](#) and the [Vulture Conservation Foundation](#) have joined forces to tackle the main threats facing the Griffon Vulture and prevent Cyprus' most threatened bird of prey from going extinct. The project has a €1,375,861 budget and is co-funded (60%) by the EU's LIFE programme. Find out more at: [www.lifewithvultures.eu](http://www.lifewithvultures.eu)

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## 1. Summary

Breeding monitoring is conducted on an annual basis to assess the reproductive success of Griffon Vultures (hereafter ‘vultures’) in Cyprus. All known recently active vulture colonies are monitored throughout most of the year, allowing for estimation of population size as well as maintenance of a record of breeding attempts. During the last two years (2020 – 2021) all successful nests were located within the Special Protection Area “GKREMOI CHANOUTARI” (Site Code: CY4000017), although some unsuccessful nesting attempts were also recorded in Episkopi Cliffs protected area. The 2022 breeding survey confirmed three active nests (whereby an egg is laid and incubated sufficiently), one at Episkopi Cliffs area and two at SPA GKREMOI CHANOUTARI. However, the egg in Episkopi Cliffs never hatched and the two chicks that were being successfully raised by two pairs at SPA GKREMOI CHANOUTARI died in an unfortunate poisoning incident, likely along with their parents and another subadult individual. The total number of estimated fatalities for the year 2022 reached 12 individuals, of which 2 were chicks, 4 were subadults, 4 were of mature breeding age and the rest of unknown age. Despite this setback, the vulture population of Cyprus was reinforced with the release of 15 Griffon Vultures in September 2022, which were imported from Spain as part of the project LIFE with Vultures (LIFE18 NAT/CY/001018), and a further 15 individuals will be brought within February 2023 for further restocking of the population. The vulture population of Cyprus, including the released individuals from Spain, was estimated at 22 individuals by the end of 2022. Measures such as GPS tagging of vultures, patrols by anti-poison dog units and improved enforcement of laws against illegal placement of poisoned baits are currently being implemented to secure the future of the species on the island. This report gives a detailed description of Griffon Vulture breeding activities in Cyprus between the months of January to May 2022 and outlines some actions that were taken for the protection of this species under the project LIFE with Vultures.

## 2. Methodology of monitoring surveys

### 2.1. Data collection:

The 2022 breeding monitoring programme covered all known sites with recent breeding activity of Griffon Vultures *Gyps fulvus*. Data on exact locations of nests were collected and pictures were taken wherever possible to document their progress (Annex I). The Griffon Vulture breeding surveys began in early January 2022, with the winter Griffon Vulture census, when the first signs of breeding activity were recorded. Simultaneous vulture counts were made from 10 different vantage points, which cover the known feeding, breeding and roosting sites of the species. To ensure the maximum possible count, observations are combined with camera trap footage from feeding stations not covered by surveyors.

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Surveys were carried out only under favourable weather conditions (no heavy rain or fog) by experienced observers. Appropriate viewpoints were selected to minimise disturbance of the breeding pairs but to also give clear views of the nests with the use of binoculars and spotting scopes. Observations at different sites commenced simultaneously in the morning and communication between the surveyors on the movements of the vultures avoided double counts. Wing tags and rings on the individuals were noted and if possible, individuals were identified, noting down age, sex and origin of the vulture.

During the winter months, visits were carried out to estimate the vulture population size and to record early signs of breeding behaviour such as territoriality, copulation and nest-building. This period was followed by more frequent spring surveys (March – May), which covered more sites and aimed to determine active nests and closely monitor behaviour of the breeding pairs, egg incubation progress, hatching and overall health of nestlings. These visits were essential in identifying all active nests and predicting the fledging period of the chicks, when they are vulnerable to injuries, exhaustion or death. During the fledging period, the project team is alert and ready to take in any birds that may need human intervention for their survival.

### 2.2. Survey sites:

During the winter vulture breeding survey all potential breeding sites and known feeding sites were covered. These included one survey location in Episkopi, one at Sotira, one at Dora, one at Cha-Potami, one at Kelokedara, four at SPA *Gkremoi Chanoutari*, and one at Limnatis. Monitoring of sites stops after the winter census if no significant breeding activity was recorded. Visits to all potential sites narrowed down the locations of breeding activity and identified the focal areas of the monitoring survey. The 2022 spring-summer part of the breeding monitoring survey focused on the following three sites:

#### I. Episkopi Cliffs area:

Episkopi Cliffs are under the jurisdiction of the British Sovereign Base Area (SBA) and have double designation: Episkopi Special Area of Conservation - SBA/SAC/02(2015) under the Protection and Management of Nature and Wildlife Ordinance (26/2007) and as Episkopi Cliffs Special Protection Area under the Game and Wild Birds Ordinance of 2008. The topography of the area is characterised by steep calcareous sea cliffs, rising up to 250m in height (I.A.CO and BirdLife Cyprus, 2016a). Vultures have recently nested on several cliff faces of the area, with continuous records of nesting activity before the year 2015. Consequently, this site is considered critical for the reproduction of vultures on the island.

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## II. SPA *Gkremoi Chanoutari*

This site is a designated Natura 2000 Special Protected Area, named “*GKREMOI CHANOUTARI*” (Site Code: CY4000017) and is also recognised as an Important Bird Area by BirdLife International. Located south of the Paphos Forest, the area consists of a mosaic of open landscapes, forested areas, steep slopes and rocky formations. Historically, a large vulture colony was present at the site and it is a crucial feeding area for the species (I.A.CO and BirdLife Cyprus, 2016b). Over the last 20 years, three successful breeding attempts have been recorded at the site in the years 2017, 2020 and 2021, which suggests increasing importance of this area as a site for the species in Cyprus. Under the project “GYPAS” (funded by the Cross-Border Cooperation Programme Greece – Cyprus 2007-2013), an acclimatisation aviary was constructed adjacent to the site to host vultures from Greece as part of restocking efforts. A government-run vulture feeding station is also present in the area with successful breeding recorded 280m away from the station in 2020, so it is an important area for the species.

## 3. Results of Griffon Vulture status in Cyprus

### 3.1. Breeding monitoring

A total of 23 monitoring surveys were carried out in 2022 covering three locations of confirmed vulture breeding activity (Annex II). Eight of these visits were made during the winter part of the survey (January 7<sup>th</sup>, 18<sup>th</sup>, 28<sup>th</sup> and February 7<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup>, 27<sup>th</sup> and 28<sup>th</sup>) while the spring-summer part of the survey consisted on three visits in March (11<sup>th</sup>, 22<sup>nd</sup> and 31<sup>st</sup>), four in April (15<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup> and 29<sup>th</sup>) and seven in May (4<sup>th</sup>, 5<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 11<sup>th</sup>, 13<sup>th</sup> and 28<sup>th</sup>). A maximum of 16 vultures were seen across the winter part of the surveys while in spring-summer, a maximum eight individuals were spotted at any one time across surveys. Surveys were discontinued after May because of a mass poisoning incident that occurred on 3<sup>rd</sup> of May and that led to the loss of all potential fledglings.

Surveyors from the Game and Fauna Service (GFS), BirdLife Cyprus (BC), Terra Cypria (TC) as well as other experienced individuals participated in the breeding monitoring programme since a larger number of surveyors allowed for more sites to be covered simultaneously. Observers were allocated specific coordinate locations with views of potential nesting sites at distances ranging from 1km to 350m away from the nest.

In 2022, six breeding pairs were identified on three separate visits (07/01, 27/02 and 22/03) displaying territorial activity, copulating or building nests, with three pairs on SPA Gkremoi Chanoutari and three in Episkopi Cliffs. Confirmed incubation of egg was recorded at three of the nests, however, all nests failed, with the last confirmed failure on the 29<sup>th</sup> of May. Detailed report of the breeding monitoring survey for each site follows:

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- Episkopi Cliffs:

The first recorded vulture breeding attempt for 2022 in Episkopi was on the 27<sup>th</sup> of February with a GPS tagged Cypriot-born bird (colour ring code: CCT) seen with an untagged individual constructing a nest at the same location as one of the nests from previous year's breeding season (NestID 1) and displaying territoriality. On the same visit, another pair of untagged vultures were seen carrying nesting material to a new location (NestID 2). Observations from the next day (28<sup>th</sup> February) identified six vultures at the site, with individual CCT lying in NestID 1, one pair of untagged individuals copulating to the left of NestID 2 (although no activity was recorded within this nest) and a third pair of untagged vultures carrying nesting material to another third new site (NestID 3). On the 11<sup>th</sup> of March there was confirmed incubation at NestID 1, however there was no activity in the remaining two nests and were identified as failed attempts. Activity in NestID 1 was still being observed on 13<sup>th</sup> May however, the long distance from the surveyor to the nest made confirmation of the presence or absence of a chick difficult. For a few successive days, no activity at the nest was seen and to investigate further, on 29<sup>th</sup> May, a drone was used to view the nest, confirming failure of the egg as no chick had hatched.

- SPA Gkremoi Chanoutari:

- Site 1:

The first visit of the winter part of the survey at this site was conducted on 7<sup>th</sup> January with two nests (NestID 1 and NestID 2) already built and both parents present at each nest. Incubation for NestID 1 and NestID 2 was confirmed on the 28<sup>th</sup> and 18<sup>th</sup> of January respectively. On 22<sup>nd</sup> March, one chick was recorded per nest, with observations of parents feeding the chicks. Although further visits confirmed that the chicks were being fed and appeared healthy, on 4<sup>th</sup> May both chicks were confirmed dead. Concerns were raised when on the previous day a vulture (colour ring CCR – subadult) was found dead nearby, with signs of poisoning. Further observations of the nesting site reported absence of parents for both nests. One of the parents of NestID2 had been bird AAJ, which nested on SPA Gkremoi Chanoutari in 2020. A climbing team was hired to descend the cliffs and retrieve the chick carcasses. Toxicological analysis at the State General Laboratory later confirmed poisoning by methomyl as the cause of death. It can be concluded that the chicks were fed poisoned meat by their parents, who have not been sighted nor their carcasses found at the time of writing (19<sup>th</sup> December).

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➤ *Site 2:*

A visit on 22<sup>nd</sup> March recorded a freshly built nest (NestID 1). Although no birds were seen during this survey, the transmitter of a GPS-tagged bird with colour ring CAA showed frequent visits to the site during this period. Further visits confirmed presence of both parents and egg in the nest, however, on 5<sup>th</sup> May, the nest was recorded as failed since it appeared abandoned and the tagged parent had not visited the nest since 28<sup>th</sup> April.

Overall, even though three active nests with confirmed incubation and chick-rearing were identified, none successfully delivered fledglings. Three nests were abandoned likely before incubation (NestID 2 & 3 at Episkopi and NestID 1 at Site 2 in SPA Gkremoi Chanoutari), one nest abandoned after confirmed incubation (NestID 1 Episkopi), and two nests failed 6-8 weeks after chicks hatched, due to a poisoning incident.

### 3.2. Griffon Vulture population status and restocking efforts

The 2022 Griffon Vulture winter census (18<sup>th</sup> January) recorded a maximum count of 14 individuals. However, it is likely that the vultures were undercounted as no mortality incidents were recorded in 2021 (when the maximum count was 20; see 2<sup>nd</sup> annual report). Breeding activities were well underway for some pairs on this first day of the vulture survey, so the undercount may be attributed to territoriality and increased movements and range of vultures during the breeding season.

The 2022 spring census (11<sup>th</sup> May) had a very low count totalling eight individuals, likely due to the poisoning incident in May. It is estimated that 7-9 individuals (including the recovered carcasses of two chicks and one subadult) died in a mass poisoning incident, where likely a carcass of a livestock animal was used as bait.

As part of the restocking efforts under Action C.4 (“Bolster the Cyprus Population with Restocking”) of LIFE with Vultures project (LIFE18 NAT/CY/001018), 15 Griffon Vultures were transported from Spain in November 2021 and were kept in an acclimatisation aviary until their release. The release was initially planned to occur in MONTH, but due to the mass poisoning incident, it was delayed to September. Seven individuals were released on the 15<sup>th</sup> and eight on the 28<sup>th</sup> of September. Two vultures died within a few days of their release (24/09 and 03/10). All released birds were inexperienced subadults of no more than two years of age, so some post-release fatalities were expected. One vulture (colour ring code: CAR) was found drowned in the sea on 24<sup>th</sup> September, while the second (colour ring code: CAU) died from electrocution after possibly colliding with a power line next to Kouris dam on 3<sup>rd</sup> October. Despite these losses, the remaining 13 introduced individuals joined the resident vulture population and have as of the time of writing been doing well. Consequently, the estimated population of Griffon vultures by the end of 2022 numbered 22 individuals (9 local birds + 13 released from Spain). As none of the Spanish vultures are sexually mature and two existing breeding pairs were likely lost, potentially only one or two pairs are expected to be active

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during the 2023 breeding season. A further 15 Griffon Vultures will be brought from Spain (expected in January 2023) in an effort to increase the population viability of the species in Cyprus.

### 3.3. Tagging vultures with GPS transmitters

All vultures brought in from Spain were fitted with GPS transmitter tags before being released. These tags are solar-powered GPS-GSM trackers (OrniTrack-50 [www.ornitela.com/50g-transmitter](http://www.ornitela.com/50g-transmitter)) that allow for real-time monitoring of the birds. Since 2020, four vultures that were born in Cyprus were also opportunistically fitted with GPS tags either through necessary rescue and rehabilitation efforts of some individuals or through captures in a live trap. The location data collected from the tags were crucial in determining the core and home ranges of the vultures, which in turn were used to identify potentially good roosting, nesting and feeding sites as well as high-risk areas for potential poisoning and electrocution incidents. The project foresees an update on the home and core ranges of the introduced vultures to determine any changes in their movements compared to the resident population.

On 6 February 2022, the project team noticed a sudden temperature drop as well as a lack of movement recorded by the GPS transmitter (code: 190478) of the vulture with colour ring code CCN (named Nefeli). The accelerometer data confirmed that the bird was not moving for several hours during day time. Therefore, the project team immediately hired a team of professional climbers and on 9 February they searched the location where the GPS transmitter was found. Fortunately, the team located the GPS transmitter on cliffs used for perching by vultures within the Special Protection Area “GKREMOI CHANOUTARI” (Site Code: CY4000017). From the state of the device, it was concluded that the bird managed to remove the transmitter, which was placed on the individual in 2019. This transmitter was refurbished and reused, placed on an individual brought from Spain with colour ring code CAV.

In September, a Cyprus-born bird was captured in a live-trap by the Department of Forests. On 8 September the bird was ringed with the colour code CAC and fitted with a GPS transmitter (code: 223254) before being released. A total of 16 birds were carrying GPS transmitters by the end of 2022, allowing for close monitoring of the majority of the population.

All vultures to be brought from Spain in 2023 will be fitted with GPS transmitters before their release, while a further five tags are aimed to be placed on any Cyprus-born individuals that are captured either for rehabilitation or in the live capture trap.

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### 3.4. Mortality Incidents

Poisoned baits are frequently placed around the island due to farmer-predator, farmer-hunter and hunter-hunter conflicts. Most poisoned baits placed by farmers in the form of meat pieces or carcasses target foxes and hunting dogs that disturb or kill livestock. Hunters place poison to deter other hunters from visiting certain areas with their hunting dogs which decreases competition for the individuals that placed the poison. Mitigating and preventing the use of poisoned baits is a key focus of the LIFE with Vultures project. In April 2022, two anti-poison dog units (ApDUs) operated by the GFS have been deployed to patrol countryside areas and to respond to information on bait placement or poisoning incidents. In 2022, there were 50 reports of poison-related incidents, of which 40 yielded evidence of a poisoned animal, poisoned bait or both. In 10 cases, poisoned animals (including domestic and wild) and poisoned baits were found, in 11 cases only poisoned animals were found, while in the remaining 19 cases only poisoned baits were found (see 1<sup>st</sup> Annual Report on Anti-poison Dog Units for details). The presence of the ApDUs allowed for highly effective detection of poisons and helped reduce the risk of wildlife poisoning while potentially deterring criminal acts of bait placement.

On April 4<sup>th</sup>, a mortality incident was recorded involving a three-year old, subadult vulture with the colour ring code CCN. As mentioned above (Section 3.3. Tagging vultures with GPS transmitters), this individual removed its GPS tag a few months before the mortality incident so the project team only became aware of its death when it was found under an electricity pylon. An autopsy was performed by a veterinarian and the carcass was estimated to be 2-3 days old, while the cause of death was determined to be electrocution.

Including the two deaths of the released vultures from Spain (see Section 3.2. Griffon Vulture Population Status and restocking efforts), the estimated total number of vulture fatalities in 2022 reached 12 individuals. Overall, two individuals were lost to electrocution, one to drowning and an estimated maximum number of nine vultures lost to a mass poisoning incident.

Another mortality incident was recorded on May 3<sup>rd</sup> when one of the GPS-tagged individuals (colour ring code: CCR) was found dead and necropsies proved poisoning. From this poisoning incident, it is estimated that 7 – 9 vultures were lost. This incident was located very close to the SPA Gkremoi Chanoutari nesting site so it is suspected that the two breeding pairs active at the site fed on the same poisoned carcass as CCR and proceeded to feed the chicks with it, resulting in their death. The two chicks were retrieved by a team of professional climbers and sent to the Veterinary Services for necropsy and then samples from the three carcasses were sent to the State General Laboratory for toxicological analysis. The toxicological analysis detected the presence of the substance methomyl, an illegal pesticide which acts rapidly and often leads to fatalities once ingested. No carcasses of the two breeding pairs were found but none of these individuals have been sighted since the incident.

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## 4. Conclusions

Although 2022 started very well with three successful nests, the poisoning incident of 3 May was catastrophic for the population. Overall, in 2022 the resident population of vultures suffered a decline, as no nests successfully produced fledglings and several individuals were lost to a poisoning incident. Unfortunately, the two breeding pairs that succeeded in producing nestlings this year and in previous years were both likely fatally poisoned since they have not been sighted since the poisoning incident. The loss of reproductively active individuals reduces the probability of reproductive success in the 2023 breeding season. However, 13 vultures were successfully introduced to the resident population, with plans to reinforce the population with a further 15 individuals with the aim to increase the viability of the species in Cyprus. However, from the 13 restocked birds from Spain, 12 are first year birds and one is a 2<sup>nd</sup> year bird, therefore it is not expected that these individuals will become reproductively active for another 2-3 years. In total, it is estimated that by the end of 2022, 22 Griffon Vultures are present in Cyprus out of which 5 - 6 are likely mature individuals.

The project team is now better equipped to respond to potential deaths or serious harm to Griffon Vultures, as 16 out of the 22 vultures are tagged with GPS transmitters and therefore each tracked individual is closely monitored. Finally, the presence of two Anti-poison Dog Units significantly improved poison bait detection rates and therefore the use of poison, and therefore it is expected that the impact of poison bait use will be substantially reduced.

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