# Egyptian vulture (*Neophron percnopterus*)

# 2010 Breeding Season Report- Beypazarı, Turkey


Doğa

December 2010

Cover photograph: Egyptian vulture taking off in Beypazarı dump site, photographed by Kadir Dabak.

**Citation**

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**Summary**

The Egyptian vulture (EV) has very rapidly become a species of major global concern, due to rapid declines throughout its range and its consequent up listing from Least Concern to Endangered in 2007. The European population is a significant part of the world total but is declining very rapidly in almost all countries. A very large proportion (more than 50%) of the species' European population occurs in Turkey, where there has been no research and monitoring programmes to date.

The study took place between March 14 and August 26 in a 400 $km^2$ area around Beypazarı, Turkey. Egyptian vultures (*Neophron percnopterus*) were counted weekly at a communal dump site near Beypazarı city center and their nests were monitored in the region around Beypazarı. Due to bureaucratic problems with the Ministry of Environment and Forest, permission for ringing Egyptian vultures was not granted to our team this year. Also after thorough investigation of the cliffs where birds nest by professional climbers it was decided that climbing to most of the nests was not safe. Through the study period no Egyptian vulture carcass was found.

Maximum numbers of Egyptian vultures at the dump site were observed in the months of June and July with 47 and 49 adults, respectively, and 13 immature in both months. Juveniles (3 individuals) were only observed in August.

37 territorial pairs were observed establishing territories in April in a 400 $km^2$ zone (Kirmir Valley and nearby areas). A total of 19 nests were found, first being on April 30 and the last on June 21. Every nest found was monitored regularly, between 5 to 9 times depending on the date of first observation, throughout the study period. The nests of the other 18 pairs were not found and in 5 of those the pair was observed in a period when at least one of them should be in the nest incubating (between May 28 and June 21), suggesting that they were not successful. However, since their nests were never found they were not assessed as failed breeding. The status of the last 13 pairs' is unknown.

2 of the nests were found in deep cavities in cliffs, too deep for proper monitoring. Even though we were able assess that the nests were active, after the incubation period we were unable determine the nests' status. The remaining 17 nests produced 28 chicks, 11 of them had siblings and 6 of them had only one chick. By the time of last nest observation (August 13) 9 juveniles had already fledged. Since the other chicks were also grown to near adult proportions, we decided that every nest was successful.

Our data clearly shows that the area around Beypazarı has a very dense population of Egyptian vultures. This study is the first year inventory of this population. Further data are needed to determine a more reliable breeding and nesting success since this study can only provide "apparent nest success". The communal dump site might have a positive effect on the species' nest success, but its irregular management also poses a danger to the Egyptian vultures. The implementation of a conservation program for the species, including the management of the dump site, is strongly recommended.

**Results and Overview**

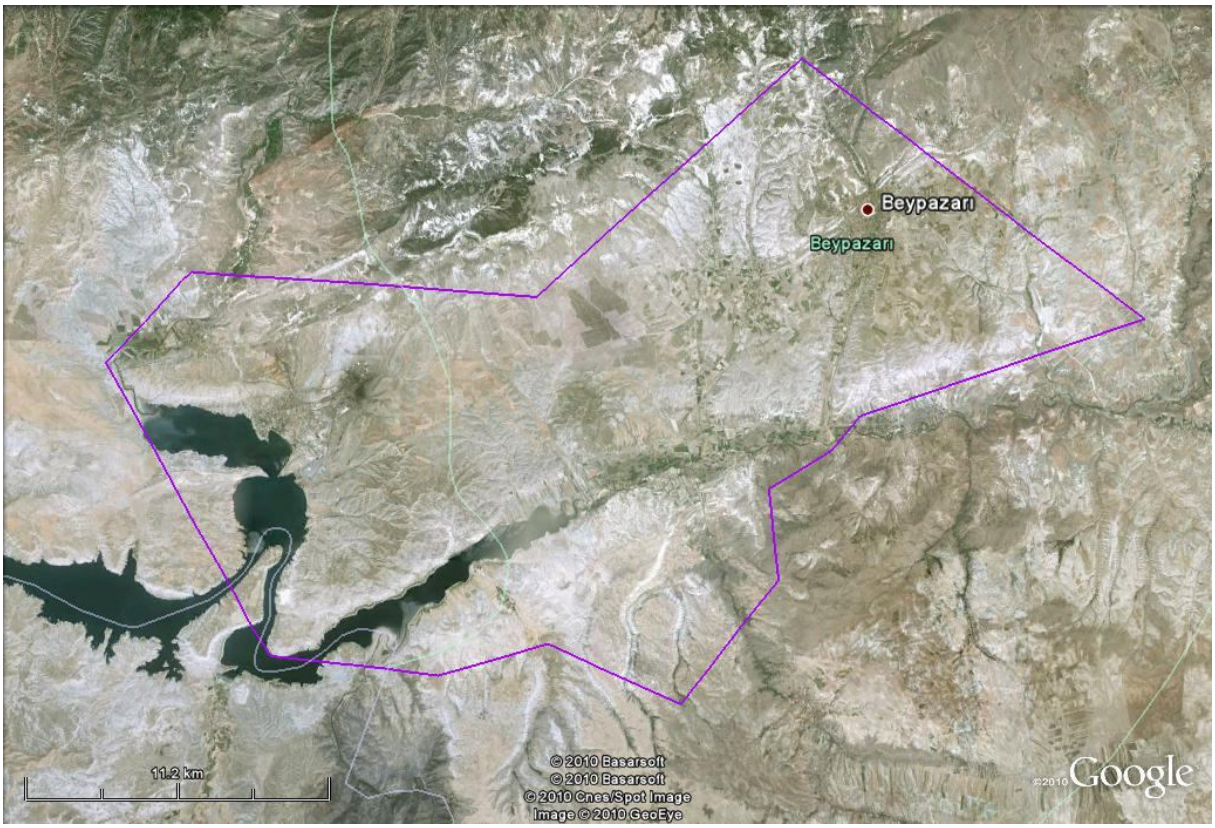
Project objectives and their implementation details and results are as follows:

**Objective 1. Finding as many nests as possible early in the season**

We searched for nests in the south western part of Kirmir valley which is both an Important Bird Area (IBA) and Key Biodiversity Area (KBA) (1) (Map 1 and Map 2). Beypazarı is in the northern part of this valley. The study area in total was 400 $km^2$.


**Map 1.** Kirmir valley and Beypazarı from "Türkiye'nin Önemli Doğa Alanları"

In the first week of April, with the help of a Bulgarian expert on Egyptian Vultures (Ivaylo Angelov), we found 37 territorial pairs in the study area (map 2). The effort to find nests prolonged until June 21. After this date field studies were conducted only to monitor known nests. 18 field days were spent for nest searching between April 30 and June 21. Every territory was observed for at least an hour, mostly more. Out of 37 pairs we were able to find 19 active nests. 14 of these nests were in incubation period when we found them and the other 5 had already chicks. We were not able to find the nests of the other 18 pairs. 5 of these pairs were observed flying together between the dates of May 28 and June 21. It is possible that if a pair or an individual of that pair arrives late from migration, that pair might lay eggs later than usually expected. But all of these 5 pairs were observed in the first week of April so we believe that either their breeding failed or they never laid eggs since at least one parent should have been incubating by the time we observed them in June. Because of the fact that we did not find the nests of these 5 pairs they were not assessed as failed and were not included in the calculations of nesting success. The status of the other 13 pairs remained unknown and they were not regularly observed after June 21.




**Map 2.** Study area (purple lines) in relation to Beypazarı

### Objective 2. Monitoring known nests to try to quantify breeding success

We monitored all known nests usually every 10-14 days. Nest monitoring began as soon as we found the first nests of the study and continued until August 13. Between April 30 and June 21 nest monitoring and nest finding were conducted in parallel. In total 31 field days were spent for nest monitoring. Nests were usually monitored until nest status at the time of observation was clearly assessed. Nests in the incubation period were monitored quickly but after hatching, more time (0,5-1 hour) was spent on monitoring to observe chicks.

19 nests were monitored regularly between 5 to 9 times depending on the date of the first observation. We were not able to assess the status of 2 nests after hatching since nests were in deep cavities. 28 juveniles were counted in 17 nests. 11 of them had 2 chicks while 6 of them had only one chick.

Definitions in "Raptor Research and Management Techniques, 2007" (2) were used to quantify productivity and nesting success. A successful nest or a pair is defined as "one in which at least one young reaches minimum acceptable age for assessing success". By the last field trip for nest monitoring (August 11-13) 9 juveniles were already fledged (6 of them were observed flying, 3 of them were not in the nest or in its close proximity) and the other juveniles were grown into near adult proportions so we decided that all 17 nests were successful. Nesting success is calculated as the ratio of successful pairs to the laying pairs or territorial pairs whereas productivity is usually calculated as the ratio of the number of

juveniles from successful nests to territorial pairs. For both the nesting success and productivity we decided to use only 17 laying pairs since we could not assess the status of the other 18 pairs and 2 nests clearly. So 5 pairs which probably failed or did not lay, 13 pairs with unknown status and 2 nests with unknown status in post hatching and post fledging period were not included in the calculations. Table 1 summarizes the 2010 breeding season of the Egyptian vultures in the study area.

**Table 1.** Pair and nesting status and breeding performance of Egyptian vultures in the 2010 breeding season in Beypazarı, Turkey

| Begining of the Breeding Season | End of the Breeding Season | | | | | |
|---|---|---|---|---|---|---|
| Territorial Pairs | Pairs with Unknown Status | Pairs that Failed or did not Laid Eggs | Found Nests (Known Breeding Pairs) | Found Nests with Unkown Status | Nesting Success (per laying pair) | Productivity(per laying pair) |
| 37 | 13 | 5 | 19 | 2 | 1.0 (17/17) | 1,65 (28/17) |

**Objective 3. Regular counts at the local rubbish dump to try to establish population age structure**

The general wastes from Beypazarı town are dumped into the communal dump site at the edge of town. A group of self-employed, subsistence workers then pick through the rubbish to collect mostly plastics and paper for recycling. Quite a lot of organic waste (carcass remains and eggs) is dumped at the site from nearby slaughterhouses and chicken farms. The garbage workers from the Municipality of Beypazarı dig big pits for organic waste and these pits are usually left open for vultures and other birds alike to feed. After a few days the old pits are closed and new ones are opened for the newly arrived organic waste. These pits along with other organic remains spread around the dump site are probably the main reason for the regular, permanent occurrence of big numbers of Egyptian vultures (and other species) at the rubbish dump.

In this study we tried to assess the importance of this dump site to the population of Egyptian vultures in Kirmir Valley and Beypazarı by counting the number of Egyptian vultures on a weekly basis. Counts started between 6:30 and 7:30 am and lasted for 2-2,5 hours. 5 independent counts were made per session, usually with 30-40 minutes intervals. Following Margalida and Boudet (3) 3 age groups were defined: juvenile, immature (second and third winter), adult (≥fourth winter) (aging guide by Clark and Schmitt (4) was used). Behavior of the birds at the time of counting was also defined, either as perching, feeding or flying. The pits containing organic waste are congregated in a specific location at the dump site and there are some low cliffs in the proximity. Birds around the pits and other garbage were counted as feeding, even if they were not actively feeding, while birds perching on the cliffs were counted as perching. Flying birds were only counted if a large group of Egyptian vultures flew long periods of time soaring higher. In other cases, most of the birds flew just to change their perching cliff or to feed on garbage. We did not count these short periods of flight and waited for those birds to land before counting.

It is important to understand both the potential and the dynamics of a communal feeding place such as the Beypazarı dump site. Monthly maximum counts give us an idea of how important the dump site can be in relation to season. Figure 1 shows the monthly variation of maximum counts of Egyptian vultures depending on the age classes. Maximum counts in the 3 age classes in the given month are independent from each other. For example in June maximum count for adults was on June 28 while maximum count for immature was on June 9.

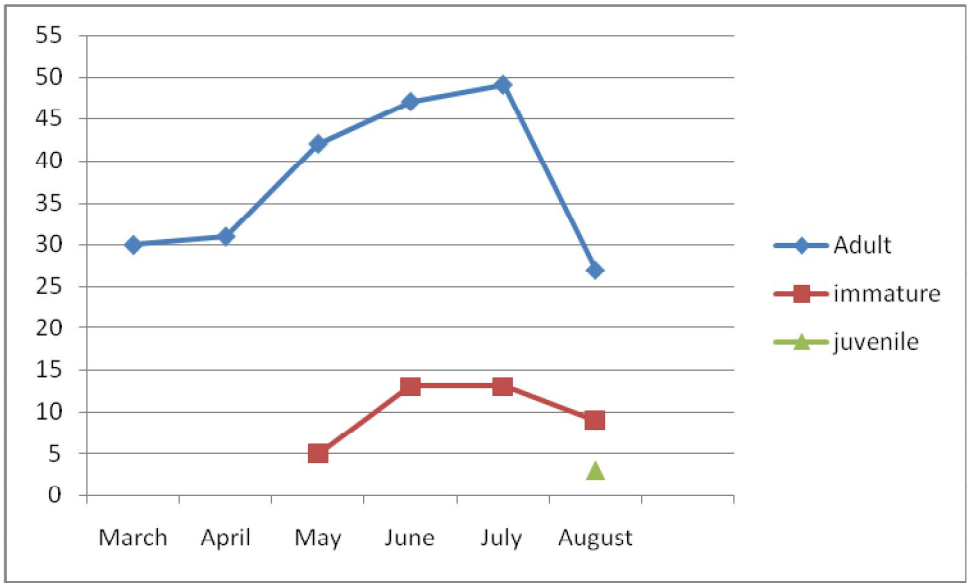



**Figure 1.** Monthly variations in maximum numbers of Egyptian vultures depending on the age class at the Beypazarı dump site

As expected, immatures arrived to the area in the end of April or beginning of May and their numbers progressively increased until June or July. The apparent increase in the numbers of adults in May, June and July could be caused by the late arrivals of non breeding-unpaired individuals. June and July also correspond to the egg hatching date. After eggs have hatched pairs have more time to feed and they spend more time foraging thus the corresponding increase in the numbers at the dump site. The decreasing numbers in August was unexpected but probably caused by some operational changes at the dump site since the number of pits dug decreased and plastic wastes were also dumped to the places where normally vultures feed. The result was probably less organic waste than other months, inducing a decrease in the numbers of the vultures.

While the maximum count for a given age class in a specific month might define the site's maximum potential, the weekly variations in the numbers of Egyptian vultures at the Beypazarı dump site (shown in figure 2) shows us that the availability of food at the site (or at least its attraction) varies considerably from week to week.

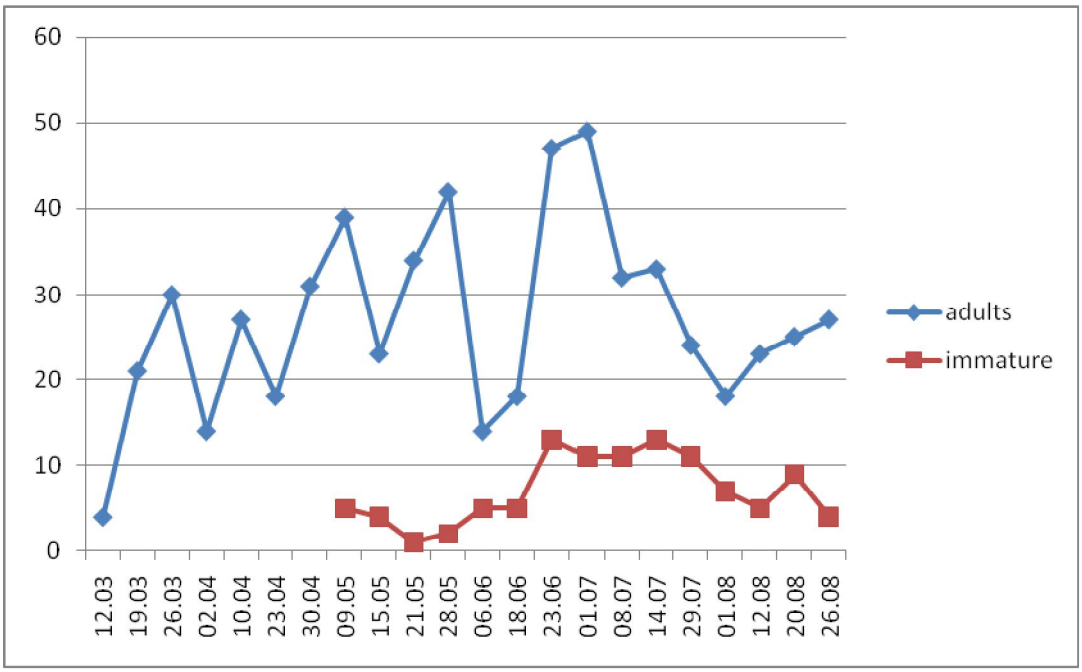



**Figure 2.** The weekly variations in the numbers of Egyptian vultures depending on the age class at the Beypazarı dump site

## Conclusions and Recommendations

We found 37 territorial pairs in a 400 km$^2$ area, which suggests that the Egyptian vulture population in Kirmir Valley and adjacent areas is large and dense (table 2). It is therefore important to assess the current status and trends of such a population. Nesting success and productivity measured in this study were very high, but it only corresponds to the apparent nest success so the data set needs to be considerably expanded and more nests found at the beginning of the breeding season to get a more realistic estimate of nesting success – nevertheless these figures are very positive and great news.

**Table 2.** Number of Egyptian Vulture territorial pairs in some of the local populations in Europe.

| Region | Territorial Pairs | Source |
|---|---|---|
| Italian Peninsula | 9 | Liberatori, 2001(3) |
| Canary Islands | 20 | Donazar, 2002(4) |
| Sicily | 8 | Sara, 2009(5) |
| Castellon,Spain | 12 | Ripolles, 2006(6) |
| Beypazarı | 37 | This study, 2010 |
| Bardenas Reales Natural Park | 26 | Avizanda, 2009(7) |
| Macedonia | 25-27 | Velevski, 2010(pers.comm) |
| Northern Bulgaria | 10 | Angelov, 2009(8) |
| Pyrénées-Atlantiques | 40 | Kobierzykcki, 2010(9) |

In the next field seasons we suggest that a lot of fieldwork takes place between 10$^{th}$ of April and 10$^{th}$ of May, to find as many nests as possible during the earlier phases of pair establishment and nest building - because after the beginning of incubation nest finding becomes too difficult and time consuming. Most of the pairs nest in deep cavities and when they are incubating you can sometimes see only a portion of their body thus presenting a real challenge in finding and identifying the nests.

The communal dump site in Beypazarı presents both an opportunity and a danger to the species using it. Its semi-regular organic waste and the Municipality practices (digging pits for organic waste) is surely providing good feeding opportunities for the population of Egyptian vultures in the area. But its irregular management as well as no control mechanism for dump materials also causes a potential threat - it might only be a matter of time before some farmer, villager etc. dumps there a poisoned dog, cat, fox etc. outside the authority of the Municipality.

It is also important to note the big variations in counts of Egyptian vultures at the dump site. Within only a 5 day period the adult numbers can go as high as 48 (23.06, figure 2) and then as low as 18 (18.06, figure 2). The factors causing this variation should be investigated thoroughly but the main reason is probably the amount of organic waste present at the time of observation.

## Referances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