

## A PRELIMINARY OVERVIEW OF MONITORING FOR RAPTORS IN GREECE

### Predhodni pregled monitoringa populacij ptic roparic v Grčiji

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One of the fundamental concerns in raptors' conservation is the monitoring of their populations (ANDERSEN 2007). A long-term monitoring of raptor populations can help to identify early threats either concerning the birds or their habitats, and thereby is a useful tool for establishing adequate conservation measures (WITMER 2005). In most ornithological advanced countries, monitoring programmes have started during the last few decades.

On the other hand, although many scientists and ornithologists have appeared in Greece during the last two decades, there is no comprehensive scheme for monitoring the populations of birds of prey as yet. Greece, due to its position among three continents and due to its variable climate, which in turn affects the vegetation and habitats, supports diverse raptor communities. From a total of 442 birds that occurred in the country, 38 (8.6%) species are diurnal raptors of which 24 (63.2%) breed here (HANDRINOS 2009). In addition, eight out of nine owls breed in the country. Both in the mainland and on the islands, 4 vultures, 6 eagles, 3 buzzards, 3 hawks, 1 kite, 1 harrier and 6 falcons breed as well. However, except for the Black Vulture *Aegyptius monachus* in Dadia forest in north-eastern Greece and for the Griffon Vulture *Gyps fulvus* and the Lammergeier *Gypaetus barbatus* in Crete, there is no other long-term national monitoring programme in progress in the country.

The aim of this study was to present briefly an overview of monitoring for raptors in Greece.

#### Main players

The main actors in monitoring raptors' population and distribution in Greece are the Universities, mainly the Aristotle University of Thessaloniki in northern Greece, the University of Patras in Peloponnesus, and the Natural History Museum of Crete University in southern Greece. Furthermore, non-governmental organizations (NGOs) are activated in monitoring

programmes, mainly under LIFE projects, and in a few cases the Forestry Service has collaborated in these projects. Recently, the authorities of the 27 National Parks are also responsible in monitoring all biotic (including raptors) and abiotic features within their areas.

Unfortunately, only in a few occasions foreign ornithologists have collaborated in monitoring programmes. These ornithologists originated from Spain, Austria, Germany, England and Belgium, and most of these scientists were volunteers working during the data collection.

The data collected from those projects were used by the ornithologists either for publications in scientific journals or for formulating conservation recommendations to the Greek government.

#### National coverage

Information concerning raptor population across the country is limited for a few regions and only for specific periods of time. The first monitoring programme started during the end of the 1980s in Dadia forest (north-eastern Greece), concentrating on the Black Vulture population recovery after the establishment of the first feeding station (VLACHOS *et al.* 1999). Today, the authority of the National Park with the help of the WWF Greece is continuing the monitoring programme (POIRAZIDIS 2003, POIRAZIDIS *et al.* 2011). Another monitoring project for the Griffon vulture and the Lammergeier in Crete has been run by the Natural History Museum of Crete University since the mid-1990s (ongoing; XIROUCHAKIS & NIKOLAKAKIS 2002). The Eleonora's Falcon *Falco eleonorae* monitoring project was carried in Dionysades island complex in Crete by Dr D. Ristow and Prof M. Wink (Heidelberg University) from 1965 to 2001 (e.g. RISTOW *et al.* 1989). In addition, two monitoring projects were carried out in the country (for the Lesser Kestrel *F. naumanni* during 2001–2002, and for the Eleonora's Falcon during 2005–2006); both were realized in a short period of time. However, there is no national integrated monitoring programme for raptors in Greece.

Monitoring of migrating raptors was established at several sites (e.g. Antikythira Island, Mount Olympus, etc.) in the last few years with the help of Italian ornithologists (LUCIA *et al.* 2011, PANUCCIO *et al.* 2012).

After the first meeting of ornithologists that took place in Aegina Island in 2002, a web-based network has been established in order to exchange information among scientists, concerning mainly the vultures' population, distribution, and threats.

### Key species and key issues

In general, the key species addressed by monitoring in Greece are the four vultures, specifically the Black Vulture, the Griffon Vulture the Lammergeier and the Egyptian Vulture *Neophron percnopterus*, although two falcon species, the Eleonora's Falcon and the Lesser Kestrel, were also considered (DIMALEXIS *et al.* 2008, VLACHOS *et al.* 2004, respectively). Especially for the Lesser Kestrel, a number of colonies have been systematically monitored since 1998, including the reproductive success and process, radio-telemetry, feeding ecology, habitat use and foraging ecology. A further ringing programme for juvenile Lesser Kestrels was initiated in 2009.

The key issues that were addressed by the monitoring programmes were to census the populations, identify the reasons for their population decline, establish conservation measures, and recommend their protection and recovery to the government.

### Strengths and weaknesses

The main weaknesses of monitoring for raptors in Greece are (1) the cost of this action, (2) the large partitioning of the country, and (3) the low level of public awareness for birds. Greece covers ca. 132,000 km<sup>2</sup> and consists of thousands of small and large islands covering 25,000 km<sup>2</sup> (18.9%). Thus, this makes a national monitoring scheme for raptors difficult and costly. However, there are strengths in the monitoring of some raptors, such as the recovery of the Black Vulture population in Dadia forest, and the improvement of the breeding colonies of the Lesser Kestrel in Thessaly.

Although the data concerning most of raptors in Greece are patchy, information on their distribution and population is limited and has not been obtained from a systematic monitoring programme (MEYBURG & MEYBURG 1987, HANDRINOS & AKRIOTIS 1997). Furthermore, except from a few sporadic observations there are no data for some species such as the Sparrowhawk *Accipiter nisus*, the Levant Sparrowhawk *A. brevipes*, the Peregrine Falcon *F. peregrinus*, and the Hobby *F. subbuteo*.

Therefore, the knowledge from international experts would be beneficial for the implementation of a realistic monitoring programme across the country.

### Priorities, capacity-building

A fundamental priority to strengthen monitoring for raptors in Greece is the development of an atlas for birds of prey, which will describe accurately their status, distribution and population estimates. Species-specific long-term data are also important for the

continuation of threatened and/or charismatic raptors, such as Black Vulture, Egyptian Vulture, Lammergeier, Lesser Kestrel and Eleonora's Falcon. Furthermore, we need to shift from short-term and local projects to an integrative long-term monitoring programme under the auspices of the Institutes.

Although there are some ornithologists and scientists across the country, the main capacity-building needs are to strengthen a realistic monitoring programme are personnel, and a satisfactory budget to address the specificities throughout Greece.

### References

- ANDERSEN, D.E. (2007): Survey techniques. pp. 89–100 In: BIRD, D.M. & BILDSTEIN, K.L. (eds.): Raptor Research and Management Techniques. – Hancock House, Surrey.
- DIMALEXIS, A., XIROUCHAKIS, S., PORTOLOU, D., LATSOUDES, P., KARRIS, G., FRIC, J., GEORGIAKAKIS, P., BARBOUTIS, C., BOURDAKIS, S., IVOVIČ, M., KOMINOS, T. & KAKALIS, E. (2008): The status of Eleonora's Falcon (*Falco eleonora*) in Greece. – Journal of Ornithology 149 (1): 23–30.
- HANDRINOS, G. (2009): Birds. pp. 213–354 In: LEGAKIS, A. & MARAGOU, P. (eds.): [The Red Book of Endangered Animals in Greece.] – Hellenic Zoological Society, Athens. (in Greek)
- HANDRINOS, G. & AKRIOTIS, T. (1997): The Birds of Greece. – Christopher Helm, London.
- LUCIA, G., AGOSTINI, N., PANUCCIO, M., MELLONE, U., CHIATANTE, G., TARINI, D. & EVANGELIDIS, A. (2011): Raptor migration at Antikythira, in southern Greece. – British Birds 104 (5): 266–270.
- MEYBURG, B.-U. & MEYBURG, C. (1987): Present status of diurnal birds of prey (Falconiformes) in various countries bordering the Mediterranean. – Ricerche Biologica Selvaggina 12, Suppl.: 147–152.
- PANUCCIO, M., AGOSTINI, N. & BARBOUTIS, C. (2012): Raptor migration in Greece: a review. pp. 16–17 In: Proceedings of the 2<sup>nd</sup> Italian Conference on raptors, October 2012, Treviso.
- POIRAZIDIS, K. (2003): [Dadia-Lefkimi-Soufli forest reserve, diurnal raptor assemblages. Status report of raptor species populations.] – WWF Greece, Athens. (in Greek)
- POIRAZIDIS, K., SCHINDLER, S., KAKALIS, E., RUIZ, C., BAKALOUDIS, D.E., SCANDOLARA, C., EASTHAM, C., HRISTOV, H. & CATSAKORAKIS, G. (2011): Population estimates for the diverse raptor assemblage of Dadia National Park, Greece. – Ardeola 58 (1): 3–17.
- RISTOW, D., SCHARLAU, W. & WINK, M. (1989): Population structure and mortality of Eleonora's Falcon (*Falco eleonora*). pp. 321–326 In: MEYBURG, B.-U. & CHANCELLOR, R.D. (eds.): Raptors in the modern world. – World Working Group on Birds of Prey, Berlin.
- VLACHOS, C.G., BAKALOUDIS, D.E. & HOLLOWAY, G.J. (1999): Population trends of Black Vulture *Aegypius monachus* in Dadia Forest, north-eastern Greece following the establishment of a feeding station. – Bird Conservation International 9 (2): 113–118.

- VLACHOS, C.G., BAKALOUDIS, D.E. & CHATZINIKOS, E. (2004): Status of the Lesser Kestrel *Falco naumanni* in Thessaly, Central Greece. pp. 731–736 In: CHANCELLOR, R.D. & MEYBURG, B.-U. (eds.): Raptors worldwide: proceedings of the 6<sup>th</sup> World Conference on Birds of Prey and Owls, 18–23 May 2003, Budapest, Hungary. – World Working Group on Birds of Prey and Owls, Berlin & MME/BirdLife Hungary, Budapest.
- WITMER, G.W. (2005): Wildlife population monitoring: some practical considerations. – *Wildlife Research* 32 (3): 259–263.
- XIROUCHAKIS, S. & NIKOLAKAKIS, M. (2002): Conservation implications of the temporal and spatial distribution of the Bearded Vulture *Gypaetus barbatus* in Crete. – *Bird Conservation International* 12 (3): 211–222.

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