

A PRELIMINARY OVERVIEW OF MONITORING FOR RAPTORS IN ITALY

Predhodni pregled monitoringa populacij ptic roparic v Italiji

ARIANNA ARADIS¹ & ALESSANDRO ANDREOTTI²

¹ Università degli Studi di Palermo, Dipartimento di Scienze Agrarie e Forestali, Lab. Zoologia applicata, V. le Scienze 13, IT-90128 Palermo, Italy, e-mail: arianna.aradis@unipa.it

² ISPRA - Istituto Superiore per la Ricerca e la Protezione Ambientale, Via Cà Fornacetta, 9, IT-40064 Ozzano dell'Emilia, Bologna, Italy, e-mail: alessandro.andreotti@isprambiente.it

Owing to its great latitudinal extension and environmental heterogeneity, Italy hosts a relatively large number of birds of prey. Considering both diurnal and nocturnal species, 47 taxa are known to occur regularly in the country, 31 of which breed here, while two have gone extinct as breeders (Table 1). Furthermore, twice a year Italy is reached by a large number of migrants on their way between Europe and Africa. Big concentrations of migrating raptors occur in some important bottlenecks (e.g. Marettimo Island, Messina Strait, Monte Conero Promontory, Monte Beigua).

Table 1: Number of raptor species occurring in Italy

Tabela 1: Število vrst ptic roparic, ki se pojavljajo v Italiji

Family/ Družina	No. of all species/ Št. vseh vrst	No. of breeding species / Št. gnezdečih vrst
Accipitridae	27	15
Falconidae	10	7
Strigidae	10	9

On a national scale, reviews on the status of raptors were published in 1992 (BRICHETTI *et al.* 1992) and 2003 (BRICHETTI & FRACASSO 1993) for diurnal species and in 2006 (BRICHETTI & FRACASSO 2006) for owls. Among the species nesting in Italy, 17 are classified as Species of European Conservation Concern – SPECs (BIRDLIFE INTERNATIONAL 2004), three are included in the IUCN Red List (IUCN 2012), while four are Critically Endangered (CR) according to the Red

List of the Italian Breeding Birds (PERONACE *et al.* 2011). To promote the conservation of some of the most endangered species, the Italian Ministry for the Environment issued the national action plans for the Lanner Falcon *Falco biarmicus feldeggii*, the Eleonora's Falcon *F. eleonorae* and the Egyptian Vulture *Neophron percnopterus* (ANDREOTTI & LEONARDI 2007 & 2009, SPINA & LEONARDI 2007). A regional action plan has been drafted for the conservation of the Griffon Vulture *Gyps fulvus* in Sardinia (SCHENK *et al.* 2008). Monitoring is currently carried out by different actors and with different aims, especially to evaluate trends of common species and species of conservation concern.

Main players

In Italy, many actors are promoting programmes for raptor monitoring:

- State Forestry Corp (CFS),
- Departments of several Universities (e.g. Milano, Palermo, Pavia, Urbino),
- Institute for the Environmental Protection and Research – ISPRA,
- National Parks (e.g. Aspromonte National Park; Stelvio National Park) and other protected areas instituted by national or regional laws,
- Natural History Museums (e.g. Tridentine Museum of Natural Sciences),
- NGOs (ALTAURA – Associazione Tutela Uccelli Rapaci e loro Ambienti; Legambiente; LIPU – Lega Italiana Protezione Uccelli, BirdLife International partner in Italy; MEDRAPTORS – Mediterranean Raptor Migration Network; Ornithologica; WWF),
- Regional Administrations.

Co-operation has been promoted with foreign ornithologists to study vulture populations and raptor wintering and migration. Switzerland, Austria and France are partners in the “International Bearded Vulture Monitoring” (IBM) project to follow the birds’ movements across country borderlines. A tight collaboration with Slovenian and Croatian ornithologists is currently in progress within the framework of the Griffon Vulture monitoring programmes in the eastern Alps. Since 2011, Italy has been involved in the European census of the wintering Red Kite *Milvus milvus*, a project coordinated by LPO (Ligue pour la Protection des Oiseaux), France. Moreover, collaboration has been established with Spanish researchers to study the migration of the Short-toed Eagle *Circus gallicus* through satellite tracking technology (University of Alicante) and the Black Kite *M. migrans* (Doñana Biological Station and CSIC).

The Italian Ministry for the Environment requires monitoring data in order to report on the status of protected species according to the Birds Directive, as well as to designate and manage Special Protection Areas (SPAs) and Important Bird Areas (IBAs).

Other frequent users of the data obtained from raptor monitoring are: (1) Co-ordinators of reintroduction/restocking programmes to evaluate the status of the new established populations and to formulate management decisions; (2) National Parks to manage land use (e.g. presence of Goshawk *Accipiter gentilis* and forest management plans) and to stipulate conservation actions; (3) Developers and advisors of the Environmental Impact Assessment (EIA) procedures: Regional Offices to assess the impact of local projects (wind farms, regional motorways etc.) and the Commission for National Impact Assessment of the Ministry for the Environment to assess the impact of major projects (e.g. bridge over the Messina Strait, motorways).

National coverage

Italy still lacks national coordination for raptor monitoring. Some efforts have been made to promote co-operation among groups working on the same species, to standardize monitoring protocols and to assess the size of the breeding populations (e.g. ALLAVENA *et al.* 2006, MAGRINI *et al.* 2007). A national coordination for the Lanner Falcon was established in the 2003–2004 breeding seasons to acquire relevant information for the Italian action plan (ANDREOTTI & LEONARDI 2007, ANDREOTTI *et al.* 2008). In the Alps, a network for vulture monitoring was promoted in 2008 by the Lombardy Region, Stelvio National Park and Alpi Marittime Natural Park (RIMANI project). Aims of this network are to follow and study dynamic population of re-introduced individuals of Lammergeier *Gypaetus barbatus* and to observe and record other vulture species which are slowly colonizing the Alps (Griffon Vulture, Black Vulture *Aegypius monachus*) or occasionally occurring (Egyptian Vulture). There is informal national coordination for monitoring the raptor migration (Migrans project), supported by a group of people depending on different organisations (NGOs, Parks).

The spatial coverage of monitoring depends on the species themselves. For some of them (e.g. Golden Eagle *Aquila chrysaetos*, Peregrine Falcon *F. peregrinus*, Griffon Vulture), comprehensive monitoring is being implemented all over the country. In some areas, monitoring projects have been carried out intensively for many years (e.g. FASCE *et al.* 2011). In other parts of the country, the knowledge of raptor populations is

still scarce (e.g. Calabria). The monitoring is generally done at the local or regional levels and it is quite patchy across Italy. In some regions, atlases of breeding raptors have been recently published following standardised methods (ARADIS *et al.* 2012).

Counts of migrating birds of prey have been carried out mostly in the last two decades both during post- and pre-breeding migration periods in several bottlenecks (mountain passes, promontories, small islands and straits) to describe flyways and movements strategies (e.g. PANUCCIO 2011). Some of this research work has been the result of joint efforts based on simultaneous observations at different watchpoints (e.g. AGOSTINI 2002, AGOSTINI *et al.* 2002). In recent years, satellite telemetry has been used to carry out detailed studies on migration (e.g. MELLONE *et al.* 2011).

Key species and key issues

Monitoring activities are carried out in different periods of the year, addressing different target species. In the breeding period, the species like Golden Eagle, Bonelli's Eagle *A. fasciata*, Peregrine Falcon, Lanner Falcon, Lesser Kestrel *F. naumanni*, Eleonora's Falcon, Egyptian Vulture, Griffon Vulture and Lammergeier receive fairly solid coverage across their entire breeding range. Red Kite, Marsh Harrier *Circus aeruginosus*, Montagu's Harrier *Circus pygargus*, Eagle Owl *Bubo bubo* and Tengmalm's Owl *Aegolius funereus* are monitored only on a local scale, while Buzzard *Buteo buteo* and Kestrel *F. tinnunculus* are monitored within the framework of the national common bird census project to evaluate the breeding population trends (*Progetto Mito*; RETE RURALE NAZIONALE & LIPU 2012).

In the non-breeding period, Red and Black Kites are counted at night roosts (partial monitoring), while Marsh Harrier is included in *International Waterbird Census* (IWC) (BACCETTI *et al.* 2002). Among the most numerous species in the migration periods are Black Kite, Marsh Harrier, Short-toed Eagle and Honey Buzzard *Pernis apivorus*.

Monitoring is usually aimed at censusing populations or, as far as Endangered and Critically Endangered species are concerned, to assess their status (e.g. Egyptian Vulture, SARA *et al.* 2009). However, data on threats to raptors are also gathered. The main threats monitored by different projects are habitat loss, disturbance, illegal hunting, egg collecting and stealing of young falcons from their nests, poisoning, collisions with aerial structures (wires, power lines, wind farms), both in the breeding areas and in bottlenecks where migrants funnel. The effects of collisions with power lines were studied in details, and guidelines to mitigate

the impact have been written (RUBOLINI *et al.* 2005, PIROVANO & COCCHI 2008).

An international networking might help to improve our knowledge on new coming threats whose effects are not yet fully understood (e.g. wind farms). Furthermore, it might allow a better understanding of flyways especially relevant for the protection of stopover key sites.

Strengths and weaknesses

The main strength of the monitoring programmes carried out in Italy is the high motivation and enthusiasm of several ornithologists working in the field, in most cases on a voluntary basis. The qualitative level of field observers is generally high.

The weaknesses are the lack of a national coordination and the low level of communication among a part of ornithologists, who are scarcely inclined to co-operate and share their own data with others for several reasons (e.g. fear to expose nests to robbery, jealousy, distrust). Lack of economic resources from various institutions is also a major limiting factor.

Studies and monitoring of owl populations are quite scarce. Some diurnal species are not adequately monitored, in particular tree-nesting raptors (such as the Goshawk, whose population is probably underestimated in remote areas due to the harsh census conditions). Some of the less covered areas are in southern Italy (Calabria, Campania and Sardinia), in spite of their richness in species of relevant conservation importance; this lack of data is partially related to the low number of active ornithologists and ringers there.

About threats, the role of pesticides, rodenticides, pollutants, chemical contaminants and collisions with wind farms is not adequately investigated and the relevance of their impacts on population trends is not well known.

European monitoring network could facilitate commencement of national programmes, at least for some species of diurnal raptors currently monitored by local ornithological groups. Furthermore, international standardised protocols could improve the efficiency of monitoring in Italy, both to evaluate population sizes and trends and to assess the impact of some threats (e.g. electrocution, windfarms). Special attention should be paid to define guidelines for Before-After Control-Impacts monitoring within the framework of project evaluation and impact assessment.

Priorities, capacity-building

The highest priority to strengthen monitoring in

Italy is to create a National Coordination aimed at organizing a network of regional focal points and to draw standardized species-specific protocols. Ideally, the coordination for each species or species groups should be provided by public institutions such as the Italian Ministry for the Environment, universities, museums or ISPRA to ensure adequate resources in terms of economy and/or staff, temporal continuity, correct use of the data and to train regional focal points to guarantee a strict connection between local observers and the national network.

Povzetek

V Italiji manjkajo celostni popisi in monitoringi populacij ptic roparic na nacionalni ravni. Da bi lahko uresničili mednarodne projekte, ki zadevajo brkatega sera *Gypaetus barbatus*, beloglavega jastreba *Gyps fulvus*, kačarja *Circaetus gallicus*, črnega *Milvus migrans* in rjavega škarnika *M. milvus*, je bilo vzpostavljeno sodelovanje z nekaterimi tujimi državami (Švica, Avstrija, Francija, Španija). S strani različnih nevladnih organizacij je bilo zastavljenih nekaj regionalnih in lokalnih projektov monitoringa več vrst in dogovorjena neformalna nacionalna koordinacija za monitoring selečih se ujed. Namen monitoringa je navadno ugotoviti velikost populacij, pridobljene podatke pa različni deležniki uporabljajo v glavnem za poročanje statusa vrst, zavarovanih v skladu Direktivo o pticah EU, načrtovanje zavarovanih območij, upravljanje s prostorom, načrtovanje naravovarstvenih akcij in ocenjevanje vplivov nacionalnih in lokalnih projektov.

References

- AGOSTINI, N. (2002): [The migration of birds of prey in Italy.] pp. 157–182 In: BRICHETTI, P. & GARIBOLDI, A. (eds.): *Manuale di Ornitologia*. Vol. 3. – Edagricole - Il Sole 24 Ore, Bologna. (in Italian)
- AGOSTINI, N., BAGHINO, L., COLEIRO, C., CORBI, F., & PREMUDA, G. (2002): Circuitous autumn migration in the Short-toed Eagle (*Circaetus gallicus*). – *Journal of Raptor Research* 36 (2): 111–114.
- ALLAVENA, S., ANDREOTTI, A., ANGELINI, J. & SCOTTI, M. (2006): Proceedings of the Congress “Status and conservation of the Red Kite (*Milvus milvus*) and the Black Kite (*Milvus migrans*) in Italy and southern Europe”, 11–12 March 2006, Serra San Quirico, Italy. – Parco Naturale della Gola della Rossa e di Frasassi, Comunità Montana dell’Esino Frasassi & Altura. (in Italian)
- ANDREOTTI, A. & LEONARDI, G. (2007): [National Action Plan for the Lanner Falcon (*Falco biarmicus feldeggii*).] *Quaderni di Conservazione della Natura* 24. – Ministero

- dell'Ambiente e della Tutela del Territorio e del Mare & Istituto nazionale per la fauna selvatica. (in Italian, English summary)
- ANDREOTTI, A. & LEONARDI, G. (2009): [National Action Plan for Egyptian Vulture (*Neophron percnopterus*).] Quaderni di Conservazione della Natura 30 – Ministero dell'Ambiente e della Tutela del Territorio e del Mare & ISPRA. (in Italian, English summary)
- ANDREOTTI, A., LEONARDI, G., SARÀ, M., BRUNELLI, M., DE LISIO, L., DE SANCTIS, A., MAGRINI, M., NARDI, R., PERNA, P. & SIGISMONDI, A. (2008): Landscape-scale Spatial Distribution of the Lanner Falcon (*Falco biarmicus feldeggii*) breeding population in Italy. – *Ambio* 37 (6): 440–444.
- ARADIS, A., SARROCCO, S. & BRUNELLI, M. (eds.) (2012): [Analysis of the status and distribution breeding birds of prey in Lazio.] Quaderni Natura e Biodiversità 2/2012. – ISPRA & ARP, Lazio. (in Italian, English summary)
- BACCETTI, N., DALL'ANTONIA, P., MAGAGNOLI, P., MELEGE, L., SERRA, L., SOLDATINI, C. & ZENATELLO, M. (2002): [Results of the censuses of wintering waterbirds in Italy: distribution, population estimates and trends in 1991–2000.] – *Biol. Cons. Fauna*: 111: 1–240. (in Italian, English summary)
- BIRDLIFE INTERNATIONAL (2004): *Birds in Europe: Population estimates, trends and conservation status.* BirdLife Conservation Series No. 12. – BirdLife International, Cambridge.
- BRICHETTI, P. & FRACASSO, G. (2003): [Ornitologia Italiana.] Vol. 1. Gaviidae–Falconidae. – Perdisa Editore, Bologna. (in Italian)
- BRICHETTI, P. & FRACASSO, G. (2006): [Ornitologia Italiana.] Vol. 3. Stercorariidae–Caprimulgidae. – Perdisa Editore, Bologna. (in Italian)
- BRICHETTI, P., DE FRANCESCO, P. & BACCETTI, N. (eds.) (1992): [Fauna of Italy.] Vol. 29. Aves, Part I. – Calderini, Bologna. (in Italian)
- FASCE, P., FASCE, L., VILLERS, A., BERGESE, F. & BRETAGNOLLE, V. (2011): Long-term breeding demography and density dependence in an increasing population of Golden Eagles *Aquila chrysaetos*. – *Ibis* 153 (3): 581–591.
- IUCN (2012): *The IUCN Red List of Threatened Species.* Version 2012.2. – [www.iucnredlist.org], 27/5/2013.
- MAGRINI, M., PERNA, P. & SCOTTI, M. (2007): Proceedings of the Congress “Golden Eagle, Lanner and Peregrine in peninsular Italy: status of knowledge and conservation problems”, 26–28 March 2004, Serra San Quirico, Italy. – Parco Naturale della Gola della Rossa e di Frasassi. (in Italian)
- MELLONE, U., LIMIÑANA, R., MALLÀ, E. & URIOS, V. (2011): Extremely detoured migration in an inexperienced bird: interplay of transport costs and social interactions. – *Journal of Avian Biology* 42 (5): 468–472.
- PANUCCIO, M. (2011): Wind Effects on Visible Raptor Migration in Spring at the Strait of Messina, Southern Italy. – *Journal of Raptor Research* 45 (1): 88–92.
- PERONACE, V., CECERE, J.G., GUSTIN, M. & RONDININI, C. (2012): [2011 Red List of breeding birds in Italy.] – *Avocetta*, 36: 11–58. (in Italian)
- PIROVANO, A. & COCCHI, R. (2008): [Guidelines for mitigating the impact of power lines on birds.] – ISPRA. (in Italian)
- RETE RURALE NAZIONALE & LIPU (2013): [Common birds in Italy. Updating population trends in 2012.] – [http://www.reterurale.it/farmlandbirdindex] (in Italian, English summary)
- RUBOLINI, D., GUSTIN, M., BOGLIANI, G. & GARAVAGLIA, R. (2005): Birds and powerlines in Italy: an assessment. – *Bird Conservation International* 15 (2): 131–145.
- SARA, M., GRECI, S. & DI VITTORIO, M. (2009): Status of Egyptian Vulture (*Neophron percnopterus*) in Sicily. – *Journal of Raptor Research* 43 (1): 66–69.
- SCHENK, H., ARESU, M. & NAITANA, S. (2008): [Proposal for an Action Plan for the Griffon Vulture (*Gyps fulvus*) in Sardinia.] – *Legambiente Sardegna*, Cagliari. (in Italian)
- SPINA, F. & LEONARDI, G. (2007): [National Action Plan for the Eleonora's falcon (*Falco eleonora*).] – Quaderni di Conservazione della Natura 26. – Ministero dell'Ambiente e della Tutela del Territorio e del Mare & Istituto nazionale per la fauna selvatica. (in Italian, English summary)

Arrived / Prispelo: 27. 3. 2013

Accepted / Sprejeto: 1. 7. 2013