

AN OVERVIEW OF MONITORING *for* RAPTORS IN IRELAND

Pregled monitoringa populacij ptic roparic na Irskem

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Ireland holds a low diversity of breeding raptors as a result of its location on the western edge of Europe but also due to historical persecution leading to the loss of at least seven species. Recolonisation by Buzzards *Buteo buteo* and the recent reintroduction of three species, Golden Eagle *Aquila chrysaetos*, White-tailed Eagle *Haliaeetus albicilla* and Red Kite *Milvus milvus*, has helped redress such losses. Monitoring for raptors is carried out by the statutory agencies, NGOs and two university research groups. Decadal and semi-decadal surveys are undertaken nationally in the Republic of Ireland and Northern Ireland for Peregrine Falcon *Falco peregrinus* and Hen Harriers *Circus cyaneus*, respectively. Long term monitoring projects have been established for some key species such as Barn Owl *Tyto alba*. However, some species receive little monitoring effort (e.g. Sparrowhawk *Accipiter nisus*, Merlin *F. columbarius*). A dedicated Raptor Monitoring Scheme to determine long-term population trends across a range of species is lacking and remains an urgent priority. Development of an Action Plan for raptors and/or single key species would further help identify priorities and raise awareness of the need of monitoring for raptors.

Key words: birds of prey, owls, monitoring, survey, Ireland

Ključne besede: ujede, sove, monitoring, popis, Irška

1. Introduction

Ireland holds perhaps the lowest diversity of raptor species in Europe (Table 1) in part as a result of its location as an island on the western edge of Europe but also due to the loss of several species as a result of centuries of human persecution and habitat loss (D'ARCY 1999). However, in the last few decades four species previously extinct have now either been re-established through reintroduction programmes (O'TOOLE *et al.* 2002) or have recolonised naturally (NORRIS 1991), while two other species have bred intermittently and may re-establish themselves in the near future (HILLIS 2008).

Perhaps due to different conservation priorities and the low diversity of breeding raptors, monitoring of raptors in Ireland has received much less attention than other bird groups (e.g., seabirds, wildfowl) until recently (see Table 1, Figure 1).

2. Main players

Statutory responsibility for raptor monitoring and conservation rests with the National Parks and Wildlife Service (NPWS) in the Republic of Ireland (RoI) and the Northern Ireland Environment Agency (NIEA) in Northern Ireland. Such responsibilities include the designation of Special Protection Areas (SPA) for Birds Directive Annex I raptors within the Natura 2000 network, the management of six National Parks in the RoI, some of which hold important raptor populations, and the enforcement of the Wildlife Act (1976, 2000) to protect raptor populations (see www.npws.ie).

Two NGOs have a specific remit to monitor raptor populations. The Irish Raptor Study Group (IRSG) is a voluntary organisation solely dedicated to monitor and improve the conservation status of raptors in the RoI (IRSG 2006). The Golden Eagle Trust

Table 1: Summary of monitoring programmes for raptors in Ireland (including Northern Ireland)**Tabela 1:** Povzetek programov monitoringa ptic roparic na Irskem (vključno s Severno Irsko)

Species / Vrsta	Population Estimate/ Populacijska ocena	Project name/ Naziv projekta	Project type/ Vrsta projekta	Duration/ Trajanje	Organisation/ Organizacija
Red Kite <i>Milvus milvus</i>	25–30	Irish Red Kite reintroduction ¹	Reintroduction	2007–2011	GET, NPWS, RSPB
White-tailed Eagle <i>Haliaeetus albicilla</i>	10	Irish White-tailed Eagle reintroduction ²	Reintroduction	2007–2011	GET, NPWS
Marsh Harrier <i>Circus aeruginosus</i>	0–2	No studies			IRSG
Hen Harrier <i>Circus cyaneus</i>	190–220	Planforbio ³	Research		University College Cork
Goshawk <i>Accipiter gentilis</i>	0–5	No studies			D. SCOTT (<i>in litt.</i>)
Sparrowhawk <i>Accipiter nisus</i>	11,000	No studies			IRSG
Buzzard <i>Buteo buteo</i>	3,500–4,000	Buzzard Ecology & Biology Project ⁴	PhD/ Monitoring	2010–	Queens University, IRSG
Golden Eagle <i>Aquila chrysaetos</i>	5–10	Irish Golden Eagle Reintroduction ⁵	Reintroduction	2001–	GET, NPWS
Kestrel <i>Falco tinnunculus</i>	10,000	Kestrel Monitoring Project ⁶	Monitoring/ Research		BWI
Merlin <i>Falco columbarius</i>	250+	Merlin pilot project ⁷	Research	2010–	BWI, NPWS
Peregrine Falcon <i>Falco peregrinus</i>	450–500	Wicklow/NW Ireland pop. Study ⁸	Survey/ Research	2011	D. Clarke/ NPWS/IRSG
Barn Owl <i>Tyto alba</i>	400–600	Barn Owl Research Project ⁹	Research	2006–	BWI
Snowy Owl <i>Bubo scandiacus</i>	0–1	No studies			IRSG
Long-eared Owl <i>Asio otus</i>	3,500+	LEO Monitoring Project ¹⁰	Survey/ Monitoring	2012–	BWI, NPWS
Short-eared Owl <i>Asio flammeus</i>	0–5	No studies			

¹ Co. Wicklow, Co. Down; ² Co. Kerry; ³ Cos. Kerry, Cork, Limerick, Clare; ⁴ Co. Cork (IRSG), N. Ireland (Queens); ⁵ Co. Donegal; ⁶ SW Ireland; ⁷ Wicklow, Donegal, Connemara; ⁸ Co. Wicklow, NW Ireland; ⁹ SW Ireland; ¹⁰ Connemara, SW Ireland.

GET – Golden Eagle Trust; NPWS – National Parks and Wildlife Service; IRSG – Irish Raptor Study Group; BWI – BirdWatch Ireland

(GET) works to restore populations of threatened or previously extinct raptor species. The GET manages reintroduction programmes for Golden Eagles *Aquila chrysaetos*, White-tailed Eagles *Haliaeetus albicilla*, and Red Kites *Milvus milvus* in the RoI in collaboration with NPWS (O'TOOLE 2002, MEE 2009 & 2010). A third NGO, BirdWatch Ireland (BWI), the BirdLife

International partner in the RoI, is dedicated to the conservation of Irish birds and has recently established a Raptor Conservation Project. BWI established a long term monitoring programme for Barn Owls *Tyto alba* in 2006 and has more recently initiated research and monitoring of Long-eared Owl *Asio otus*, Kestrel *Falco tinnunculus* and Merlin *F. columbarius* to determine

densities, trends, ecological requirements and factors affecting the conservation status of these populations (LUSBY 2009, 2012A & 2012B, LUSBY *et al.* 2010A, 2010B, 2011, 2012A & 2012B, FERNÁNDEZ-BELLON & LUSBY 2011A & 2011B, O'CLEARY *et al.* 2012). In Northern Ireland, the Royal Society for the Protection of Birds (RSPB) manages the reintroduction programme for Red Kites in County Down. The Northern Ireland Raptor Study Group (NIRSG) is the sister group of the IRSG, monitoring raptors in Northern Ireland, especially an intensive monitoring programme for Peregrine Falcons *F. peregrinus* (WELLS 2007).

Two university research teams monitor raptor populations. The Planforbio research team at University College Cork has been working on the ecology of Hen Harrier *Circus cyaneus* nesting in commercial forestry plantations since 2008, work which has informed the State forestry body, Coillte, of forest management possibilities for harriers (IRWIN *et al.* 2008, WILSON *et al.* 2009 & 2012). The Quercus programme at Queens University, Belfast, Northern Ireland, has instigated studies of harriers and Peregrine Falcon (RUDDOCK 2007 & 2008), as well as raptor monitoring workshops (www.qub.ac.uk/sites/Quercus). A study of the population dynamics of Buzzards *Buteo buteo* is also ongoing (ROONEY 2013, ROONEY & MONTGOMERIE 2013).

Collaboration in monitoring for raptors is primarily with the UK including breeding and winter Atlas studies (all species including raptors), which are run simultaneously across Ireland and Britain (SHARROCK 1976, LACK 1986, GIBBONS *et al.* 1993). Single species studies of Peregrine Falcon (CRICK & RATCLIFFE 1995, NORRIS 1995, BANKS *et al.* 2003, MADDEN *et al.* 2009) and Hen Harrier (SIM *et al.* 2001, NORRIS *et al.* 2002, BARTON *et al.* 2006, SIM *et al.* 2007, RUDDOCK *et al.* 2010) have also been carried out in both regions in similar time periods. There is also close collaboration with Britain on ringing studies and activities as Irish ringers use rings supplied by the British Trust for Ornithology (BTO) and supply raptor information to BTO studies such as the Nest Record Scheme.

Raptor monitoring data submitted to statutory agencies are important in determining population status and trends and may form the basis for conservation action such as the SPA designation. Declining species may be added to the Red List of species of conservation concern and become priorities for conservation (LYNAS *et al.* 2007). NGOs, such as the IRSG, NIRSG, GET and BWI, supply much of the data needed for setting conservation priorities. State agencies such as Coillte may use data on Hen Harrier to inform forest management.

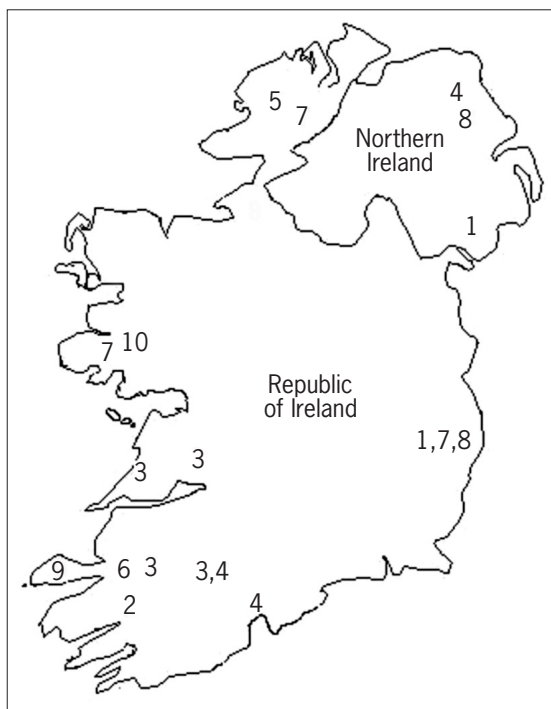


Figure 1: Monitoring programmes for raptors in Ireland. Numbers refer to project names in Table 1.

Slika 1: Programi monitoringa ptic roparic na Irskem. Številke ustrezajo nazivom projektov v Tabeli 1.

3. National coverage

Apart from Atlas studies (all species), coverage for single species raptor surveys has been coordinated by NPWS/NIEA, NGOs or private consultants working on behalf of the statutory agencies so that populations in all regions are assessed (e.g. MADDEN *et al.* 2009, RUDDOCK *et al.* 2010). NGOs have also coordinated their own national surveys to determine population status and trends (LUSBY 2012B, MEE & CLARKE *in prep.*). No national scheme exists for long-term monitoring of raptor population trends, although this has been proposed by the IRSG-NIRSG to the statutory agencies. At present, little or no funding appears to be available for this programme. The IRSG-NIRSG provide a framework for coordinating raptor monitoring but, except for dedicated national surveys, coverage is patchy and tends to focus on species of interest to individuals or those that can be relatively easily accessed without specialist skills such as tree-climbing, while some of the more widespread and apparently common raptors (e.g. Sparrowhawk

Accipiter nisus) are little monitored. Coverage also tends to be lowest in more remote, mountain areas.

4. Key species and key issues

The focus of monitoring for raptors to date has been national and regional studies of Annex I species, particularly Peregrine Falcon (MOORE *et al.* 1992 & 1997, WELLS 2007) and Hen Harrier (SCOTT 2000, O'DONOGHUE 2010) as well as local and regional studies of Merlin (CLARKE & SCOTT 1994, McELHERON 2005, NORRISS *et al.* 2010, FERNÁNDEZ-BELLON & LUSBY 2011A & 2011B). Other key species have been those recently listed on the Red (high) and Amber (medium) list of birds of conservation concern (LYNAS *et al.* 2007) including the recently reintroduced Golden Eagle and Red Kite. Breeding populations of the reintroduced Golden Eagle (north-western Ireland) and Red Kite (County Wicklow) are comprehensively monitored by the GET using radio and satellite telemetry as well as public sighting of wing-tagged individuals (see www.goldeneagle.ie). White-tailed Eagles are similarly monitored, with first breeding in the wild expected in 2012/2013 (MEE 2009 & 2010).

Although historically habitat loss, principally loss of native forest cover and wetland drainage, has had an undoubted effect on Irish raptor populations, direct human persecution has in the past caused most population extinctions including the loss of breeding Osprey, Golden Eagle *Pandion haliaetus*, White-tailed Eagle, Red Kite, Goshawk *A. gentilis* and Buzzard (D'ARCY 1999). All but Osprey have now either been reintroduced or recolonised to varying extents (NORRISS 1991, HILLIS 2008, MEE 2010).

However, poisoning remains the greatest threat to re-establishing or maintaining populations. Between 2007 and early 2013, of 27 White-tailed Eagles recovered dead, 12 were confirmed poisoned in ROI and another seven suspected (GET *unpubl.*). At least three Golden Eagles and 16 Red Kites have also been poisoned during this period. Most if not all such poisoning appears to be accidental, foxes and crows being the intended target. However, several Buzzards and even Peregrine Falcons have also been deliberately poisoned. Most recently (Sept–Dec 2011), eight Red Kites were recovered dead, at least six apparently due to rodenticide (brodifacoum) poisoning (GET *unpubl.*) to which Barn Owls in Ireland are highly susceptible (J. LUSBY *unpubl.*). Following a formal complaint to the EU (GET 2009), the use of poisons for the control of foxes has been banned in the ROI (Oct 2010). However, illegal use and misuse of substances

remains a problem. A formal protocol for post-mortem handling, toxicological analysis and reporting was established in 2011 by NPWS in collaboration with the Department of Agriculture and the State Laboratory. Rodenticides also kill Kestrel and Buzzard, but population level threats are unknown. Other threats include road (Barn Owl) and rail (Red Kite) collisions, e.g. 214 road mortalities in 2006–2012 (J. LUSBY *pers. comm.*). The recent expansion of wind farm developments, including some within SPAs, is also likely to pose a threat through displacement and/or collision (SCOTT & MCHAFFIE 2008, PEARCE-HIGGINS *et al.* 2009). In 2011, two White-tailed Eagles were recovered dead due to turbine collisions in south-western Ireland (GET *unpubl.*).

No currently breeding Irish raptors are truly migratory, although there is evidence that some Hen Harriers winter as far as Western Europe (B. O'DONOGHUE *in litt.*). Sharing information on dispersal patterns might improve the conservation status of this species. Issues facing raptors in Ireland such as poisoning and windfarm collisions would benefit from international networking to establish best practice for monitoring and assessing threats to populations.

5. Strengths and weaknesses

Ireland is a relatively small country with a smaller suite of breeding raptors than most other European countries. Therefore it should be in a position to devise and implement a comprehensive monitoring programme. Decadal and semi-decadal national surveys for key species such as Peregrine Falcon and Hen Harrier have worked well because the populations have been small enough, nesting sites reasonably well known, or populations have been discrete (e.g. MADDEN *et al.* 2009, RUDDOCK *et al.* 2010). However, such surveys are labour intensive and as some populations recover and expand (e.g. Peregrine Falcon) random selection of study areas will be essential. Other key species (e.g. Merlin) have never been surveyed on a national scale, while baseline data do not exist for some very rare breeders (e.g. Short-eared Owl *Asio flammeus*). Barn Owls have been increasingly monitored in recent years (NAGLE 2007, O'CONNELL *et al.* 2007, LUSBY 2009, 2012A & 2012B, LUSBY *et al.* 2010A & 2010B), but little specific monitoring of breeding Long-eared or Short-eared Owl populations or their ecology has been undertaken (but see and SLEEMAN 1988, SMAL 1989, ANDREWS 1992, COOKE *et al.* 1995).

Lack of a Raptor Monitoring Scheme (RMS) to

determine long-term population trends across a range of species, including some widespread but possibly declining species such as Kestrel, remain a major weakness. International best practice and information sharing on appropriate monitoring schemes would be useful in designing a RMS.

6. Priorities, capacity-building

Establishing an island-wide RMS is a high priority. However, lack of funding and the small pool of existing raptor fieldworkers will inhibit development of this scheme without full time personnel to drive the RMS.

Semi-decadal surveys for Hen Harriers should be continued. Merlin needs to be monitored at an appropriate level on at least a semi-decadal frequency. High priority reintroduced raptors should continue to be intensively monitored at least until all populations are well established. Rare and little known species should also be targeted to establish baseline data for conservation. Ultimately funding will be needed to drive much of this effort. Where key skills are lacking, training workshops will be useful in upskilling fieldworkers and generating support for monitoring programmes.

Group Action Plans have been devised for suites of species including raptors based on ecosystem to identify specific conservation requirements, targets and the actions needed to achieve such targets (e.g. BIRDWATCH IRELAND 2010). Development of an Action Plan for raptors or single key species would further help identify priorities and raise awareness of the need of monitoring for raptors.

Further, the timely publication and dissemination of monitoring results is important not only for improving our knowledge of species and setting priorities but would also further capacity-building for raptors.

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7. Povzetek

Na Irskem je pestrost ptic roparic majhna, a ne zgolj zaradi geografske lege te države na zahodnem robu Evrope, marveč tudi zaradi zgodovinskega preganjanja

teh ptic na otoku in posledično izumrtja najmanj sedmih vrst. Te izgube se je Irski posrečilo do neke mere nadomestiti z nedavno ponovno naselitvijo treh vrst, in sicer planinskega orla *Aquila chrysaetos*, belorepca *Haliaeetus albicilla* in rjavega škarnika *Milvus milvus*, medtem ko je kanja *Buteo buteo* pričela ponovno gnezditu sama. Za monitoring ptic roparic skrbijo različne javne agencije, nevladne organizacije in dve univerzitetni raziskovalni skupini. V Republiki Irski poteka, na primer, nacionalni popis sokola selca *Falco peregrinus* vsakih deset let, na Severnem Irskem pa popis pepelastega lunja *Circus cyaneus* vsakih pet let. Za nekatere ključne vrste, kakršna je pegasta sova *Tyto alba*, so bili izdelani projekti za njihov dolgoročni monitoring. Nekatere druge vrste, npr. skobec *Accipiter nisus* in mali sokol *F. columbarius*, pa so po drugi strani deležne komaj omembe vredne pozornosti. Najnujnejša prioriteta ostaja program temeljitega monitoringa ptic roparic, s katerim bi ugotavljali dolgoročne trende v arealih posameznih vrst. Razvoj akcijskega načrta za to skupino ptic in/ali posamezne ključne vrste pa bi nadalje pripomogel k ugotavljanju prioritete in spodbujal ozaveščenost o potrebi stalnega spremljanja ptic roparic.

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