

Peregrine 2014

Title

Peregrine 2014

Description and Summary of Results

The recovery of Peregrine Falcons *Falco peregrinus* in the UK from low numbers in the early 1960s to the highest levels recorded is renowned as one of the flagship conservation success stories. The causes of the initial disastrous population crash are well documented, with persecution in the wartime period 1939-1945 and poisoning by organochlorine pesticides in the 1950s and 1960s.

The UK may support 12-14% of the European population, so it is important for UK conservation organisations and government to have up-to-date population estimates. It is also important to track changes in distribution and density at a national and regional level because, as top predators, raptors may act as indicators of the integrity of the food chain and the immediate environment.

The breeding population of the Peregrine in the UK and Isle of Man has been surveyed approximately every 10 years since 1961-1962 when the effects of Peregrine predation on racing pigeons prompted an enquiry. Each subsequent survey has shown consistent increases for the UK as a whole, but with substantial and important regional differences, including some notable declines in more recent years.

The 2014 survey was to provide an updated estimate of breeding population size following the previous survey in 2002. The 2014 survey, co-ordinated by the BTO in partnership with many other raptor monitoring individuals and organisations, was made possible by the hard work of hundreds of volunteers. These fieldworkers surveyed a combination of known sites and randomly selected survey squares to secure evidence of occupation and breeding by Peregrines. The population estimate derived from the survey puts the UK Peregrine population at 1,769 breeding pairs, an increase of 22% on the 2002 survey.

Most of the increase is accounted for by population growth in lowland England, with breeding Peregrines continuing to occupy new sites. Most of the inland breeding pairs utilise large cliffs, smaller crags or quarries, but an increasing proportion of pairs occupy man-made structures such as buildings, bridges, pylons and communication masts.

Examination of the regional results reveals contrasting fortunes in Scotland, where there the population has declined overall. Worryingly, Peregrine populations are not doing well in the upland SPAs (Special Protection Areas) established to protect them, a pattern evident in both Scotland and northern England. Further losses of Peregrines from such areas might not pose a grave threat to the UK population, but could be important at a regional level. Possible factors associated with the poor performance of upland Peregrine populations may include prey abundance and availability, and illegal killing associated particularly with

management of upland gamebirds for shooting, but also with recreational breeding and racing of domestic pigeons. Other factors may have affected Peregrine numbers at a local level; these include avoidance of Golden Eagles, oiling by Fulmars and exposure to a wide range of environmental pollutants.

Methods of Data Capture

The national Peregrine surveys have historically attempted to census all known 'nesting ranges' within the UK and Isle of Man -- the term 'nesting range' is used in preference to territory as it describes the entire area containing all the alternate nests in a home range rather than the more limited area defended by a breeding resident bird against conspecifics. As in previous surveys, the 2014 survey aimed to carry out a full census of all known Peregrine sites/home ranges. In addition, a further objective which had not been part of previous Peregrine surveys was to visit randomly selected 5x5 km squares to check all suitable Peregrine breeding habitat/potential nest sites (including areas where Peregrines have not previously been known to breed). This random sampling approach was introduced in order to improve comparisons between areas (and, in the future, years) where there are differences in monitoring efforts.

Surveys were carried out by a mix of local raptor and Peregrine study group members, professional fieldworkers and other volunteers.

To establish occupancy, volunteer or professional fieldworkers were asked to visit known Peregrine nesting ranges or random squares throughout the breeding season. Wherever possible, all potentially suitable nesting locations or suspected nesting ranges (e.g. cliffs, crags, quarries, tall buildings and their vicinities) were checked for signs of occupation even if the site had not been previously confirmed as a breeding location. Peregrines may move the location of their eyrie from one year to the next, alternating between a limited number of sites within a nesting range. In such instances, checks were required at all known alternate sites within a nesting range to determine true occupancy status of the nesting range and to ensure that alternates had not become nesting ranges.

First visits to identify newly occupied sites were made early in the breeding season (early March to mid-April). A second visit was then made in late-April to the end of May to identify newly occupied sites or confirm occupancy or absence at previously checked sites. A third visit in June to mid-July was to record likely breeding success or failure at occupied nesting ranges and confirm absence at previously checked sites.

Volunteers were asked to provide either a UK grid reference (six-figure accuracy) or a unique identifying site code for the nest-site (the latter is more commonly used in Scotland). Location, altitude, aspect, whether the site had been established since the 2002 survey and broad scale habitat information were asked for and, where possible, causes of any nest failure including assumed or actual instances of human interference or persecution. Visits to nests and the immediate area were carried out under licence issued under Schedule 1 of the UK Wildlife & Countryside Act (1981).

The full guidelines for contributors are available on the BTO website:

https://www.bto.org/sites/default/files/shared_documents/peregrine_survey/2014-peregrine-survey-guidelines-contributors.pdf

Purpose of Data Capture

To estimate the Peregrine breeding population and its change since 2002 by recording breeding evidence and nesting range occupancy at known and potential Peregrine eyries.

Geographic Coverage

All of the UK and Isle of Man with the objective of visiting all known home ranges, as well as visiting randomly selected 5x5 km squares to check all suitable Peregrine breeding habitat/potential nest sites (including areas where Peregrines have not previously been known to breed).

Temporal Coverage

The 2014 breeding season with visits taking place between March and mid July.

Other Interested parties

The 2014 Peregrine Survey was run by the BTO, working closely with Raptor Study Groups and individual Peregrine specialists. Organisation of the Peregrine Survey at the local level varied from region to region. Some regions were organized by a member of a Raptor Study Group whilst others were organised by the BTO Regional Representative, or a combination of the two.

The survey was funded by Scottish Natural Heritage, Natural England, the Countryside Council for Wales and Northern Ireland Environment Agency.

Organiser(s)

Mark Wilson.

Current Staff Contact

archives@bto.org

Publications

The main report of the survey is:

Wilson, M.W., Balmer, D.E., Jones, K., King, V.A., Raw, D., Rollie, C.J., Rooney, E., Ruddock, M., Smith, G.D., Stevenson, A., Stirling-Aird, P.K., Wernham, C.V., Weston, J.M. & Noble, D.G. 2018. The breeding population of Peregrine Falcon *Falco peregrinus* in the United Kingdom, Isle of Man and Channel Islands in 2014. *Bird Study* 65: 1-19.

(<https://www.tandfonline.com/doi/abs/10.1080/00063657.2017.1421610>). This is

summarized at <https://www.bto.org/our-science/publications/peer-reviewed-papers/breeding-population-peregrine-falcon-falco-peregrinus>

The survey results were summarized in BTO News in the Spring 2018 issue (<https://www.bto.org/sites/default/files/peregrine-survey-results-spring-2018-bto-news.pdf>).

Some early preliminary information (“initial impressions from data received so far”) was previously published in BTO News in the May/June 2015 issue. Prior to fieldwork, an article publicising the survey was also published in BTO News in the Jan/Feb 2014 issue.

Available from NBN?

No.

Computer data -- location

BTO Oracle database but with restricted access as Peregrine is a Schedule 1 species.

Computer data -- outline contents

The BTO Oracle database contains all relevant information on sites, habitats and records of visits.

Computer data -- description of contents

The database contains:

County, Grid Reference, Site Name, Nest Site Description (Aspect, Altitude etc), Habitat, Records of Visits (Date, Signs of Activity, Nest Contents, Status Codes, Summary, Notes).

Information held in BTO Archives

All data sheets are in BTO Scotland offices in Stirling together with some analysis and correspondence; various letters, papers and reports are in Thetford.

Notes on Access and Use

The Peregrine is a species subject to persecution of various kinds, and some of the data were submitted to the BTO with restrictions placed on their dissemination. For these reasons the data will not be made publicly available although those with a genuine need can apply for access.

Other information needed

Notes on Survey Design

Specific Issues for Analysis

All nesting ranges visited were matched to ancestrally known nesting ranges, mainly by using supplied grid references in a computerised GIS. This was to avoid the incorrect attribution of alternative nest-sites within one nesting range to separate ones. Parts of the matching procedure were also done manually by checking of site names, comparison of site codes and confirmation by correspondence with volunteers. This matching did remove some which had been recorded as separate. If an apparently new nesting range was within 2km of a known nesting range that was not visited, this was assumed to represent an alternate nest location within the known nesting range, and in many instances this assumption was confirmed through correspondence with the volunteers.

Nesting ranges were defined as being occupied on the following observational evidence: single bird seen (no scrape found); pair seen (no scrape found); pair (with scrape but no eggs seen); pair (scrape with eggs); and pair (with young). In cases where only a single bird was ever seen but there was no evidence of breeding, this did not preclude the possibility that a range was occupied by a pair. Moreover, it was sometimes difficult to establish whether an observed pair had made a breeding attempt.

In order to correct for ambiguous nesting range occupation status, upper and lower estimates of the number of non-breeding nesting ranges were calculated. Lower estimates of non-breeders treated all ambiguous pairs as confirmed pairs, and all possible breeders as confirmed breeders; upper estimates of non-breeders treated all unconfirmed pairs as single non-breeders, and all unconfirmed nesting pairs as nonbreeding pairs. The 'true' proportion of nesting ranges occupied by non-breeders would thus have lain somewhere between these two estimates.

Additional corrections were required in those regions where some known nesting ranges were not visited in 2014. This was done by multiplying the proportion of visited ranges that were occupied by the number of known nesting ranges not visited. An estimated number of notional 'Ratcliffe pairs' was also calculated in the analysis of pair numbers to allow direct comparison with the results of previous national surveys. This is an established method of adjustment for the possibility of incorrectly assigning sites to non-breeders by assuming that 50% of single birds were in fact part of a pair. Maximum estimates of single birds were used for the latter, although minimum figures were not substantially different.