

Peregrine 2002

Title

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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 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 2002 survey (postponed from 2001 because of the outbreak of Foot and Mouth Disease and subsequent restrictions on access) was to provide an updated estimate of breeding population size.

Overall 1988 nesting ranges (94% of those known) were visited in 2002 and Peregrines were estimated to have occupied 1530, confirmed in 1456. Of all known nesting ranges, 49% were in Scotland, 27% in England and the Isle of Man, 18% in Wales and 6% in Northern Ireland.

The number of 'Ratcliffe pairs' (see Specific Issues for Analysis below) calculated was 1437, the highest figure ever recorded and representing 164% of pre-1939 estimates, and 112% of the 1991 estimate. The population in the UK had, therefore, continued to increase since 1991, albeit at a slower rate than between 1981 and 1991.

Although UK-wide trends remained positive, there were distinct differences and the pattern of occupancy was variable across regions. The continuing increase in England was mainly driven by expansion of the inland population -- numbers were 638% of those estimated for 1930-1939, and well established in southeast, southwest and central England. These increases were partly because Peregrines were increasingly using buildings and quarries as nesting sites within urban and lowland areas.

The growth of the Welsh population showed similar general patterns to the English, featuring a large inland population increase of 300% over 1930-1939.

The declines in parts of Scotland since at least 1971 continued with approximately 10% since 1991, but there were differences between regions of Scotland. Numbers in S Scotland were stable or increased slightly, in NE Scotland numbers were reduced inland but increased on the coast, and there were large declines in the west and northwest -- about 25% in Argyll and Highland.

The breeding population in Northern Ireland in 2002 was at 85% of that recorded in 1991, although still in excess (152%) of the historical 1930-1939 level.

A total of 96 separate incidences of known or suspected human persecution of Peregrines were recorded during the survey, of which 22 were confirmed. Human interference with eggs, chicks and/or juveniles was reported more frequently than interference with adult Peregrines for both suspected and known cases.

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. A complete census in 2002 was not feasible in the more remote and sparsely populated parts of Scotland owing to lack of available observers. In such areas, a random sample of known nest locations was chosen for survey to ensure representative and unbiased coverage.

To establish occupancy, volunteer or, in the more remote parts of Scotland, professional fieldworkers were asked to visit known Peregrine nesting ranges throughout the breeding season. Wherever possible, all potentially suitable nesting locations or suspected nesting ranges (eg 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 confirm occupancy were made early in the breeding season (some as early as February but most in March or April). A second visit was then made in June to record breeding success at occupied nesting ranges (presence of any fledged young or large young in the nest). An optional visit in May to record clutch sizes was also desirable and, where feasible, volunteers returned to apparently unoccupied nesting ranges one month after the first visit, to check for any possible signs of occupancy.

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 1991 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).

Purpose of Data Capture

To estimate the Peregrine breeding population and its change since 1991 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 stated objective of visiting all known home ranges. In practice only a random sample were visited in the more remote parts of Scotland.

Temporal Coverage

The 2002 breeding season with visits requested early (February to April to establish occupancy) and June to establish breeding success or otherwise.

Other Interested parties

The 2002 Peregrine Survey was run as a joint project of the BTO with the Royal Society for the Protection of Birds, English Nature (now Natural England), Countryside Council for Wales (now Natural Resources Wales), Scottish Natural Heritage, Joint Nature Conservation Committee, Scottish Ornithologists' Club, Scottish Raptor Study Groups and the Environment and Heritage Service in Northern Ireland.

Funding for the survey was provided by the Esmée Fairburn Foundation, by the businesses, individuals and trusts supporting the BTO Peregrine Appeal, the Northern Ireland Environment Agency (on behalf of the Statutory Conservation Agencies/RSPB Annual Breeding Bird Scheme (SCARABBS)) and the Scottish Ornithologists' Club. Professional fieldwork in Scotland was organised and managed by RSPB, with funding from RSPB and Scottish Natural Heritage.

Organiser(s)

Humphrey Crick and Derek Ratcliffe.

Current Staff Contact

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Publications

The main report of the survey is:

Banks, A.N., Crick, H.Q.P., Coombes, R., Benn, S., Ratcliffe, D.A. & Humphreys, E.M. 2010.

The breeding status of Peregrine Falcons *Falco peregrinus* in the UK and Isle of Man in 2002. *Bird Study* 57: 421-436.

The survey was noticed in *BTO News* numbers 227 and 248.

Available from NBN?

No.

Computer data -- location

BTO network Windows central area but with restricted access.

Computer data -- outline contents

An Excel spreadsheet contains all relevant information on sites, habitats and records of visits.

Computer data -- description of contents

The spreadsheet 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 2002. 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.