Breeding Waders of Damp Lowland Grassland in Britain and Ireland

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Britain and Ireland support significant breeding populations of waders commonly associated with damp lowland grasslands (Table 1) although not all these birds nest on this habitat. For many years there has been considerable concern about the loss and degradation of damp grasslands and the consequent reduction in numbers of breeding waders. Surprisingly, however, it was not until the early 1980s that any attempts were made to make widespread systematic counts. In 1982 the British Trust for Ornithology (BTO), the Royal Society for the Protection of Birds (RSPB) and the Wader Study Group (WSG) carried out a survey of waders breeding on damp lowland grasslands in England and Wales (Smith 1983) and, in Scotland, a parallel survey was organized by the Scottish Ornithologists' Club (SOC) and WSG (Galbraith *et al.* 1984). The purpose of this paper is to review the results of work carried out since these surveys and to discuss the future needs for more work.

Although the two surveys provided good baseline data for England, Wales and Scotland, there were still some gaps in coverage. In particular Ireland, which was thought to support significant populations of breeding waders, had not been surveyed at all.

Thus, in 1986 and 1987, the RSPB, with support from the Department of the Environment (Northern Ireland), surveyed the waders breeding in the province of Northern Ireland (Partridge 1987, 1988). This was carried out in two parts: a complete survey of all the known major sites, and surveys of all the waders breeding within 146

Table 1. Population estimates for breeding waders in Europe based on data compiled by Piersma (1986). Only those species which make significant use of damp lowland grasslands have been included in this table.

Species	Pairs in Europe	Pairs in GB	Pairs in Ireland	% in GB & Ireland
Oystercatcher *Haematopus ostralagus*	218,000	38,000	3,000	18.8
Lapwing *Vanellus vanellus*	869,000	181,500	33,500	24.7
Ruff *Philomachus pugnax*	247,000	(10)	-	0
Snipe *Gallinago gallinago*	540,000	29,600	10,400	7.4
Black-tailed Godwit *Limosa limosa*	110,000	50	-	0
Curlew *Numenius arquata*	125,000	35,000	12,000	37.6
Redshank *Tringa totanus*	168,000	32,500	3,000	21.1

randomly selected 2 km x 2 km squares distributed throughout the province. The latter served to provide overall population estimates with confidence intervals (Table 2) and showed the importance of the province for breeding Curlew and Snipe. The results from the random squares also provided an unbiased estimate of the importance of different habitats for breeding waders (Table 3). Damp grassland was important for all species but peatlands (raised and blanket bogs) were also of major importance for Curlew and Snipe.

No similar sample survey has been possible elsewhere in Ireland although a detailed survey of the 'Callows' of the Shannon valley has demonstrated that these rank alongside some of the other major sites in Britain and Ireland in their importance for breeding waders (Nairn *et al.* 1988). If the results from Northern Ireland are any guide, the rest of Ireland must hold large populations of breeding waders. This remains a major gap in our knowledge.

The crofting lands of the Outer Hebrides in North-west Scotland are well known for their large, internationally important, breeding wader populations (Fuller *et al.* 1986). RSPB surveys have shown that the islands of Orkney and Shetland also hold significant populations of breeding waders (Campbell 1988, 1989) although not as large as those found in the Outer Hebrides.

Table 2. Population estimates for breeding waders in Northern Ireland based on a survey of a sample of 146 2 km x 2 km squares selected at random. Confidence intervals calculated by bootstrap.

	Number of pairs	95%confidence intervals
Lapwing	5,250	3,750 - 6,820
Snipe*	5,800	4,150 - 7,870
Curlew	5,000	3,800 - 6,250
Redshank**	550	80 - 1,180

* for Snipe the peak counts of drumming birds are given.

** Redshank were concentrated on a few sites and the sample survey was not the appropriate survey method. A full count of the important sites for Redshank gave an actual total of 461 pairs.

Table 3. Percentages of Northern Ireland breeding wader populations found on different habitats.

	Lapwing	Snipe	Curlew	Red-shank
Damp grassland	68	39	42	95
Raised bog	17	27	39	5
Blanket bog	4	15	17	-
Fen	2	19	2	-
Arable	4	-	-	-
Other	5	-	-	-

Although the decline of breeding wader numbers on damp grasslands has been much discussed over the last few decades there are, in fact, rather few data available to demonstrate the changes at particular sites. The two most notable exceptions are a series of surveys carried out by the RSPB in the Broads of Norfolk and Suffolk (O'Brien *et al.* 1989) and the Somerset Levels (Robins 1987) spanning a period of 10 years. These showed stable or increasing numbers in the Broads but massive declines of up to 50% in the Somerset Levels. It has been shown (Robins *et al.* 1988) that in the Somerset Levels there has been a progressive shift in the way that the drainage pumps are operated with the land now being much drier than in the past.

After the surveys in the early 1980s it was clear that some form of monitoring of the remaining breeding wader populations was desirable. So starting in 1984 an annual breeding wader monitoring scheme was organized under the auspices of the BTO and WSG. Observers were encouraged to select a site and count the waders by standard methods each year so that indices of population change could be calculated. At the outset, over 70 observers participated in the scheme which allowed reliable indices to be calculated for Lapwing, Snipe and

Redshank (Smith 1984, 1985, 1986 and 1987, Smith & O'Brien 1989). The scheme proved to be of immense value in highlighting the fortunes of breeding waders and in quantifying the normal annual fluctuations in breeding wader numbers to be expected at a site. Between 1982 and 1989 the population indices for Lapwing and Snipe in England and Wales fell by 15% and 4% respectively whilst that for Redshank increased by 8%. However the method of site selection meant that the sample was biased to those sites holding higher numbers of breeding waders and, over the years, the number of sites participating gradually fell making the population indices less reliable.

In 1989 the BTO and RSPB therefore decided to carry out a sample survey in England and Wales based on a random selection of the sites first surveyed in 1982 (O'Brien & Smith in prep.). 322 sites in England and Wales were selected of which 236 were actually surveyed. Comparing the data between 1982 and 1989, declines were found for Lapwing (-37%) and Snipe (-12%), although Redshank numbers were apparently stable or slightly increased (+3%). The decline in Lapwings has been widespread in Britain and appears to be related to changes on its main habitat, arable land (Marchant *et al.* 1990). The decline in Snipe numbers is of more concern as, in much of the lowlands of England and Wales, they are already restricted to nature reserves but are nevertheless still declining.

What of the future? More work is required to establish good baseline data for parts of northern England and Scotland, and in 1992 the SOC and RSPB are planning an extensive survey along similar lines to that completed in Northern Ireland. There is also a clear need for more work in the Republic of Ireland. Monitoring of population changes is probably best achieved by well designed surveys of a random selection of sites about every 5 years.

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