

CUMBRIA SAND MARTIN SURVEY 1991

Introduction and Methods

The Sand Martin (*Riparia riparia*) is one of a number of species whose populations have been affected by drought in their wintering grounds south of the Sahara. In Cumbria, local ornithologists noted a sharp fall in numbers in 1968-69, a modest recovery during the seventies, and a further reduction in numbers in 1984. Since then numbers have remained low, but with an apparent slight increase in recent years. In Britain as a whole the breeding population has been estimated at 100-500,000 pairs, about half that believed to be present before the Sahel drought began in 1968 (Sharrock 1976, Cowley 1979, Marchant et al 1990).

The Cumbria Bird Club decided to organise a county survey of breeding sand martins in 1991 as no previous survey of this species had been carried out in the whole county, and there were reports that some colonies were under threat.

The club had organised a survey of wintering goosanders the previous winter (Priestley 1992) and the network of organisers and fieldworkers, with experience of the river systems, was still in place. Observers were allocated sections of each river valley and were asked to locate all occupied colonies and count the number of holes in each colony. Each colony was identified with a six figure map reference, the type of site (eg riverbank) was described and known or suspected threats were described. As there were unoccupied holes in nesting colonies, observers were also asked to estimate the number of holes occupied (hereafter referred to as 'sample counts') at a minimum of two colonies in their survey areas either by physical inspection of all the holes, or by observation of the colonies over a period of time.

Results

A total of 5055 nest holes were counted within 185 occupied colonies. The proportion of holes occupied in 50 of these colonies was assessed, but statistical tests showed that this sample was not representative of the whole population of colonies either in terms of size or location. Ten of the colonies were selectively removed so that the remaining 40 were representative of the whole and the mean proportion of holes occupied in this sample was calculated as 68.6%. Applying this calculation to the total number of holes gave an estimate of 3468 pairs of breeding sand martins for the whole county within 95% confidence limits of 3402-3533 pairs (details in appendix 1). This proportion has been applied to all hole counts, where relevant, in all the estimates and tables which follow.

The number and percentage of colonies and occupied holes, together with estimated mean colony size (in pairs) in river banks, quarries and other sites is shown in Table 1. Colony size in river banks varied between a single pair and 142 pairs, and in quarries between 5 and 367 pairs. Of the 10 largest colonies six were in quarries and 4 were in river banks.

In a subsample of 128 colonies, 108 (84.4%) were in sand, 8 (6.2%) in clay with sand or silt, 6 (4.7%) in silt with gravel or clay, 5 (3.9%) in man made drains and 1(0.8%) in a slag tip. The mean height of the nesting face in 22 river bank colonies was 2.2m.

Out of 158 colonies, observers reported no present or perceived threats to 70. The suggested threats to the remaining 88 colonies are shown in Table 2. In some cases observers listed more than one threat per colony. By far the most important threat was seen as the dumping of material in front of nesting sand faces to prevent river erosion. Farm rubbish, unwanted building materials, stone from fields and scrap cars were all reported to have been used. Bank erosion and flooding were also important. In quarries, the greatest threat was believed to be from bank collapse following heavy rain, but quarrying activity and the abandonment of quarrying were also mentioned. Of 16 quarries containing sand martin colonies, only one was apparently worked out.

The numbers and percentages of colonies and pairs together with estimated mean colony size within each catchment is shown in Table 3. On average, the largest river bank colonies were in the Esk/Lyne, lower Eden and upper Lune catchments, with the smallest in the coastal river zones and the upper Eden. The largest quarry colonies were in the lower Eden. Altogether nearly 75% of all breeding pairs were in the Eden valley catchment.

