

Wintering Goosanders in Cumbria 1990/91

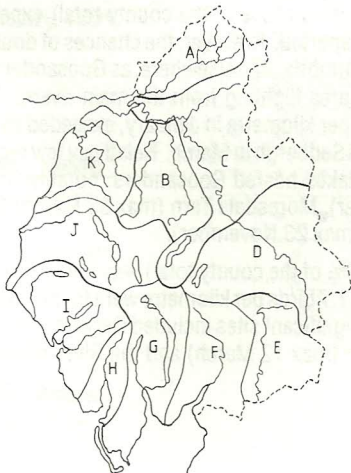
Goosanders are resident in Cumbria throughout the year occurring on all major river systems, lakes and some smaller tarns and ponds. They are less frequent visitors to tidal waters, although large numbers have been observed particularly on the Inner Solway, where 103 birds were found in August 1990. In the 1968-72 survey period for the BTO Atlas of Breeding Birds, Goosanders were recorded in 35 of Cumbria's 10 kilometre grid squares (42% of the total). The number of 10 kilometre squares occupied during the second "Atlas" survey period, 1988-91, had increased to 53 (62% of the total). The Goosander population outside the breeding season is more widespread. A total of 57 10 kilometre squares were occupied during the 1981-84 "winter Atlas" survey period rising to 65 squares (76%) in the 1990-91 survey.

The 1990-91 Winter Goosander Survey of Cumbria

The 1990-91 Goosander survey had three principal objectives. Firstly, to investigate the distribution of wintering Goosanders in Cumbria and assess the population of the species in the county during the winter period. Secondly, to identify fluctuations on the number of birds present during the winter months and possible patterns of movement in the region. Thirdly, to evaluate the habitat preferences of Goosanders and particularly the importance of roosting sites in Cumbria.

The fieldwork was co-ordinated by local organisers within the 11 areas based on the major drainage basins of the county. Three Goosander counts were undertaken during the 1990-91 winter period in November, January and March timed to coincide with the 'National Wildfowl Count' dates. Records were accepted seven days either side of the "target weekends" to allow more sites to be visited. However, over 85% of visits were carried out on the specified dates and there was little evidence of duplication of numbers counted by local movements of birds. The specific locations of Goosanders observed during the survey were recorded and the results summarised within the 10 kilometre grid squares of the region. Counts were submitted by 123 fieldworkers covering over 750 kilometres of river bank, 95 lakes, ponds and reservoirs and several estuaries. Few standing waters or stretches of river likely to host significant numbers of Goosander were omitted.

Survey of Wintering Goosanders in Cumbria: Drainage Basins



Population and Distribution

The November 1990 count produced a total of 567 Goosanders throughout Cumbria. In January 1991, the figure fell slightly to 530 birds during a period of more severe winter weather, and many smaller standing waters in the county were frozen. In March, numbers peaked at 752 birds, suggesting a late winter influx from neighbouring regions. Estimates of the British Goosander population in winter have varied between 5000 (Owen et al, 1986) and 8000 (Lack, 1986). These may be underestimates in an expanding population. Nevertheless, Cumbria probably accounts for 7-10% of the national Goosander population in winter.

Goosanders were present during the winter on most suitable waters in the county. Only the higher altitude, fast flowing streams of the Pennines and central Lake District, plus the Furness Peninsula and parts of the Solway Plain, were without wintering birds. The major part of the Cumbria population wintered on the rivers of the county (70% of the total in January and March), particularly on the larger watercourses below the 100 metre contour line. The twelve main lakes in central Cumbria held relatively few birds, numbers peaking in November with 16% of the total recorded, including flocks of 24 on Ennerdale Water and 23 on Windermere. Coniston Water and Derwentwater also reached double figures during the winter. Goosanders were found on a further 27 small lakes and reservoirs (under one square kilometre in area) accounting for 26% of observations in November. Numbers were very inconsistent on individual waters reflecting much local movement and possibly the timing of the observations during the day. Moresdale Tarn, a tiny, acidic pool in south-east Cumbria recorded the largest flock of 33 birds in March. At higher altitudes an individual was present at Seathwaite Tarn (350 metres) in November, and 14 birds were on Skeggles Water (320 metres) in March. Few Goosanders resorted to coastal waters during the winter, although small numbers used the Kent Estuary and the mouth of the Eden throughout the period.

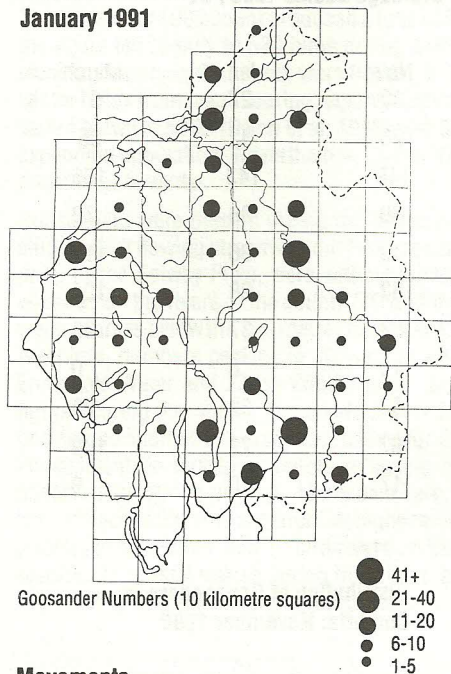
Three areas of the county contained two-thirds of the wintering Goosander population.

1 The Vale of Eden (33% of the county total average November - March) maintained large numbers throughout the winter with a maximum of 257 birds recorded during the March counts. The lower course of the River Eden (below the Eamont confluence) held a high and stable population in each month averaging 1.9 Goosanders per kilometre in March. This compared with 1.1 birds per kilometre upstream in Kirkby Stephen. Significant numbers also occurred on the Eamont (max 32 March), Lowther (max 13 November) and Irthing (max 15 March). In November 32 Goosander gathered on Whins Pond, but on other standing waters and smaller tributaries sightings were few and sporadic.

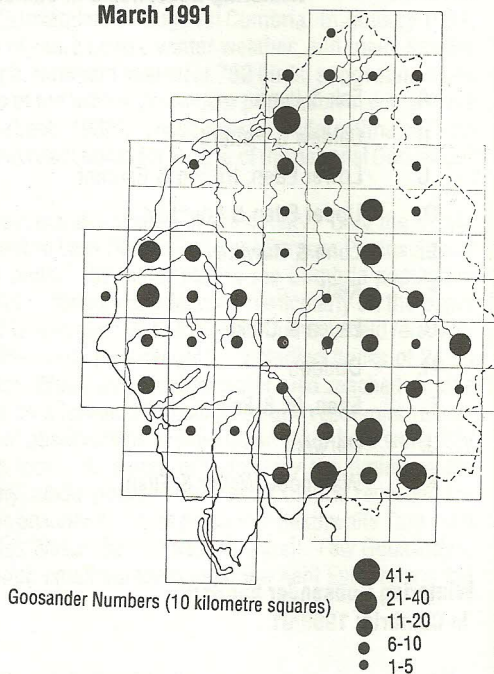
2 The Lune and Kent drainage basins (18% of the county total) experienced a marked increase in numbers in March with 235 birds reported. However, the chances of double counting during the survey are probably higher in this part of Cumbria than elsewhere, as Goosanders make regular use of the many small tarns and reservoirs in the area flighting from the main rivers. The River Kent below Stavely supported an average of 2.7 birds per kilometre in January, exceeded by 3.5 birds per kilometre on the Lune between Kirkby Lonsdale and Sedbergh in March. Relatively few records came from the tributaries of the main rivers, but 16 small lakes hosted Goosanders, notably Grayrigg Tarn (max 24 March), Terrybank Tarn (max 11 November), Moresdale Tarn (max 33 March) High Fairbank (max 15 March) and Simpson Ground Reservoir (max 23 November).

3 The Derwent drainage basin (13% of the county total) was the third area to exceed 100 Goosanders in the March survey. In that month 1.7 birds per kilometre were found on the River Derwent downstream from Bassenthwaite Lake. Other significant sites included Derwentwater (max 10 March), Loweswater (max 14 January) Mockerkin Tarn (max 12 March) and the River Marron (max 18 March).

**Distribution of Goosanders in Cumbria:
January 1991**



**Distribution of Goosanders in Cumbria:
March 1991**



Movements

Goosanders are a relatively sedentary species within their breeding range in Britain. However, the 1990/91 winter survey illustrates changes in the pattern of the Goosander population in Cumbria between the three fieldwork periods which can be examined in terms of three scales of movement.

1 Local movements.

The changing distribution of Goosanders within individual drainage basins during the winter months demonstrated a high degree of mobility, with few stretches of river or areas of standing water showing consistent numbers of birds between the fieldwork periods. Goosanders were recorded on 39 lakes, but only 6 of these had birds present on three occasions. Some movements may be a response to feeding opportunities as suggested for the 24 birds gathered on Ennerdale Water in November, coinciding with the spawning of Char at the head of the lake. In January, freezing conditions caused many smaller waters to be deserted. Daily movements between rivers and roosting sites on quiet waters were evident in some areas, particularly in south Cumbria. Finally, many observers noted disturbance, particularly from walkers, canoeists, fishing and shooting activities. The effect of these pressures was most notable on the viability of lakes as Goosander habitats.

2 Movements within Cumbria

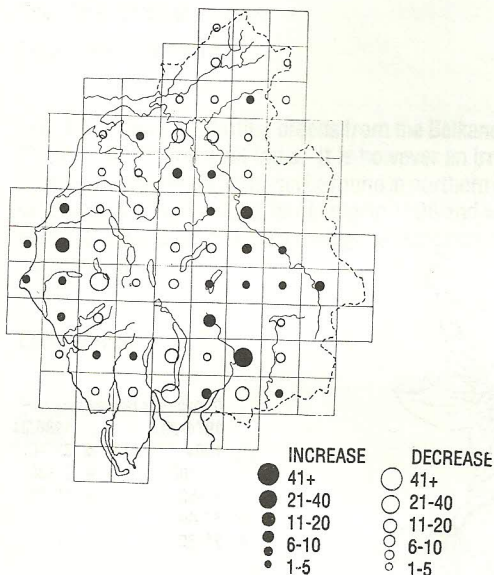
The maps illustrate the fluctuations in Goosander numbers within 10 kilometre squares during the early winter and late winter periods. Between November and January the population clearly retreated from the smaller river systems of north Cumbria, the Lake District and the Lune Valley, concentrating along the River Eden and tributaries, the River Kent and the waters close to the West Coast. In addition, there was a movement away from several larger lakes (Ennerdale Water, Windermere and Conistone Water)

after a November peak. In late winter the movements were substantially reversed.

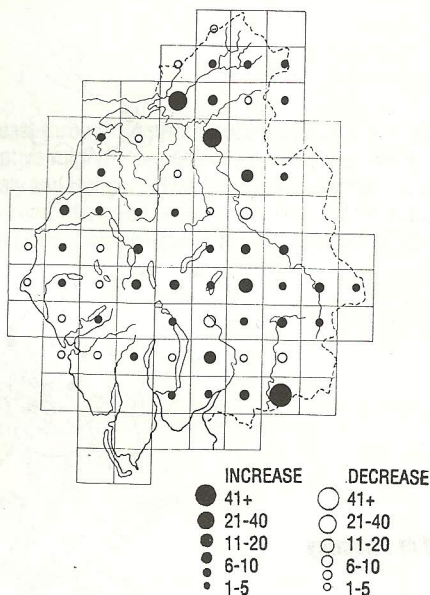
3 External Movements

The number of Goosanders recorded in Cumbria decreased by only 37 birds between November and January, a small figure given anticipated rates of natural mortality in winter. However, the March counts revealed a 41% increase from the mid-winter population, indicating a substantial influx of birds into the county. The main increases were noted on the Lower Eden and the Lune, and the latter may be explained by birds returning from the Lancashire section of the river. It is difficult to determine whether this apparent migration is a movement of passage birds returning to breeding areas further north, or alternatively, evidence that a substantial proportion of the Cumbrian population winter outside the county.

**Goosander Population Change in Cumbria:
November - January 1990/91**



**Goosander Population change in Cumbria:
January - March 1991**



Goosander "Roosting" Sites in Cumbria

An objective of the 1990/91 Survey was to identify roost sites favoured by Goosanders in Cumbria. The protection of such sites may have important implications for the future of the species in the region. However, it is difficult to establish a clear picture on the basis of this project and a number of problems can be identified:

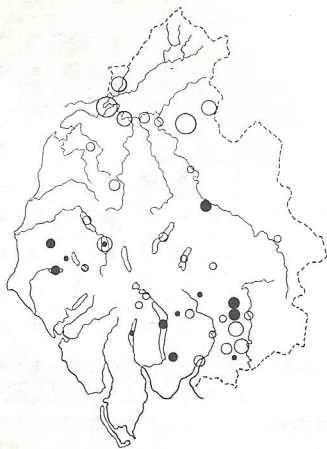
- The timing of counts may have resulted in underestimates of birds using particular waters as roosts.
- The majority of Goosanders appeared to be resident on river courses and may rarely use specific "roost" sites.
- Concentrations of Goosanders exceeding 20 birds were observed on six lakes, and a further six waters recorded flocks into double figures. However, such gatherings may be caused by the availability of a food supply rather than typical roosting behaviour.
- It is likely that high numbers of Goosanders noted on small lakes such as

Moresdale Tarn, Simpson Ground Reservoir, Whins Pond and Greyrigg Tarn represent significant roost sites, but only the latter was consistently occupied throughout the season.

Since 1974, 32 sites have been identified with flocks of more than 20 Goosanders present. Substantial numbers were only found on four of these waters in the 1990/91 Survey. Experience in south Cumbria suggests that "traditional" roost sites (ie Kitmere, Killington Reservoir) may be abandoned without any obvious change in the suitability of the location.

The winter survey of 1990/91 has confirmed that Goosanders are now present in most areas of suitable habitat within the county. It is likely that the potential for future range expansions or increase in population may be limited by natural controls. However, the need for further studies of the population fluctuations and habitat requirements of Goosanders and an evaluation of necessary conservation measures, will remain important for the future of this controversial species in Cumbria.

Goosander 'Roosts' in Cumbria 1974 - 90 and Winter 1990/91



Goosander Numbers

| 1974-90 | 1990/91 |
|----------|---------|
| ○ 100+ | ● 31-40 |
| ○ 51-100 | ● 21-30 |
| ○ 41-50 | • 10-20 |
| ○ 31-40 | |
| ○ 21-30 | |

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References

Wildfowl in Great Britain, Owen, Atkinson-Willes & Salmon
 Atlas of Wintering Birds in Britain & Ireland Lack
 Birds in Cumbria 1976 - 1990