

AERIAL SURVEY OF WILDFOWL IN THE HIGHLANDS OF NORTHERN SCOTLAND IN THE SPRING OF 1959

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Introduction

THE north of Scotland is the home of the remnants of the indigenous British population of Greylag Geese and of a variety of breeding ducks about which there is little reliable or recent information. Since the country has a comparatively small human population and includes large tracts which are difficult of access, it seemed likely that observations from an aircraft would provide an economical means of studying the distribution of wildfowl in the north. The area to be explored comprised the mainland and inshore islands north of a line from Loch Carron in the west to Inverness in the east.

The objects of the survey were two. First, to make a census of Greylags by visiting all the lochs and lochans known to have been used as breeding places within recent years, and as many other likely-seeming places as possible. Second, to obtain a detailed record of the distribution of all species of ducks breeding within the region, paying particular attention to the remoter areas. The more accessible localities, about which information is more readily available, were not visited because of the limited funds available for the survey. This led to the omission of lowland Caithness, which is known to be rather rich in breeding ducks. A map of the areas searched from the air is given in Figure 1.



The survey occupied 28 flying hours between 27th May and 4th June. The aircraft used was an Auster Aiglet which was hired from Airwork Ltd. and flown from their base at Scone (Perth) to Inverness (Dalcross) aerodrome from which operations were conducted. During the survey, the aircraft was flown at a speed of 90 m.p.h. and a height of about 300 feet. The weekend of 30th-31st May, during which no flying was possible, was spent in an extensive ground survey by car of the west coast and the northern inland lochs. We are greatly indebted to Mr. E. A. Maxwell for providing the vehicle and for assistance with the survey.

Results

a. Distribution and numbers of Greylags

From published records and other information it seemed possible that Greylags might be found in some nine regions in west, central and south-east Sutherland and on some lochs and offshore islands in Wester Ross. It was also possible that some remained in south west Caithness. In most places the geese were believed to be truly wild although those in the regions of Loch Carron and Loch Brora were known to have been introduced as, or reinforced by, feral flocks.

All but two lochs known to have harboured geese in the past were visited from the air, together with a great number of other lochs, several of which appeared at least as suitable as the known sites. One of the omitted lochs was visited by car.

The number of geese seen was disconcertingly small and the most favourable total that could be amassed from this survey was 65, of which 16 were probably remnants of feral flocks. Although some geese may have been missed it is unlikely that very many were, for some likely areas were searched very thoroughly and on a number of occasions without results. The extensive ground search covering several hundred miles found geese in only two localities and fully confirmed the conclusion from the aerial search that geese were very scarce. The largest number found was a group of 30 which was seen from the ground in a field near a complex of lochs in central Sutherland. These geese were also seen from the air, flying over the nearby lochs in two flocks totalling 17. A second group of 10 was found on 24th May, about 9 miles north east of the first birds, on a small lochan several miles from the nearest road. On 3rd June they were seen again on the same lochan although only 9 were present. On the first occasion the geese were on the shore when seen and had risen to settle on the water after a brief flight. On 3rd June they declined to fly, however, although a low level run was made over them and it was concluded that they were probably in flightless moult. Some photographs taken of them from about 50 ft. were not sufficiently detailed to show whether this was the case (see p. 184).

Very few geese were seen in the Loch Brora area although the region was very thoroughly searched on two occasions and it seems that the large feral flock there (over 200 strong ten years ago) has been greatly diminished. Another group of feral geese containing two broods was seen near Loch Carron but the number of young could not be counted.

The Summer Isles, known to have been the haunts of a number of resident Greylags in the past, were searched thoroughly on 1st June but four geese spotted in flight off one of the smaller islets were the only ones seen. No geese were found on any of the other islands off the Ross or Sutherland coasts.

This survey was commenced in the last week of May on the assumption that successful breeders would have hatched their eggs a short time earlier, so that an estimate could be obtained of the breeding success by counting family parties. The presence of broods in the feral flock near Loch Carron suggests that this timing was correct but no other broods were seen and none of the adults behaved like breeding birds. It has been pointed out by Dr. J. Berry (*in litt.*) that broods are normally to be seen on open water only in the early morning and late evening, times when, for administrative reasons, it is not possible to fly, and some broods may have been missed as a result. Even so, this survey suggests that the strength of the truly wild Greylag population in the north and north west of Scotland, excluding the Outer Isles, is very meagre and they give no support to the hypothesis that some of the more inaccessible island-studded lochs might still harbour breeding groups unknown to ornithologists.

b. Distribution and number of ducks

A study of the Bartholomew "half-inch" maps shows that the inland waters inspected during the survey, about 540 in all, amount to 42% of the total mapped in the whole of Scotland north of the line Loch Carron—Inverness. Of those visited, 242 waters were at an altitude of less than 500 ft. (38% of the total waters below that height), 219 waters were between 500 and 1000 ft. (51% of the total waters between these heights), and 77 waters were over 1000 ft. (35% of the total waters over that height). Only on 56 (10.4%) of the visited waters were ducks of any species seen. 44 of these occupied waters were below 500 ft., 11 between 500 and 1000 ft. and only one over 1000 ft. The occupied waters comprise 18%, 5% and 1.7% respectively of the total waters visited in the three altitudinal samples.

The distribution of each species of duck seen during the survey is summarised in Table 1.

TABLE 1. Summary of distribution of ducks seen in the North West Highlands, May—June, 1959

Species	Numbers of waters occupied		Number of ducks seen	
	Inland	Coastal	Inland	Coastal
Shelduck	5	6	87	223
Mallard	21	5	193	30
Teal	6	0	14	0
Wigeon	8	1	41	10
Tufted	5	0	25	0
Scoter	2	2	3	35
Eider	0	7	0	106
R-b. Merganser ..	10	10	31	28
Goosander ..	10	0	30	0

There was a preponderance of males in all species, except the sawbills. This disparity was expected, being due largely to the timing of the search when most females were likely to be on their nests and so escape detection. Thus the number of birds seen is a measure of the distribution of males and hence, by inference, of breeding pairs rather than a total count.

These results show that not only were very few of the visited waters occupied, but that the number of ducks seen on those in use was small. It is therefore difficult to draw any more definite conclusions from these figures concerning the distribution of ducks than the following brief notes.

Shelduck. Table 1 shows an unexpectedly high proportion of inland records, but all the lochs used are within three miles of the sea. From their distribution and behaviour, few of the birds seen were breeding.

Mallard. The scarcity of this species in the north west, noted in published records, is borne out by the present observations. Only four females with broods were seen (two from the air and two from the ground).

Teal. This is the hardest species to see from the air but, even so, remarkably few were found. Teal seem to have been decreasing in the Highlands in recent years and these results suggest that the species is now only sparsely distributed.

Wigeon. The number seen was fewer than expected, especially as most of the observed birds were probably excess males or non-breeding birds. However, inexperience of the habitat preferences of breeding pairs may have reduced the effectiveness of the search for this species.

Common Scoter. This species is usually readily visible from the air and the very few seen on inland waters suggests that the Scoter has suffered a decline as a breeding bird in recent years.

Eider. Very few pairs were found but the female is not easily seen on the water, and even less so when in vegetation on land.

The paucity of these results is disappointing and suggests that a representative sample of ducks was not obtained. No doubt, the time of day was unsuitable for optimum observational conditions, although surveys flown over the North Somerset reservoirs at midday seem to have detected 50-100% of the ducks recorded on comparable ground counts. This suggests that, at most, the number of ducks in the areas surveyed in Scotland was not more than twice the number recorded, for the risks of overlooking ducks in the Highlands ought to be less than that in the more overgrown English reservoirs. This is still a very meagre total and it is fair to conclude that it is unlikely that a significant proportion of the British population of ducks breeds in the North Western Highlands of Scotland.

This survey was part of a programme designed to test the feasibility and utility of aerial survey in Great Britain, undertaken on behalf of the Nature Conservancy and financed by that body.