AERIAL SURVEYS

THE first full season of aerial surveys conducted by the Wildfowl Trust was 1957-58. Much of the flying was exploratory and a large part of the funds set aside for this project was spent in visiting Canada to observe the aerial surveys carried out there by the U.S. Fish and Wildlife Service. With this experience behind us we hoped to establish the practicability of aerial surveys in this country on a firm basis in 1958-59. Unfortunately our efforts were seriously curtailed in the winter by the exceptional sequence of bad weather which allowed flying on only 50 of 151 days between November and March. However, about 158 flying hours were spent on survey in the twelve months from September 1958 to August 1959—a satisfactory total considering that flying did not begin until the end of November. The time was divided between a number of surveys which are considered in more detail below.

The first task attempted was a census of the wintering population of Greylag Geese in Scotland which required nearly 20 hours flying in November, 1958. This was followed by a survey of Barnacles and Brents in Ireland during March, 1959 taking 27½ flying hours. A shorter flight to count the Brents on the east coast of England in February, 1959 utilised another 4½ hours. A further Greylag survey was made in the early summer, but this time we were interested in the size of the breeding population of resident geese in mainland Scotland. The survey, flown in May and June 1959, took about 28 flying hours.

The rest of the flying was carried out from our home base at Staverton Airport near Gloucester with an Auster VD of the Cotswold Aero Club. Much of this flying has been concerned with a study of the population of Shelduck in Bridgwater Bay which is the only known moulting area used by substantial numbers in this country. Up to the end of November 1959 twenty flights (totalling nearly 44 hours) had been made over the Bay. These surveys were not devoted exclusively to Shelduck and other commitments were fulfilled during the flights.

Details of Aerial Surveys flown

Greylags

The results of the Greylag survey flown in November 1958 were published in the last Annual Report (H. Boyd. 1959. Greylag Geese in Britain in Winter. *W.T. 10th Annual Report*: 43-58) though more properly the study falls into the period covered by this report. The beginning of the survey coincided with the onset of foggy weather and it proved impossible to fly our aircraft from Bristol to Scotland where the survey was to begin. Consequently a last minute change of plan was made and we completed the survey with an aircraft hired from Airwork Ltd., at Perth. Flying conditions in Scotland were good but the fog persisted for most of the time in England. This and other experiences later in the winter have convinced us that the best policy is to hire an aircraft as close to the centre of operations as possible.

The same aircraft, an Auster Aiglet, was used for the summer survey. This survey, which is described elsewhere in this report (pp. 103-106) took us over the Highlands of Sutherland and Ross and Cromarty and into

Caithness. Most of the flights were made from Inverness (Dalcross) Airport, which is the nearest airfield to the N.W. Highlands. A base on the West Coast would have been most useful, especially on those days when we were unable to cross over from the east because of cloud covering the high ground.

Barnacles

The Irish survey of Barnacles was made with an aircraft and pilot hired from Skycraft Services Ltd., Dublin, as it proved impracticable to fly an aircraft over from England. The survey, from 3rd to 15th March, 1959, took 27½ flying hours and covered the coast between Down and Waterford as well as much of the coast and most of the islands of Galway, Mayo and North Donegal. Although incomplete (2330 Barnacles were seen in 12 places) the survey was of great value in paving the way for further work in Ireland, in particular a census of Barnacle Geese in December, 1959.

Brents

Sixteen of the twenty-two known haunts of the Pale-bellied Brent in Ireland were visited during the survey described above, and small flocks were seen in two places where Brent had not previously been reported. The number of birds seen was 970, neither of the two major wintering places (Tralee Bay and Strangford Lough) being searched.

The single survey of the Dark-bellied Brent in eastern England was made after four plans for earlier flights had had to be abandoned because of bad weather. These surveys can only be made at week-ends, when the several military firing ranges in the search areas are inactive, and this restriction further reduces the chance of completing a successful census. The main areas searched lie between Ipswich and Southend in Essex and along the coast of Lincolnshire and Norfolk from Skegness to Blakeney Harbour. On an earlier attempt at the survey we flew from Staverton to Ipswich, only to be confronted next day with misty weather which continued for 15 days during which the visibility did not lift above a mile. This, together with low cloud, effectively prevented the survey as well as a return to Staverton. Subsequent surveys have been made with aircraft hired from Ipswich and Skegness Flying Clubs. On 21st and 23rd February, 1959, 7200 Brent were found along the shore from Southend to Skegness.

Shelduck

As the Bridgwater Bay moulting area is almost on our doorstep we have taken the opportunity of investigating the number of birds found there and in contiguous areas of the Bristol Channel during the moulting period. The results of our first season's work, which showed a maximum of 3300 birds in early September, are discussed elsewhere in this report (pp. 107-117). They have revealed some interesting features calling for further investigation. The ease with which routine flights can be made over the area has shown that an aircraft is the most efficient tool for tackling this type of problem.

Miscellaneous Flights

We had hoped to develop a technique for investigating the breeding population of ducks through a transect system similar to that employed in North America. However, it became apparent after a few flights in Shropshire, Gloucestershire and Somerset that the density of ducks was much too low or their distribution too discontinuous to permit the use of this sampling method, which requires a fairly uniformly distributed population.

Another promising use of aerial survey seemed to be flights up and down the course of rivers (which are not adequately represented in the 'waters' of the National Wildfowl Count Scheme). Test flights were made not only to collect information on distribution but also to test our consistency in returning similar figures for the two legs of the flight. For the latter purpose they were extremely helpful. But the use of rivers by ducks was found to be so limited that sampling extensive enough to add a useful amount of information to the Counts would be disproportionately expensive.

Duck counts on reservoirs were found to be a more difficult proposition. With practice, some progress has been made, particularly in counting breeding ducks on the North Somerset reservoirs. These surveys, made during the Shelduck flights, were compared with counts from the ground, usually made on the next day. The ground/air comparisons showed good enough agreement to justify the belief that this type of aerial survey is valuable in areas where ground counts are not available. Counts of ducks on heavily-populated lakes and reservoirs outside the breeding season give a fair picture of the total numbers present but are, not surprisingly, less reliable for individual species than thorough counts from the ground. On some large estuaries, however, aerial counts are better in both respects.

Finally we have used an aircraft for a limited number of photographic sorties to test equipment and films and on one occasion to get a 'goose's-eye' view of the Dumbles for a film which is being made about our local Whitefronts. Our experience has shown very clearly that in British conditions photographic recording of wildfowl numbers is so difficult and unreliable that it must be subordinated to direct observation.