

The food supplies of Essex Brent in the winter of 1960-61

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THIS short paper is a sequel to an account of surveys of Brent Goose *Branta b. bernicla* food supplies which appeared in last year's Report (Burton 1961). It has been necessitated by the exceptionally high numbers of Brent which wintered in Essex during 1960-61, which put to the test the suggestion that "the highest winter average which could be comfortably maintained would be in the region of 6000."

A comparison of the Wildfowl Counts of Brent in Essex during 1960-61 with those of previous years shows a rather unusual pattern, characterised by an early arrival of large numbers. Accordingly, the simple procedure of averaging counts through the winter to provide a measure of goose numbers has been abandoned in favour of a method in which the count totals are plotted on graph paper, and the area under the best curve that can be drawn through them is measured to estimate "goose-days"—the product of numbers and duration of stay. Both methods are very approximate, but this one involves rather less error.

A survey of *Zostera* cover at Foulness and Wakering was made on 23rd April, 1961, to assess the impact of the large numbers which had wintered there. It was found that the cover had been very strikingly reduced; of 250 quadrat throws made over a four mile stretch of coast, 67 landed on bare mud, and in 127 only trace quantities of *Zostera* were recorded. A large amount of this was recently regenerated and could not have been exposed to grazing; an estimate of 70% regeneration was made by recording the state of the plants touching a 12 inch stick thrown randomly on the mud at the same time as the quadrats. An estimate of depletion arrived at from this survey was in the region of 850 metric tons—much greater than in April, 1959, when the last spring survey was made.* Re-assessing the numbers present by the method explained above, the figure for daily consumption by one goose has been re-estimated for the winter of 1958-59 at about 18% of the body weight in dry weight of food, while a similar figure based on the results of the winter of 1960-61 gives 16%. This is a good agreement considering the approximate nature of the method and the many possible sources of error. (In Burton 1961, an estimate of 20-25% was given, from apparent consumption in the season 1958-59, but this was based on less abundant data and is regarded as less reliable than the later figures).

Using the average of these figures, 17%, as a basis, the amount of food expected to have been consumed by Brent throughout the county during the winter was calculated to be 1500-1600 metric tons. This represents a high utilisation of food resources. The total of food reserves at Foulness and in the Goldhanger-Osea area has been previously estimated at 1300 metric tons. In practice, the food supplies in the latter area were not fully used, but a feature of the winter was the very wide scattering which occurred during February, 1961, so that Brent were distributed in numbers round the whole coastline of the county. A point of some interest is that, for the first time, the large supplies of *Zostera* in the Leigh area were used by some 7-800 geese. The

*In the *Twelfth Annual Report*, p. 110, the sentence reading "At Foulness, surveys indicated that some 650 metric tons of *Z. noltii* were removed during the winter of 1957-58" should have referred to 1958-59.

coastline of this area is very built up, and experience in previous winters had indicated that in consequence these food reserves would not be used to any great extent.

Although it is very unlikely that any Brent actually went short of food in the county in 1960-61, some symptoms reminiscent of food shortage were noted. In the St. Peter's area, by the beginning of February, Brent were staying close to the saltings long after the tide had ebbed, feeding on the *Enteromorpha* which grows thickly at these high levels; by mid-February, they were to be seen feeding in numbers on the saltings themselves even at low tide. Similar behaviour was observed at Steeple Creek on the Blackwater, where Brent fed regularly on the saltings throughout the winter, and appeared particularly fond of the area right at the foot of the sea-wall. Interestingly, no such observations were made at Foulness, where grazing on the mud was most intensive; and in the Steeple area, supplies of food on the mud showed no sign of running out. Perhaps such behaviour may be provoked by crowding before a genuine shortage actually occurs.

A record of 12 Brent grazing on winter grain comes from Zeeland (T. Lebet). The food supplies for Brent in this area have recently been considerably reduced by the damming of the Zandkreek estuary. This is the closest Continental wintering area to Essex, and although its population is not large, it is possible that the change in this area may have some influence on the movements of Brent to Essex and be connected with the early arrivals noted in autumn 1960 and again in autumn 1961.

To sum up. A feature of the winter of 1960-61 in Essex was the high level of Brent numbers maintained over a considerable period. This involved very high utilisation of resources, and some symptoms of overcrowding were noted in the form of unusual feeding behaviour. Such a high use of food reserves depends to a large extent on the present very tame behaviour of Brent resulting from protection. Removal of Brent from the legal protection at present afforded by the 1954 Bird Protection Act would make such full use of food supplies difficult if, as is likely, the birds became wilder. This should be borne in mind in any discussion on the future of the Brent.

Reference

BURTON, P. J. K. 1961. The Brent Goose and its Food Supply in Essex. *Wildfowl Trust Twelfth Annual Report* : 104-12.

