

It can be done, as the outstanding efforts of the Canadian Wildlife Service have shown (Barry, 1962, Cooch, 1961, Lemieux, 1959). The present study should also have shown the desirability of looking at the behaviour of geese nesting in the low-arctic to see how it differs from that of the high-arctic species studied in Canada. But, supposing that observations in breeding areas must always be few and short-lived, any methods of maintaining continuous records of fertility and of analysing the effects of

possibly relevant factors over many years deserve investigation. In the writer's opinion the work reported here suggests that in carefully-selected cases the combination of observations in winter and of weather data from established meteorological stations may be of value. Some Arctic weather stations keep records of the extent of snow cover. It would be instructive to repeat analyses of the type attempted here for a population nesting around a station providing such full weather data.

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Brent Geese in western Europe during the winters of 1962-63 and 1963-64

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Summary

Hard weather during January and February 1963 concentrated most of the population of Dark-bellied Brent Geese into England and France, making a good estimate of numbers possible. The population in mid-January 1963 was between 23,000 and 25,000. Less comprehensive counts during the winter of 1963-64 suggest that the numbers were then much the same. Very few young were recorded from any areas during 1962-63, but during 1963-64 counts from all areas lay within the range 30-40% first-winter.

The Pale-Bellied Brent wintering in Ireland have had two successful breeding seasons in succession, with about 39% young in sample counts in 1962-63, and about 33% in 1963-64.

Introduction

Although the winter of 1962-63 was exceptionally severe throughout Europe, the

counts made of Brent Geese were more comprehensive than any obtained pre-

viously. In part, the weather helped by concentrating Brent into relatively few areas. Such full coverage was not attempted during 1963-64. During 1962-63, a special appeal was made for observations regarding the effect of the hard weather on Brent Geese and these, together with details of counts in both winters, are given below. Counts of age-ratios and total populations were made in all major wintering areas in both winters.

Dark-bellied Brent Goose *Branta b. bernicla*

ENGLAND

Devon

24 on the Taw estuary, 17th February, 1963 (A. J. Vickery).

Hampshire and Sussex

Details for Langstone and Chichester Harbours in both winters have been received from B. W. Renyard. The maximum combined total for both harbours during 1962-63 was 1,500 on 12th January. No first-winter birds were seen. The main feeding areas of the Brent were not as badly affected by ice as the upper part of the shore, and thawed more quickly. The flocks split up more than usual, and one sickly bird was seen. Otherwise, the weather appeared to have little effect on Brent in these areas. 15 were recorded at Christchurch Harbour on 4th January, 1963 (A. J. Wise).

During the following winter, an unusually large influx occurred during mid-December, and the flocks quickly became scattered, making counting difficult. The highest full count for the two harbours was 1,360 on 14th December, 1963. Counts of numbers of young birds in the flocks during the winter totalled 377 out of 919, 41%.

Kent

In the north, about 370 were present at Shellness and Egypt Bay on 11th November, 1962. During mid-January 1963, the total is not thought to have exceeded 150, most of these birds being on the Medway and Swale (D. F. Musson). At Pett Level, a flock of from 60 to 80 (including one Pale-bellied bird) flighted regularly up to a mile inland during February 1963 (H. F. Greenfield, Dr. J. G. Harrison).

Essex

The maximum count during 1962-63 was 9,495 on 13th January, 1963 (R. V. A. Marshall). No first-winter birds were seen at all throughout the winter. In the Bradwell area, Brent fed regularly on the salt-ings and to a lesser extent on pasture fields

inland during January and February. The snow cover was very thin for most of this time, and did not hinder grazing very much. Inland foraging was also reported from Foulness, Canewdon, Farnbridge and Leigh-on-Sea (P. Stockwell, Miss M. Drake). Many instances of extremely tame behaviour occurred; one party of 38 landed on the children's paddling pool at Leigh-on-Sea, while others on the shore in the same area allowed dogs to approach within a few yards before taking flight. A single stray found its way to Hanningfield Reservoir. Despite all this, only 10 dead Brent were reported in Essex, contrasting with high mortality of several other coastal species, particularly Shelduck.

The maximum during 1963-64 was 8,813 on 15th December, 1963. In counts made by the writer, 464 first winter birds were found in a total of 1,420, about 33%.

Herts

2 at Tring Reservoir, 16th March, 1963 (N. E. Gammon).

Norfolk

At Scolt Head, 500 were present from late December 1962 to the beginning of March 1963, but no young at all were found (R. Chestney). There were 2,500 altogether at Blakeney and Wells on 25th January, 1963 (H. Hunt). About 10% first-winter birds were estimated at Blakeney (R. A. Richardson).

In the autumn of 1963 the first arrivals at Scolt Head were 57 on 25th October, earlier than usual. 350 were counted there on 6th January, 1964, and from then until 26th February numbers fluctuated between 350 and 550, the proportion of young remaining constant at 28%. The majority left by early April and the last seen were three on 3rd May, 1964 (R. Chestney).

Wash

(Lincs. and Norfolk). D. Broom estimated the average number present during January 1963 at about 3,500.

Northumberland.

Some 2,000 appeared at Holy Island about New Year 1963 and stayed until the end of the cold weather. There were no signs of increased mortality (F. Stabler). These birds are assumed to represent most of the Spitsbergen section of the Pale-bellied population.

128 Brent arrived on 1st December, 1963, and increased to 3-400 by 13th. These are thought likely to have been Dark-bellied birds. By mid-February 1964 5-600 geese were present, most likely Pale-bellied (F. Stabler).

Cheshire

2 seen flying east at Leasowe Shore, Wirral, on 6th January, 1963 (B. W. Kendrick) were most likely to have been Dark-bellied.

WALES

Glamorgan

25-35 were present on the Burry Estuary, Gower, during January 1963. In January 1964, a maximum of 37 were recorded at Whiteford Point, and on 2nd February, 12 first-winter birds were seen in a flock of 32 (D. Cabot and R. Howells).

Anglesey

2 first-winter birds at Newborough Warren on 27th January, 1963, are virtually certain to have been Pale-bellied (P. Hope Jones).

CHANNEL ISLANDS

Jersey

The maximum total in 1962-63 for St. Aubyn's and Grouville Bays was 410, on 21st January and again on 22nd February. On 13th January, 1963, when counts were made in several countries to coincide with the British wildfowl count, there were 350.

Guernsey

27 on 20th January, 1963, three on 21st and 22nd (W. A. Burr ridge). None was seen during 1963-64.

Herm

This was not visited during 1962-63, but 90 were seen on 21st December, 1963, 75-80 on 30th March, 1964, and 40 on 13th April (W. A. Burr ridge).

DENMARK

(Details submitted by Mette and Jørgen Fog.) No young were seen at Jordsand in the autumn of 1962, where the maximum count was 1,300 on 15th October. Most Brent left Denmark when the severe weather started, and a series of aerial counts during January 1963 only revealed 720 on the 13th in East Jutland.

In 1963-64, details were submitted of 167 shot birds in the autumn; 110 of these were young. On 12th January, 1964, an aerial count in Jutland revealed 230 birds.

FRANCE

During 1962-63 a series of counts was organised between 9th-15th January by F. Roux. The counts covered all but a few of the regular wintering areas of Brent on the French coast. The results were:-

Manche	80
Côtes du Nord	130
Finistère	110
Morbihan	5,230
Vendée	150
Charente-Maritime	400
Gironde	300
Total	6,400

The counts from Manche, Côtes du Nord, Vendée and probably Gironde may be underestimates. Counts of first-winter birds were made as follows:-

Morbihan: no young seen out of approximately 1,250 examined (R. Bozec). 7 young out of 149 (F. Roux).

Côtes du Nord: 4 young out of 11 (J. P. l'Hardy).

Vendée: none seen in 760 (Dr. Ricou-leau).

In Morbihan, the *Zostera* was frozen, and the Brent left the reserve where they usually enjoy protection. A massacre was averted by the suspension of shooting on a national scale throughout the severe weather. On 19th and 20th January, small parties and individuals were reported feeding on fields near the sea in company with Whitefronts in Manche, Seine Maritime and Pas de Calais. Records north of the Seine are unusual, as is the record of 76 at the entrance to the port of Croix de Vie, Vendée, on 22nd January. Despite this disruption of their normal routine, the mortality of Brent in France is not considered to have been any higher than in a normal winter.

Counts in January and February 1964 recorded between 9,560 and 10,680 individuals in 19 localities. Several suitable areas in Charente-Maritime, Côtes du Nord and Finistère could not be searched and it is likely that the true number of Brent wintering in France lay between 11,000 and 12,000. (F. Roux and F. Spitz: Les recensements d'anatides en France pendant l'hiver 1963-1964. *Oiseaux de France* 14(4): 1-17. 1965.) Counts of age groups in Morbihan by Abbé R. Bozec gave a total of 134 young out of 449, about 30%.

HOLLAND

The number of Brent in Holland during the severe weather of 1962-63 appears to have been negligibly small. Few were seen in the Kattendijke area until 19th March, 1963, when there were 136. Numbers seen on Terschelling during autumn 1962 were considerably smaller than in previous years, and the proportion of young recorded was about 5%.

In 1964 about 300 were counted at Veerse Meer on 10th January, and 160–180 on 2nd February. On the latter date, 12 young were seen in a flock of 40. At Terschelling a maximum of 1,400 was attained on 1st December, 1963, with the percentage of first-winter birds decreasing from 33% in October to 8% in January, 1964.

(Details for South Holland were sent by T. Lebret, and for Terschelling by J. Tanis.)

SPAIN

Although it might have been expected that larger numbers of Brent than usual would visit Spain as a result of the severe weather, there is no evidence that this occurred. Some were seen near Baldayo, province of Coruña, where a few occur in most winters (Don Mauricio Gonzalez Diez).

Discussion

An attempt was made to synchronise all counts in all areas with the British National Wildfowl Count on 13th January, 1963. This was almost completely successful, and the population during mid-January may be put with some confidence at between 23,000 and 25,000. This total is considerably greater than was expected, considering that two poor breeding years had passed since the population was estimated in 1960–61 at 'between 21,000 and 26,000' (13th Annual Report). It is virtually certain that the earlier estimate was too low. The discrepancy underlines the fact that the coverage of Continental wintering areas is still incomplete, notably in Germany. The greater success of counts during 1962–63 must largely be due to the hard weather driving Brent out of areas where they normally escape observation, into regions well covered by counters. Nevertheless, mortality between February 1961 and January 1963 was low, probably reflecting the lower mortality of the adults which formed the bulk of the population over this period.

The counts made in various areas during 1963–64, though less comprehensive, give a general picture of numbers maintained, but not increased. Since the proportion of young was about 35% during this winter, higher total figures might have been expected. The hard weather of the preceding winter may have been partly responsible for the failure to increase. However, reports from all areas make it obvious that Brent

fared much better than most wildfowl during the hard weather. For the most part, an alteration of normal feeding behaviour was the principal effect, and even the number of strays reported from unusual areas was no more than in most winters.

The results of age-group counts since 1954–55 are summarised in the table below. Figures from 1954–55 to 1957–58 refer to Essex only while those from 1958–59 onwards are based on results from several areas.

Season	Proportion of young birds	
	in Dark-bellied population	in Irish Pale-bellied population
1954–55	40%	?
1955–56	26%	?
1956–57	7%	?
1957–58	53%	?
1958–59	hardly any	?
1959–60	20%	?
1960–61	50%	39%
1961–62	7%	none
1962–63	5%	39%
1963–64	35%	33%

Pale-bellied Brent Goose *Branta b. hrota* in Ireland

Details of Brent observations in Ireland have been collated by Major R. F. Ruttledge.

By contrast with Dark-bellied Brent, the Irish Pale-bellied birds evidently had a good summer in 1962. Counts of the proportion of young in the flocks at several different wintering areas made by D. Cabot, T. R. E. Devlin, F. King and Major R. F. Ruttledge, gave a total of 256 first-winter birds out of 659, or approximately 39%. Counts of total numbers were drastically disrupted by weather conditions, but it appeared that numbers were in fact rather higher than in the previous year, especially in Counties Kerry and Wexford.

During 1963–64, counts in the same areas by A. C. Baird, D. Cabot and Major Ruttledge totalled 1,138, of which 371 (33%) were birds of the year.

Acknowledgements

All the observers above, and many others, have helped to make this report on Brent population the most comprehensive achieved. Their labours during two winters, one of Arctic severity, deserve the warmest thanks and congratulations.