



The moult migration of Yorkshire Canada Geese

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Introduction

In the course of a study of the Yorkshire population of Canada Geese *Branta canadensis* more has been learnt about their moult migration from Yorkshire to the Beaully Firth, Inverness-shire, first demonstrated by Dennis (1964).

History of the Beaully Firth flock

Salomonsen (1968) considered that as the Canada Goose was introduced to Britain, the moult migration to Inverness must be a comparatively recent phenomenon, certainly less than 300 years old and probably of much more recent origin; also that it was reasonable to assume that it was the result of ancient adaptation based on hereditary factors.

Table I indicates that the establishment and development of the moulting flock of Canada Geese on the Beaully Firth is of relatively recent origin. There are no records for 1953 and only a single bird was reported in 1954 but it could well be that such a small number of geese, moulting on so large a site as the Firth, might have been overlooked, in the early stages at least. There is another gap from 1958 to 1960 inclusive when the flock may have

been present and possibly slowly increasing (about 25 geese, which had not started to moult, were in Udale Bay only 20 miles away on the Cromarty Firth on 5th May 1959).

Table I. Numbers of Canada Geese moulting on the Beaully Firth, Inverness-shire.

<i>Summer</i>	<i>No.</i>	<i>Summer</i>	<i>No.</i>
1947	2	1962	120
1950	18	1963	153
1951	52	1964	187
1952	50	1965	ca.160
1954	1	1966	173
1955	22	1967	183
'up to 1957'	15-30	1968	ca.250
1961	40+	1969	ca.325

It will be noted that the periods of greatest growth of the flock occurred between 1961 and 1964 (from 40+ to 187) and between 1967 and 1969 (183 to about 325). The British population of Canada Geese was estimated to be between 2,200 and 4,000 birds in 1953 (Blurton-Jones 1956) and about 10,500 in 1967-69 (Ogilvie 1969).

Status in Yorkshire

The Yorkshire population of the Canada Goose is probably of the order of 1,550 birds (Ogilvie 1969), the majority being concentrated in the north of the West Riding but extending into the extreme south of the North Riding in the vicinity of Masham. There is also an isolated colony of some 80 birds in the North Riding at Castle Howard, north-east of York, and a few smaller colonies in the East Riding near Hull.

Numbers have increased steadily in the last two decades; Blurton-Jones (1956) estimated the population in 1953 to be between 437 and 525 so that the Yorkshire three-fold increase has kept pace with the national increase demonstrated by Ogilvie. The species is mainly centred in the parkland of private estates, but has colonised reservoirs built in the Pennines in the past 50-70 years and quite frequently breeds successfully on the high moors several miles from the nearest water. Flocks of up to 200 assemble annually to moult on lakes and reservoirs in both the West and North Ridings.

In certain parts of the county the species apparently conflicts with agricultural interests, particularly when competing with sheep for grass in spring; consequently it is standard practice on some estates either to destroy all the nests or reduce the number of eggs in each nest. Shooting during the season also takes place though large bags are apparently rare. It may well be that the destruction of clutches, leaving many failed breeders with no tie to the breeding grounds, has had an important bearing on the development of the Beaulf Firth flock which, it is now known, contains both adult and immature birds.

Ringling activities

The method of rounding-up moulting full-grown geese and goslings is almost too well known to describe in detail, but briefly, between late June and mid-July (when the full-grown birds are flightless) flocks are driven off the lake or reservoir where they are moulting and gently guided (in the manner of rounding-up sheep) into a V-shaped funnel leading to a small collecting pen of plastic-covered chain-link fencing. The geese are then ringed and released, previously ringed birds being carefully checked.

At Ripley, near Harrogate, 158 Canada Geese were ringed during the moult between 1957 and 1963, but up to 1963 none was recovered more than 10 miles away.

During the severe winter of 1962-63, however, deep snow cover forced the geese to move, and four birds, ringed as goslings in 1962, were recovered in the Pas-de-Calais, France, in January and February 1963, the first foreign recoveries of British-ringed Canada Geese. In addition, another bird, ringed as an adult in 1958, was recovered in Carmarthenshire in January 1963 (170 miles SW.).

Thirty-nine of a flock of 153 flightless Canada Geese were caught on the Beaulf Firth in July 1963 (Dennis 1964); two had been ringed at Ripley, Yorkshire (c.260 miles SSE.) in 1959 and 1962, and one of these was found dead in October 1963 at Bay of Nigg, Aberdeen (86 miles ESE.). Another round-up was undertaken in July 1964 and 93 were caught; of these five had been ringed on the Beaulf Firth in the previous year and three had been ringed at Ripley.

Of the 122 birds ringed on the Beaulf Firth in 1963 and 1964, 24 have been recovered dead and 20 'controlled' (re-caught and released) in Yorkshire up to April 1970, a total of 36%, all but one within 20 miles of Harrogate. Two others ringed on the Beaulf Firth in 1964 were recovered, one in September 1964 at Coldstream, Berwickshire (150 miles SE.) and one in September 1966 at Whitehills, Banffshire (65 miles E.).

The evidence of a link between the Beaulf Firth and Yorkshire arising from the 1963 and 1964 round-ups stimulated more intensive ringling of Canada Geese and 1,020 were ringed during the moult in central and southern Yorkshire between 1965 and 1969. The localities are shown in Figure 1. Apart from controls of the birds ringed on the Beaulf Firth, there was a large number of controls within the county as the birds moved round from one water to another although these are only of local interest. A new development in 1969 was the control at Harewood and Fewston of 11 birds ringed in the Midlands—eight from Staffordshire, two from Derbyshire and one from Shropshire.

Since experience in North America had shown that repeated round-ups of moulting geese could lead to their abandoning the moulting sites (Sterling and Dzubin 1967), no further round-ups were made at the Beaulf Firth until July 1968. Then, as a follow-up of the intensified ringling of geese in Yorkshire, 225 were caught of the c.250 present. No fewer than 74 had been ringed in Yorkshire plus 12 ringed on the Beaulf Firth in 1963 or 1964. Again in July 1969 the Beaulf Firth round-up was repeated and 216 geese were caught of the c.325 present. Eighty-

five had been ringed in Yorkshire, and 58 on the Beaulay Firth.

These two successive catches of the moulting flock revealed some interesting facts concerning its age composition. A total of 126 goslings were ringed in Yorkshire in 1967 and 35 of these were recaptured on the Beaulay Firth in 1968. Similarly there were 19 one-year-old birds in the 1969 Beaulay Firth catch from a total of 115 goslings marked in Yorkshire in 1968. Also in the 1969 catch were 27 of the 1967 crop of goslings, returning there as two-year-olds. Assuming that the already ringed proportion of the catches was representative of the whole, immature birds made up about 47% (35 out of 74) of the 1968 catch, and 54% (46 out of 85) of the 1969 catch. The remainder were clearly non-breeders but had not the excuse of immaturity for undertaking the moult migration. Studies in North America have shown that Canada Geese normally reach reproductive maturity at

three years of age though a small percentage may mature at two (Wood 1964).

Whilst only relatively small numbers were involved, it is already clear that not all Yorkshire yearlings migrate to Inverness-shire to moult; of 39 goslings ringed at Harewood in 1967, 13 were moulting there in 1968 whilst 12 had moved to the Beaulay Firth. Again, of the 12 goslings ringed at Allerton Park in 1967, six were moulting at Harewood in 1968, one at Fewston and three on the Beaulay Firth. However, no fewer than 12 of the 15 goslings ringed at Ripley in 1968 were moulting on the Beaulay Firth in 1969. Of the 35 yearlings caught on the Beaulay Firth in 1968, four were back in Yorkshire for the moult in 1969, compared with the 15 which returned to the Beaulay Firth. Why some Yorkshire one- and two-year-olds moult on the Beaulay Firth and others stay in Yorkshire is not understood at present but this may become clear as a result of further ringing.



Figure 1. Locations of Canada Goose round-ups in Yorkshire.

Tables II and III indicate the origin of ringed Canada Geese caught on the Beaully Firth in 1968 and 1969. It will be noted that all controls on the Beaully Firth had either been ringed there or in Yorkshire, approximately 260 miles SE.

A number of birds have been proved to have made the double journey from Yorkshire to the Beaully Firth and back; no fewer than 14 geese ringed in Yorkshire and controlled on the Beaully Firth in 1968 were controlled back in Yorkshire during the moult in 1969. These and two others are shown in full in Table IV, whilst Table V gives the details of the five birds originally ringed on the Beaully Firth and subsequently recaptured first in Yorkshire and then back in Scotland.

Timing of migration and route

Information about the timing of the migration is still sparse. The moult normally starts in Yorkshire in mid- to late June and most birds are full-winged by the end of July, therefore it could be assumed that the northward migration should take place in May or early June and that birds would be capable of returning south in August. The following information is culled from the National Wildfowl Count Scheme, the Current Notes section of the quarterly journal

Scottish Birds, and from personal communications.

(a) *Northward migration*: early observations on the Beaully Firth suggested that the flock is present from mid-April or May to September; recent counts revealed 110 present by 3rd June 1966; the following year there were 123 by 20th June and in 1968, 233 by 9th June. Additionally, three birds ringed on the Beaully Firth in 1968 and shot at Tynninghame Bay, East Lothian in May 1969 could well have been on their way back to the Beaully Firth. Another observation from Inverness indicated that between 1962 and 1966 the geese usually appeared about 20th June 'flying down the Great Glen in parties of 50-70'. Such records suggest that the northward migration takes place prior to mid-June. The following visual records of Canada Geese in places where they do not normally occur suggest that the geese indeed move up in small flocks rather than *en masse*:

33 flying over Redcar on the North Yorkshire coast, 5th June 1965;

14 on Duddingston Loch, Edinburgh, on 15th June 1966;

11 flying near North Berwick, East Lothian, 25th June 1966.

One control of particular interest, however, indicates that birds may move up remarkably late. A 1967 Harewood-ringed

Table II. Origin of Canada Geese controlled on the Beaully Firth, Inverness-shire, July 1968.

Year ringed	Beaully	Ripley	Swinton	Allerton	Harewood	Bretton	Total
1959	NR	1	NR	NR	NR	NR	1
1963	4	3	NR	NR	NR	NR	7
1964	8	NR	NR	NR	NR	NR	8
1965	NR	3	NR	NR	NR	—	3
1966	NR	3	7	NR	NR	2	12
1967	NR	5	21	6	23	—	55
Total	12	15	28	6	23	2	86

NR = none ringed.

Table III. Origin of Canada Geese controlled on the Beaully Firth, Inverness-shire, July 1969.

Year ringed	Beaully	Ripley	Swinton	Allerton	Harewood	Fewston	Total
1957	NR	1	NR	NR	NR	NR	1
1959	NR	1	NR	NR	NR	NR	1
1963	1	2	NR	NR	NR	NR	3
1964	4	NR	NR	NR	NR	NR	4
1965	NR	2	NR	NR	NR	NR	2
1966	NR	2	4	NR	NR	NR	6
1967	NR	1	18	7	11	NR	37
1968	52	15	—	NR	18	3	88
Total	57	24	22	7	29	3	142

NR = none ringed.

Table IV. Canada Geese proved to have travelled from Yorkshire to the Beaully Firth and returned to Yorkshire.

Ring No.	Year	Ringed Yorkshire Place	Age	Controlled Beaully Firth	Recovered or controlled in Yorkshire
130579 } 5024474 }	1957	Ripley	Juv.	1969	Shot Ripley, 1969
137795 } 5024142 }	1959	"	Ad.	1968	Controlled Ripley, 1969
5011472	1963	"	Juv.	1968	Shot near Ripley, 1969
5011478	1963	"	Juv.	1964	Controlled Swinton, 1967
5011489	1965	"	Juv.	1968	Shot near Ripley, 1969
5011755	1965	"	Ad.	1968	Controlled Ripley, 1969
5010611	1966	Bretton	Juv.	1968	Controlled Harewood, 1969
5010616	1966	"	Juv.	1968	Controlled Ripley, 1969
5010506	1967	Allerton	Ad.	1968	Controlled Harewood, 1969
5023674	1967	Ripley	Ad.	1968	Controlled Ripley, 1969
5023573	1967	Harewood	Juv.	1968	Controlled Harewood, 1969
5023580	1967	"	Juv.	1968	Controlled Harewood, 1969
5023612	1967	"	Juv.	1968	Controlled Harewood, 1969
5023658	1967	"	Ad.	1968	Controlled Harewood, 1969
5023681	1967	Ripley	Juv.	1968	Controlled Fewston, 1969
5023708	1967	Harewood	Ad.	1968	Controlled Ripley, 1969

Table V. Canada Geese proved to have travelled from the Beaully Firth to Yorkshire and returned to the Beaully Firth.

Ring No.	Year ringed on Beaully Firth	Controlled in Yorkshire	Controlled on Beaully Firth
5002861	1963	Harewood, 1967	1968
5020722	1964	Swinton, 1967	1968
5020765	1964	Allerton, 1967	1968
5020749	1964	Ripley, 1968	1969
5020773	1964	Harewood, 1968	1969

gosling, controlled at Harewood on 29th June 1968, was recaptured on the Beaully Firth 13 days later. Round-ups in late June usually include a few birds yet to commence moulting and which fly away on release. As this bird could never have been to the Beaully Firth before, it must presumably have been 'shown the way' by other adults familiar with the route. A much shorter post-capture movement was made by a Ripley-ringed 1967 gosling which having been controlled on the Beaully Firth in 1968 and at Fewston on 6th July 1969 was controlled again at Ripley, 8 miles NE., also 13 days later.

(b) *Southward migration*: there is more evidence about the timing of the southward movement. The earliest record involves 27 birds at Tynninghame Bay, East Lothian on 18th August 1968; 35 were present on Loch Leven, Kinross for about four hours on 21st August 1969; on 23rd August 1968, 50 geese (presumably Canada Geese on such a date) flew south over Perth and on the same day a bird was picked up dead under wires at Cockfield, Co. Durham (it had been ringed at Harewood in 1967 and controlled on the

Beaully Firth in July 1968). Lastly, 60-70 flew S. (at 9.0 p.m.) over Arbroath, Angus on 29th August 1967.

In September the following observations were made:

- 1st September 1968 four at Tynninghame Bay, East Lothian;
- 1st September 1969 two shot Tynninghame Bay (ringed Beaully Firth 1969);
- 2nd September 1969 one shot Tynninghame Bay (ringed Beaully Firth 1969);
- 2nd September 1966 44 'over' West Hartlepool, Co. Durham;
- 4th September 1964 one shot Coldstream, Berwickshire (ringed Beaully Firth 1964);
- 5th September 1962 72 on Loch Leven, Kinross.

In 1969 about 300 Canada Geese flew in to Ripley Park Lake, Yorkshire, at dusk on 3rd September, the first large flock seen there since completion of the moult in late July. It is tempting to assume that these birds had just returned from the Beaully Firth. The latest sight records on the Beaully Firth referred to seven on 11th September 1965 and up to 22 on 16th September 1955. The earliest recovery in

Yorkshire of a bird ringed on the Beaully Firth in the same year is 12th September (Fountains Abbey, 1969).

One 1964 Beaully-ringed bird was found dead at Whitehills, Banffshire on 18th September 1966 (65 miles E.) and the remains of a Ripley-ringed bird, controlled on the Beaully Firth in July 1963, were found at Bay of Nigg, Aberdeen (86 miles ESE.) on 5th October 1963. In the latter case in particular the bird might well have died some weeks before. Lastly, a 1968 Beaully-ringed bird was shot out of a flock of six at Loch an Ordain, near Eriogie, Inverness on 23rd November that year (14 miles S.).

It would appear, therefore, that the return to Yorkshire starts in the third week of August and reaches a peak in the last week of August and the first week of September. The start of the shooting season on 1st September could introduce a bias into the records as there are no reported recoveries (apart from the Co. Durham bird—dead under wires) in August although the visual records show that birds are certainly moving south (for example Perth and Arbroath).

(c) *Route:* the flocks over Perth and on Loch Leven might indicate a route a little east of south in the autumn from the Beaully Firth to Yorkshire. The Banffshire, Aberdeen and Arbroath records suggest a coastal route avoiding the mountains

though it is unlikely that a Canada Goose would be deterred from crossing high ground. There is a notable concentration of recoveries and sightings on the East Lothian coast.

From the above it will be apparent that much has yet to be learned about the timing of both migrations and the route. More visual records of migrating flocks are needed to supplement ringing recoveries together with more observations in May/June and late August/early September both in Yorkshire and on the Beaully Firth.

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Summary

The moult migration of a part of the Yorkshire population of Canada Geese *Branta canadensis* to the Beaully Firth, Inverness-shire is recent in origin but now firmly established and involving over 300 birds. Ringing in Yorkshire has increased in recent years and round-ups on the Beaully Firth were made in 1968 and 1969 from which it has been learnt that immature birds make up 45-55% of the moulting flock. However, other immatures stay in Yorkshire. Several birds ringed in Yorkshire have been controlled on the Beaully Firth and subsequently back in Yorkshire. Visual and ringing reports indicate the timing of the northward and southward movements, and the probable route.

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