

FLUCTUATION IN NUMBERS OF THE EASTERN BRANT GOOSE.

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It is not often that a shooting club keeps records which are of any particular interest from the ornithologist's viewpoint. However, the Monomoy Brant Club of Chatham, Massachusetts, has proved an exception for it has kept a faithful log from 1863 until the present time.

This log is a mine of information on the habits of sea fowl, the psychology of sportsmen and all that pertains to that windy neck of sand. I doubt if it can be duplicated anywhere.

A few years ago the five neat volumes of these records were loaned to me by the present Secretary of the Club, Mr. G. C. Porter, and I read them through with real delight. The father of the Club was Mr. Warren Hapgood of Boston, at one time the very active President of the Massachusetts Fish and Game Association. From 1863 to and including 1909 all of the shooting was done in the spring, and practically the whole bag consisted of the American or Eastern Brant (*Branta bernicla hrota*). After that time spring shooting was abolished by law in Massachusetts. I feel that some summary of this log should be available.

At the present time when so many of our sportsmen and others are worried over the wildfowl situation, the extraordinary natural fluctuation in numbers of Brant gives us food for thought and demonstrates the remarkable power of recuperation in one species, at least.

The Brant cannot, of course, be compared directly with any other of our wildfowl in this respect, for this species occupies a most peculiar niche in relation to its natural and human environment.

In the first place it is strictly limited in winter to ice-free waters in the southern extension of the range of the eel grass (*Zostera marina*). North of Cape Cod the winters are too severe and south of Pamlico and Core Sounds in North Carolina eel grass does not grow. Indeed it is noticeably dwarfed in this southern limit of its

range. Brant will eat widgeon grass, sea lettuce and other foods if they have to, but in the long run they appear dependent on *Zostera*.

Since these birds occupy vast open spaces of water and have the habit of packing into large flocks, they are very difficult birds to bag in large numbers. And since they have, with other geese, a relatively long life span, they can stand poor breeding years better than the shorter-lived ducks and teal.

Such things as pollution by mineral oils or a failure of the eel grass crop through poor seeding years, or changes in the salinity of the water may have direct and important influence on the well-being of this species. We appear now (1931-32) to be passing through a period of serious *Zostera* shortage on the Atlantic Coast.

It has long been known that during certain years, or sometimes for several years in succession, very few young Brant are reared.

This fact is, of course, easily apparent because the young of the year are very conspicuous owing to the presence of white edging on the ends of the wing coverts and secondaries. All Brant shooters are familiar with these marks of immaturity. If one plots a curve based on the number of Brant taken on the Monomoy flats by this Club from 1862 to 1909, one is struck by the astonishing irregularity of the graph. Although the conditions were fairly constant, in so far as food and persecution are concerned, I find several peaks of abundance, 1867, 1873, 1876, 1887, 1890, 1891, 1901 and 1906. There was a notable scarcity in 1865 and a very low period from 1877 to 1886 with other low points in 1895, 1900, 1903, and from 1906 to 1909.

I find this note in the log for 1882: "We feel more and more every year that if things continue for a few years more and the birds grow fewer and fewer every year, in ten years there will not be birds enough to render Brant shooting a sport at all."

Yet in 1887 there is the following:

"Never a greater number of Brant passed this Point." "This admitted by all hands." "Four million (estimated) went North between March 25 and May 2." And during this year the records show that about two-thirds were young ones. Of course one must not take the figure four million too literally, for anyone who has attempted to estimate flocks of large birds knows that the tend-

ency to over-estimate is a nearly universal failing among observers. A figure about ten percent of this would probably be nearer the proper mark.

In regard to actual numbers, it may be said that continuous flocks of Brant five to seven miles long, and closely packed have often been noted in Barnegat Bay, New Jersey at one time. Mr. Charles A. Urner of Elizabeth City actually counted as many as eighty thousand on February 22, 1925. In Chatham Bay gatherings of twenty-five to fifty thousand are probably not uncommon, but it would be unsafe without further figures to put the whole population of the Eastern Brant at anything over one-third of a million birds. In proportion to their numbers, however, comparatively few are shot, and protection in the spring has been of great benefit to the species.

Referring to the records we find that again in 1890 and 1891 there was good shooting, and there were enormous numbers of Brant in the Bay so that there seems to have been a complete recovery after the long cycle of depression from 1877 to 1886.

The year 1909 was the last year during which spring gunning was allowed and from that time to the present the records are in no way comparable. Very few Brant stop at Monomoy during the autumn flight and in the old days it was never considered worth while to "rig" for them at all except in the spring.

It is only fair to say that factors other than relative abundance entered into the size of an annual bag and when these are clear cut they are noted in the table to follow. Young Brant decoy much more easily than old birds, and when few young ones were shot during a whole season, it is fairly good evidence that not many were present.

The spring arrival of Brant at Monomoy may be said to begin about the second week in March, although sometimes they arrive the first week. Usually only a few spend the winter there, but sometimes a good many do. The main concentration is between March 25 and April 20, and as a usual thing the Bay is nearly empty of birds by April 25. In exceptional years, and especially when there are plenty of young birds, a few linger on into May. The young birds are said to be in less of a hurry to leave than the old ones.

Something should be said here about methods of shooting at Monomoy. Previous to 1860 the shooting was entirely in the hands of native gunners from Chatham and Orleans. Occasionally an outsider was invited for a week, but the living was so hard that the sportsmen rarely came a second time. Mr. Hapgood records that in 1862 they shot 375 Brant in nine days, while single shots which bagged from thirty to forty birds were not uncommon. ~~Probably a thousand~~ were often taken on the spring flight on the Chatham flats. Boxes were dug into the sand bars and these bars were crossed by the birds in going to and from their feeding grounds. No wooden decoys were used but each year wing-tipped Brant were saved alive and a flock of live decoys gradually built up. The shooting was nearly all done on the water, the flocks swimming up to the bars, often in close formation. The few native gunners had things very much to themselves and the Brant were not unduly disturbed on their feeding grounds. The combination of live decoys with the Brant little disturbed by other shooters made large bags possible in the early years.

In 1862 a conflict of rival native factions opened a way for the organization of a club, and a group of sportsmen built a shanty which was used first in the spring of 1863.

Wooden decoys seem to have been introduced about 1880 and gradually replaced live decoys. Shooting on the wing took the place of "pot" shooting and the birds became wilder. By 1896 the live decoys had nearly gone out of use.

Another change occurred when the feeding ground between the flats and Nauset, the "channel," was filled with sand washed in by the breach through Nauset Bar. This happened in 1887 and was, for a time at least, disastrous to the shooting since the Brant did not have to fly over the places where the boxes were located. Many other changes in the geography of the flats followed and sedge grass began to grow up near some of the old boxes. In 1886 the three clubs, Providence, Manchester and Monomoy were merged.

I present the following summary for what it may be worth. If it shows nothing else, it does point to the marvellous recuperative power of this species after periods of great scarcity.

Year	Brant Shot	Days of Shooting	Notes
1863	210	March 20-April 30	Mostly old ones. Not as plentiful as last year and do not decoy well.
1864	290	" 9- "	27 No special notes on young. A good many Brant, but tough weather.
1865	72	" 13- "	24 Poorest season for Brant on record. All left by April 20.
1866	135	" 13- "	28 No notes on proportion of young birds.
1867	715	" 11- "	30 A great many young Brant this season. In poor condition.
1868	409	" 14-May 2	No special notes on proportion of young.
1869	297	" 31-April 26	All but two shot this season are old birds!
1870	368	" 22- "	26 Plenty of young Brant. Nearly all left by April 21.
1871	410	" 15- "	19 No notes on proportion of young birds.
1872	594	" 30- "	26 Season very late. More than three-fourths of those shot are young birds.
1873	296	" 15- "	27 Nearly all old birds. Not one in ten, perhaps not one in twenty, are young ones.
1874	208	" 19- "	29 Not over six or eight young out of 208. Almost all old birds.
1875	218	" 30- "	30 Brant late. More than one-half shot are young. More small boats and fish wiers than usual. High course tides.
1876	541	" 18- "	28 No notes on proportion of young.
1877	179	" 9- "	28 No notes of interest. Brant appeared March 6.
1878	152	" 18- "	27 No notes of interest.
1879	102	" 2- "	26 Only three young Brant shot. Nearly all are old birds.
1880	244	" 17- "	30 A great many Brant—more than in years. Birds plentiful March 1.
1881	175	" 21- "	28 No special notes.
1882	233	" 21- "	26 One-fourth to one-third are young. Wooden decoys making birds much wilder.
1883	46	" 21- "	25 Worst year of all. Few young birds. Lots of reckless shooting—nine boxes operating.
1884	144	" 24- "	30 More Brant than for some years. Many young birds.

Year	Brant Shot	Days of Shooting	Notes
1885	70	April 5-	29 Nauset Beach cut changes flats. ² Very late spring. Birds passing in some numbers but don't stop to feed.
1886	153	March 25-	27 No special notes on proportion of young. The three clubs merge.
1887	380	" 20-May 3	Very many young, at least two-thirds of those shot. Estimate 4,000,000 went north March 25-May 2. Never so many.
1888	151	" 22-	3 Almost no young ones (2 out of 135). At Muskegat 61 old, no young. Nauset bar break filling ship channel. Flats less attractive.
1889	309	" 20-	1 No special notes on proportion of young.
1890	495	" 5-April 28	A great year, 50,000 to 100,000 in bay at one time; about two-thirds shot were young.
1891	545	" 19-	30 Brant arrive early; many February 25. Large proportion of young ones.
1892	289	" 16-May 2	Bag consists of 207 adult, 82 young birds.
1893	197	" 15-	3 About half young ones (97 old and 103 young). A wreck loaded with lumber caused disturbance. Poor shooting.
1894	285	" 12-	1 129 old, 149 young. Scallop fishermen bothering much on flats. Lots of Brant, but can't get at them.
1895	29	" 20-	1 Worst season yet. Great changes in flats, no food around boxes, over-shooting and Brant chased by boats. Only four young Brant shot.
1896	109	" 18-April 29	Very few Brant. They arrive and depart immediately. Also a very late season. Scallop boats bad. Flats covered with ice at end of March.
1897	166	" 24-	21 No notes on young ones. Plenty of Brant but way off shore.
1898	336	" 15-	27 No notes on young. Best season for years. Large number of wooden decoys now necessary.

Year	Brant Shot	Days of Shooting	Notes
1899	176	8-	26 Almost no young this year. Out of forty shot all are old. Not nearly so many Brant as usual.
1900	158	" 21-	23 No notes on young birds, except that out of fifteen shot, eight were young.
1901	453	" 25-	30 Many young birds this year. Brant left early. Late flights did not stop.
1902	184	" 25-May	2 No special notes on young and old.
1903	132	" 18-April	22 Brant left very early. Extra fine weather March and April.
1904	240	" 23-	28 Plenty of Brant. No notes on young. An Albino Brant shot.
1905	500	" 22-May	3 "As many as we have ever seen." 80 shot in one day. No special notes on young. No doubt many young this year.
1906	231	" 21-	2 Many Brant stayed all winter . . . mild. Good shooting early March.
1907	184	" 22-April	27 Almost no young ones. 2 out of 182 reported. Birds wild. Weather served well.
1908	150	" 21-	24 No notes on number of young ones.
1909	131	" 23-	24 No special notes. Brant left very early. New law against spring shooting passed.

From 1910 to date the autumn shooting averages about 55 Brant besides Black Ducks and other wildfowl.

We do not yet know what causes the destruction of young birds during the bad years. The few meteorological tables that I have been able to gather show monthly average temperatures for far northern posts like Upernavik in West Greenland, but they give no indication that there is any correlation between a severely cold summer and scarcity of Brant the following spring on the Atlantic Coast. More than likely a sudden severe storm coming at the time of year when the young are still delicate may account for great losses in otherwise normal years. Such storms might not affect the mean monthly temperatures in the Arctic at all, yet they might kill directly or cut off the food supply of the downy young.

I may be permitted before leaving these records to mention the names of the Cape Cod residents who made this club possible, and who contributed so much to the comfort and entertainment of the visitors from the city. The names of Alonzo Nye and David B. Nye, George Bearse and "Washy" (Washington) Bearse were famous in their day.

In the fourth volume of the 'Records' there appears the following notice of the death of Alonzo Nye, who was greatly loved by at least two generations of sportsmen.

"In memory of Alonzo Nye, born August 15th, 1823, died September 13th, 1899 aged seventy-six years. Born, lived his life through, and died at Chatham, Massachusetts. About him in boyhood lay the marshes, flats and beaches of Monomoy, the best ground in New England for shore birds and wildfowl. Naturally the boy and his gun kept steady company; he grew up, sturdy, sure of hand, keen of eye, patient, observant. Familiar to him was the long whistle of the beetle-head, the doe-bird's soft trill, the cronk of wheeling brant. This land of marsh and sand flat, the sea always at hand, rising, falling, in its strange tides and currents, with all the myriad denizens of land and water, this was Lon Nye's home. Here he came to manhood, knowing the play of the tides, the strength and change of the winds, knowing each bird by flight or call, its coming and going, its feeding grounds and habits. May we not call him a typical native New England sportsman? He was one of the founders, and the first president and resident member of the Monomoy Branting Club, and as such we, its younger members of today, owe him and pay him our loving remembrance, our

perpetual gratitude. Those associated with him in the formation of the Club are shown in the Club Log, faithfully and accurately kept from the beginning up to the present day. Let us remember too the hundreds of city men to whom he has given glimpses through his magic glass at the ways of plover and brant, and to whom the short, happy days in the sea breeze, the crisp sunshine, have brought new youth, fresh strength, and awakened love of God's best gift, the great outdoors. Of these, many famous and great became his friends and companions; and shall we not believe that he who was the friend of the great, had in himself a touch of greatness? Surely in his simplicity, his faithfulness, his instinctive knowledge of nature, lay something that we may all reverence. At all events he was helpful and faithful to our Club always, and identified with its growth and prosperity even during the last years of his life, when age had lessened his practical usefulness. We younger men lived to see the firm hand tremble, the clear eye grow dim, the sure foot that had trodden thousands of miles of marsh and flat, stumble weakly at a tangle of marsh grass or fail him utterly at a shallow channel. Time and its changes flowed over him till at last death came, and he passed from us. We now, his Club mates and friends, waiting behind bid him Godspeed over the unknown waters, into the calm and sunshine of the eternal morning."

Wenham, Mass.