

BARNACLE GEESE IN THE EASTERN UNITED STATES: AN UPDATE

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Although Barnacle Goose has been present on the New York State Checklist since the inception of NYSARC in 1977, the first records accepted by the Committee without qualification involved records submitted in 2006 (NYSARC 2009). The acceptance of these and at least ten subsequent records has been based on a number of factors, including a major increase in the population of Barnacle Geese in Greenland, a coincident increase in sightings in Atlantic Canada and the eastern United States (Sherony 2008), and three banding recoveries in Canada and the United States, including one in the Bronx (NYSARC 2010-82-A/C). The present note is a brief update on the status of Barnacle Goose sightings in eastern North America.

GREENLAND GEESE POPULATIONS

It is difficult to get a precise recent estimate of the breeding population of Greenland/Svalbard Barnacle Geese. The most recent estimate is 58,000 for Greenland (Royal Society for the Protection of Birds 2013) and 33,000 for Svalbard. In 2005 a more detailed study estimated 56,400 for Greenland (Trinder, et al. 2005), and the estimate for the population in 2003 was as high as 54,000 (Sherony 2008). It appears that the Greenland population is, at a minimum, stable over the past decade.

BARNACLE GEESE SIGHTINGS IN THE EASTERN U.S.

Chris Wood provided the entire eBird database on Barnacle Geese (eBird 2013). eBird data were used for all records from 2005 to the present. For the original study, records prior to 2005 were based on regional editors' reports for North American Birds (NAB). These editors would distill sighting records based on regional sources to eliminate duplicate sightings of the same bird. That same process was done with eBird data for this summary. In most cases, duplicate sightings are obvious based on same or very close location and by continuity of dates. However, this approach has limits to accuracy, as does the process used by NAB regional editors who, in the past, could be unaware of some records. In some cases, the eBird data were compared with information in NAB. The purpose of this process was to make an estimate of the number of different birds being recorded. The results presented should be thought of as an approximation and are limited by the researchers' assumptions applied to each record. All data prior to 2004 stated in this report came from NAB and was published previously (Sherony 2008). All data from 2005 to the winter season of 2012 were obtained from eBird vetted data. eBird data contained in the provisional data sheet were not used.

This study focused on the eastern United States. There are records of Barnacle Geese in other states including Alabama, Arkansas, California, Florida, Illinois, Louisiana, Missouri, North Carolina, Ohio, Texas, Tennessee, Washington and Wisconsin. They were not used in this analysis for the following reasons: (1) some of these records are too old to use; (2) most of these states have very few records; and (3) these are more likely to have questionable provenance. However, it is likely that the Midwest does get some legitimate records. Data for the period beyond 2005 include the states of Maine, New Hampshire, Vermont, Connecticut, Massachusetts, Rhode Island, New York, Delaware, New Jersey, Pennsylvania and Virginia.

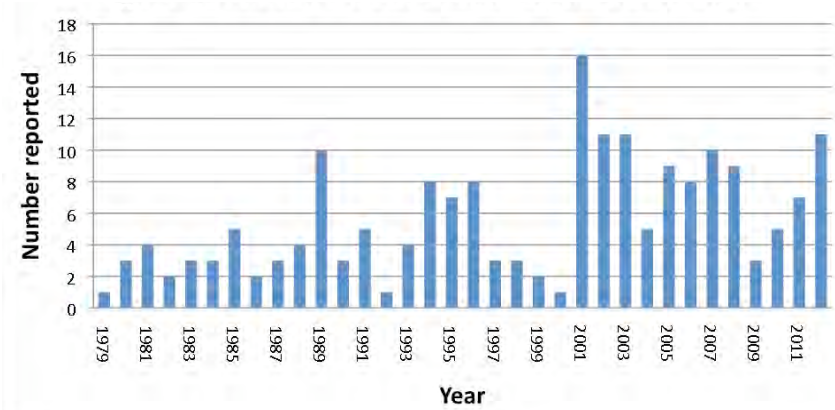


Figure 1. Barnacle Goose records for the eastern US.

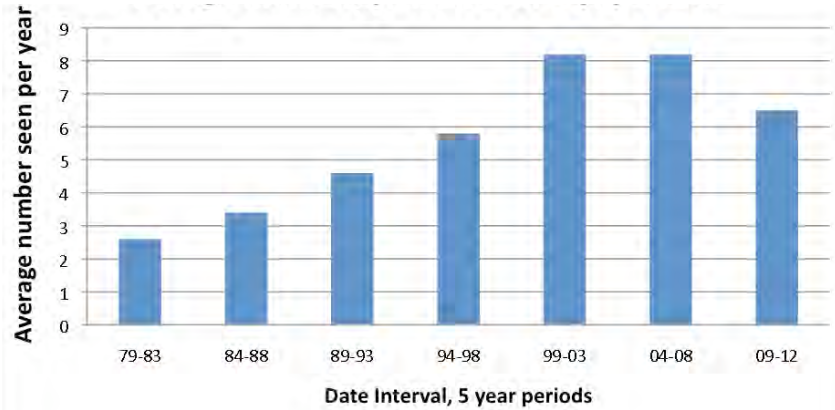


Figure 2. Individual Barnacle Geese seen per year in the eastern US, averaged over 5-year periods.

Figure 1 shows the number of individual Barnacle Geese thought to be unique birds recorded in the eastern US. These data support the trend seen previously. The data is very noisy but the average number of Barnacle Geese seen over five year periods, shown in Figure 2, indicates a reasonable trend.

Figure 2 would imply that since the five year period beginning in 1999, we have been seeing about seven different Barnacle Geese in the East annually. In support of this estimate, data from NAB for the winter of 2012-2013 cited eight different Barnacle Geese: seven in the Hudson-Delaware and one in eastern Pennsylvania. The more variable number of total reports depicted in Figure 1 also implies that occurrence has increased in the 20 year period following 1999.

**DATES OF ARRIVAL, DURATION OF STAY,
AND DATES OF DEPARTURE**

The earliest record in fall is 6 Oct from Maine and there are a number of records between 6 and 10 Oct. The earliest New York record from the eBird data is 24 Oct. When considering the distribution of arrival times, records in eBird that implied no duration of stay were not considered.

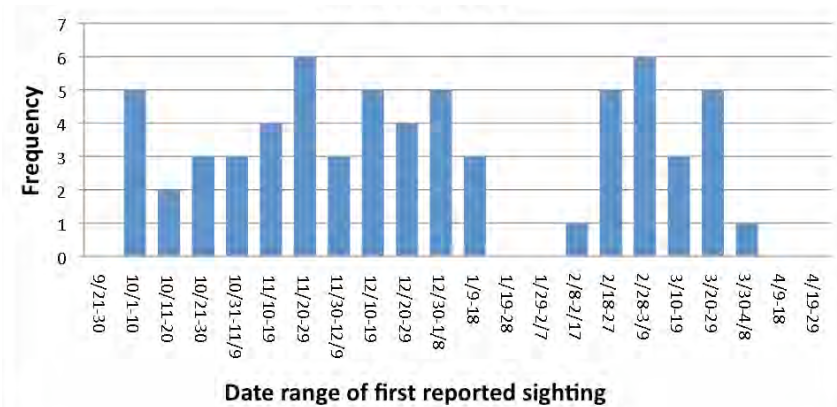


Figure 3. First reported dates of Barnacle Geese in the eastern US.

Figure 3, illustrating the distribution of the dates of first reports of Barnacle Goose in the East, shows no meaningful trend in terms of first sightings, but the situation becomes clearer when the duration of stay is taken into consideration. Some geese were seen in the same general location for a few days, others remained the same vicinity for months. The longest duration in one location was 132 days (12 Nov 2012-24 Mar 2013). Figure 4 shows the frequency distribution of length of stay. These data when combined with that of Figure 3 imply that geese are moving around from place to place and being recorded multiple times.

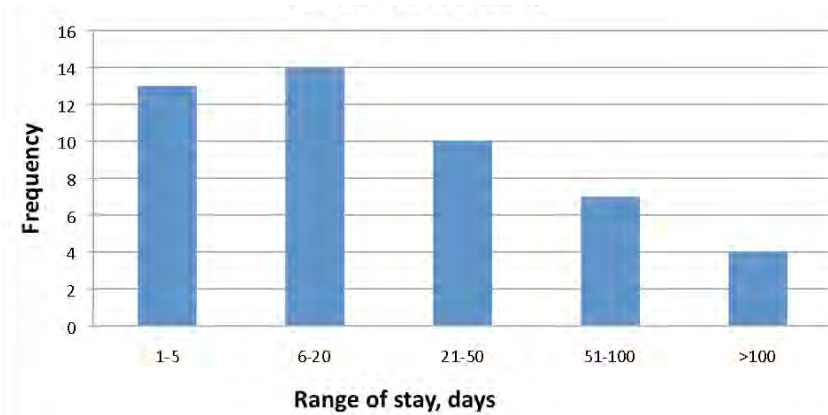


Figure 4. Durations of stay at a single site for Barnacle Geese in the eastern US.

If we consider the date of first appearance for only those geese that remain in one location for 20 days or longer, then the frequency of first appearance is:

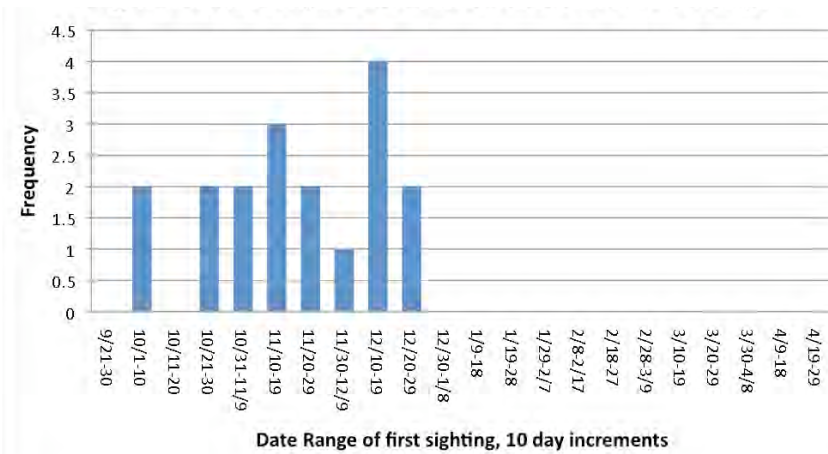


Figure 5. First reported dates of long-staying Barnacle Geese at eastern US sites (duration of stay >20 days).

Figure 5 supports the hypothesis that Barnacle Geese move around a fair amount and are being reported from different locations. The data suggest that observers note their presence as they gradually move south, then north again. Figure 5 would also imply that the time period of arrivals ranges from early October to mid-December. Previously reported data indicates that earliest arrivals are recorded in Quebec; there are records from as early as 6 Sep (Boucherville Is, an island off the coast of Quebec, 2003) but that was an unusual case. The next

earliest record for Quebec is 28 Sep and there are records for New Jersey as early as 3 Oct.

The frequency of first reported date of appearance of Barnacle Geese in the eastern US (Figure 3) can be compared with previously published data (Sherony 2008) extracted from NAB, shown below in Figure 6.

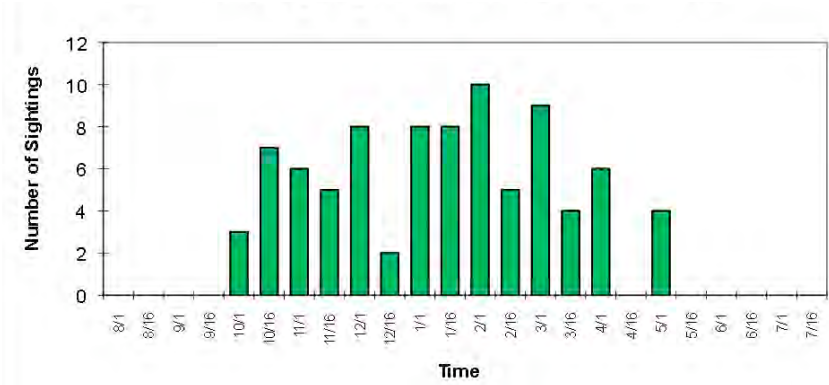


Figure 6. Previously published summary of Barnacle Goose occurrence in the US, 1979-2004 (Sherony 2008).

Figures 3 and 6 do not show any significant differences except that the departure dates for the latest records shown in Figure 3 were 12 and 13 Apr, whereas the records shown in Figure 6 include three sightings in May, the latest extending to 15 May (New Hampshire, 1990). Most May records come from Quebec, with a latest sighting of 30 May (Quebec 1996) but the vast majority of Quebec records end by 7 May.

Prior to 2005, there were seven summer records of Barnacle Geese in eastern US, from July to September, within the NAB data. Since 2005, there is only one summer record. No summer records are included in this report.

It is clear that Barnacle Geese first arrive in eastern Canada as early as the first week of September and arrive in the eastern US as early as the first week of October. Departure in the US is most likely by the last week of March and in eastern Canada by the first week of May. Records outside of this range should be viewed with some caution.

REPORTS OF MULTIPLE BIRDS

In the eastern US, there are three reports of more than one bird since 2005. Two Barnacle Geese were reported in Connecticut (26 Oct 2012), New Jersey (16 Dec 2012 through 16 Feb 2013) and Pennsylvania (19 Jan 2013). It is possible that these are all the same birds. There are a few reports of multiple birds from states outside the eastern US as well.

ACKNOWLEDGEMENT

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Barnacle Goose, with Canada Geese, Farmingdale, *Suffolk*, 15 Feb 2009,
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