

Mainland expansion of the Northern Gannet colony at Cape St. Mary's, Newfoundland

. . . the mainland nesting expansion opens the possibility of a large population increase

W. A. Montevecchi and J. Wells

OWING TO SELECTION pressures associated with terrestrial predation and human exploitation, gannet colonies tend to be relatively inaccessible, usually located on cliffs, a breeding habitat to which the species is well adapted (Nelson 1978). Northern Gannets (*Sula bassanus*) breed in 34 colonies worldwide, and with the exception of the small colony at Bempton, England, which is situated on mainland cliffs, all these gannetries are located on islands and stacks. Here we

document a mainland expansion of the gannetry on Bird Rock, Cape St. Mary's, Newfoundland.

The Northern Gannet colony at Cape St. Mary's (46°50'N, 54°12'W), the southernmost one in the world today, is situated on a large, tall (ca. 100m asl) stack narrowly separated from the mainland cliffs by a deep gorge. The stack is presently occupied by about 5000 nesting pairs (Montevecchi *et al.* 1980). Gannets were first reported on Bird Rock in the

late 1870s, and by 1883 at least ten pairs were breeding (Wynne-Edwards 1935). J.C. Cahoon, a collector working for William Brewster of Cambridge, Massachusetts, climbed the stack in 1889, and noted many nesting Common Murres (*Uria aalge*) and gannets (Montevecchi *in press*). Bigelow (1890) reported that Bird Rock was completely covered with gannets and murres that occupied separate areas on the plateau. English (1918) reported "thousands" of gannets at the



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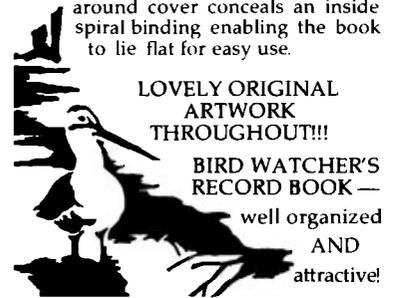
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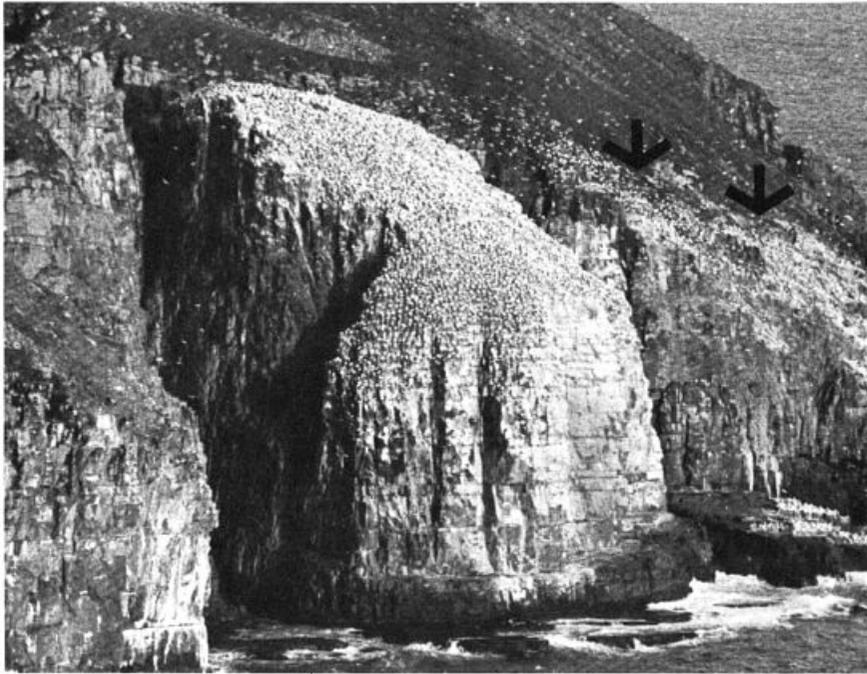


Figure 1. The Bird Rock stack (approximately 100m asl) and adjacent mainland at Cape St. Mary's, Newfoundland. The major mainland nesting area to the east of the stack is indicated by arrows. Photo/W. A. Montevecchi.

Cape. The first systematic count was made in 1934, when Wynne-Edwards (1935) estimated 4000-4500 pairs. In view of Bigelow's (1890) report of gannets nesting on the plateau, it is notable that Wynne-Edwards (1935) observed that Common Murres (which were reported to have nested formerly on the entire upper half of the stack) covered the plateau. In 1939, Davies and Keynes (1948) counted 4394 ± 369 pairs and reported that nesting gannets were expanding onto the plateau, displacing the murres. Soon thereafter, the gannetry completely covered the plateau. In 1942, Peters and Burleigh (1951) estimated 5000 pairs of gannets breeding on Bird Rock, an estimate with which the most recent counts concur.

In the mid-1960s, Bird Rock became

accessible by road and became a target for vandals. In the late 1960s, few gannets nested atop the rock because of disturbance (shooting, throwing of rocks and beer bottles—W. Threlfall, *pers. comm.*). As the result of a brief by W. Threlfall and L. Tuck, the provincial wildlife division began enforcement of wildlife regulations in the area, and only then did the gannets again nest on the plateau (W. Threlfall, *pers. comm.*). At present, very few murres nest on Bird Rock, though thousands of Common and Thick-billed Murres (*Uria lomvia*) nest on the adjacent cliffs.

According to Nelson (1978), who presumably obtained Wynne-Edwards' secondhand information, gannets were first noticed on the mainland areas adjacent to the stack in the late 1920s. Nesting at-

tempts on the mainland east of the stack were made in 1931-34 (Wynne-Edwards 1935). Until 1939 nests there were reportedly destroyed by fishermen (Nelson 1978), who were apparently of the impression that gannets were serious competitors for murres (*via* nest-site competition) and fish, the staples of the local food economy. Predators, including Red Foxes (*Vulpes vulpes*) and Short-tailed Weasels (*Mustela erminea*), may have also prevented successful nesting on the mainland. In 1934, Wynne-Edwards (1935) estimated 500-700 gannets roosting on the adjacent mainland west of Bird Rock and reported that none nested there. In 1959, L. Tuck and J. Fisher counted between 400 and 500 gannets loafing on the headland east of Bird Rock and another 61 birds on the mainland west of the stack; a search of these areas yielded no nests (L. Tuck, *unpub. data*). In 1972, nesting attempts were noted on the mainland east of Bird Rock, where two "old" chicks were seen on nests (W. Threlfall, *pers. comm.*). On October 2, 1977, we banded a chick eight weeks old in a mainland nest in the same area.

During the peak fledging period at Cape St. Mary's, on September 25-26, 1982, we observed two chicks, about 10 and 12-13 weeks post-hatching (the latter in full brown fledgling plumage), and six adults on the mainland cliffs about 150m to the west of Bird Rock; on the eastern headland we counted 48 chicks (Fig. 1). On September 25, 1983, we counted 43 chicks in the same age distribution as those censused in 1982.

Two-thirds of the mainland nestlings were of fledgling age (13 weeks), and most certainly fledged. It is likely that some young had fledged from mainland nests before we discovered them (about 30-40% had fledged from the stacks by this time) and that we missed some chicks in our count. Assuming 80-90% hatching

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and fledging success (Nelson 1978), it is likely that at least 50 pairs nested on the mainland in 1982 and in 1983. Conceivably there could have been many more failed attempts.

About 30% of the mainland females laid eggs later than females on the stack. This may be attributable in part to a disproportionate number of first-time breeders in the recently occupied mainland nesting areas, a finding to be expected in an expanding colony (Nelson 1978). Seven unsexed adults inspected closely at mainland nests had no trace of immature plumage (*i.e.* no black feathers in secondaries or rectrices), indicating that these birds were at least five or six years of age (Nelson 1978).

The establishment of a new gannetry is a rare event (Brun 1974, Nelson 1978, Barret 1979). Once a new area is occupied, however, the number of breeders can increase very rapidly. For instance, the gannetry on Funk Island consisted of seven pairs in 1936 (Gilliard 1937), and in 1958, Tuck (*unpub. data*) counted 2601 nests. Immigration must have accounted for much of this rapid population increase (Kirkham and Montevecchi 1982).

The Cape St. Mary's gannetry is the second largest in North America, and the mainland nesting expansion opens the possibility for a large population increase. By protecting and monitoring the mainland breeding population over the next few years, it will be possible to document the development of this colony expansion and to gain more insight into the population dynamics of Northern Gannets.

ACKNOWLEDGEMENTS

WE ARE GRATEFUL to P. Ryan for boat transportation around Bird Rock, and to D. Minty, J. Piatt and W. Threlfall for comments and information. Research was supported by NSERC Grant No. A0687. This is Report No. 37 from the Newfoundland Institute for Cold Ocean Science of Memorial University.

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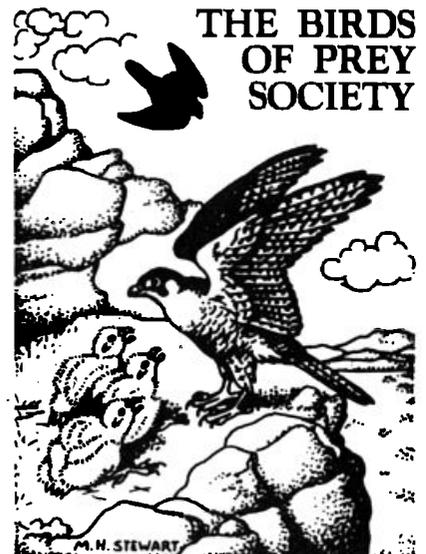
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