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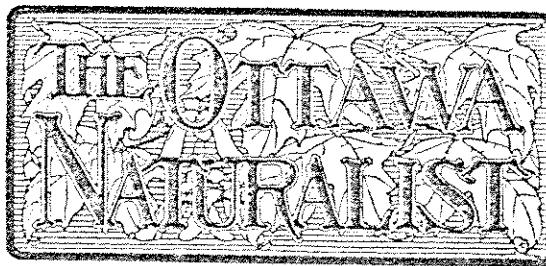
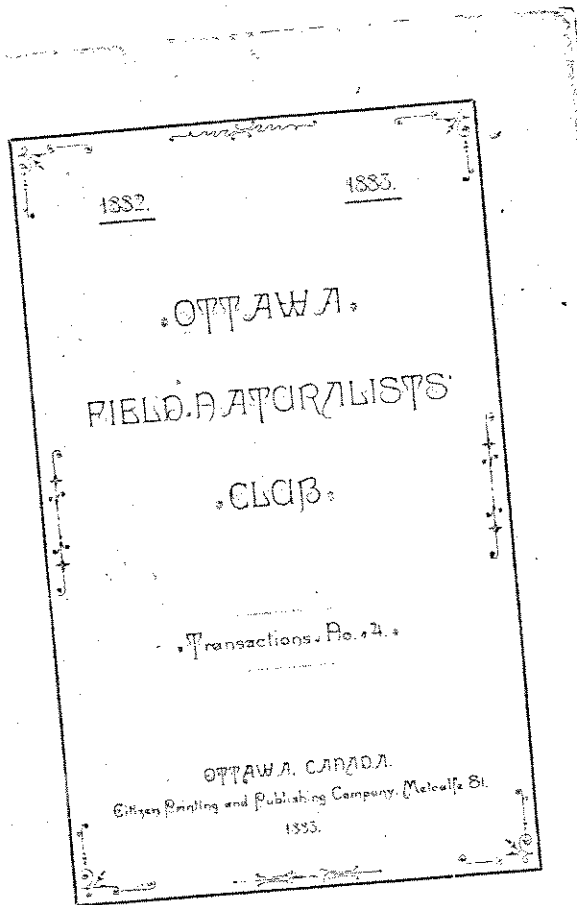
The CANADIAN FIELD-NATURALIST

Published by THE OTTAWA FIELD-NATURALISTS' CLUB, Ottawa, Canada

R.W. Campbell, H.R. Carter & S. G. Sealey

Vol. XXXII, No. 5

NOVEMBER, 1918



OTTAWA FIELD-NATURALISTS' CLUB

ISSUED DECEMBER 18, 1918.
Entered at Ottawa Post Office as second class matter.

Centennial Year

Volume 93, Number 1

January-March 1979

Nesting of Horned Puffins in British Columbia

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Campbell, R. Wayne, Harry R. Carter, and Spencer G. Sealy. 1979. Nesting of Horned Puffins in British Columbia. *Canadian Field-Naturalist* 93(1): 84-86.

Summer observations of Horned Puffins (*Fratercula corniculata*) from 1972 through 1977 suggest that this species is expanding its range along the British Columbia coast. Nesting was confirmed at one new site and probably occurred at three others.

Key Words: Horned Puffins, *Fratercula corniculata*, British Columbia, breeding range.

The status of the Horned Puffin (*Fratercula corniculata*) on the west coast of North America south of its breeding range in southeastern Alaska (A.O.U. 1957) was reviewed recently by Sealy and Nelson (1973) and Hoffman et al. (1975). These authors considered it a late spring and early summer (and occasional winter) visitor to this area but did not report evidence of breeding. Forrester Island, Alaska, was heretofore the southernmost known breeding site in the eastern Pacific (Heath 1915; Willett 1915).

Censuses of, and other work in, seabird colonies along the British Columbia coast from 1972 through 1977 indicate (Table 1) that the Horned Puffin is now more widely distributed along the west coast of the Queen Charlotte Islands and Vancouver Island than previously known. It also has been recorded on the central mainland coast.

Possible Nesting Sites

Marble Island (52° 12'N, 132° 39'W). This is a fairly large, wooded island, about 150 m high, with dense undergrowth above the precipitous cliffs. On 19 July 1977 two Horned Puffins scrambled from a natural rock crevice on a large grassy slope among a colony (hundreds) of Tufted Puffins (*Lunda cirrhata*). Later, five Horned Puffins were seen at one time circling off the island with Tufted Puffins. During the half hour the Horned Puffins were watched, an adult several times flew to, and almost landed near, its presumed nest site. The following day two Horned Puffins were again seen flying with Tufted Puffins off the island.

Unnamed Islet (52° 06'N, 131° 14'W). This islet, off the northwest coast of Anthony Island, is about 30 m high, is composed of bare rock with deep cracks and fissures, and has grassy areas along its north tip. Six Horned Puffins were seen flying with Tufted Puffins close to the islet on 2 July 1977. Two days later, a Horned Puffin flew from a crevice near the top of a steep rocky bluff; later we discovered a recently

cracked egg in the crevice. Later the same day we watched up to five Horned Puffins, for an hour or so, fly very close to the islet, but none landed or entered a natural crevice. All other possible nest sites were inaccessible without climbing equipment. On 5 August, four Horned Puffins were flushed from rocky vantage points above where they had been seen in early July.

Cape St. James (51° 56'N, 131° 01'W). This landform consists of the St. James Islands, which are saddle-shaped, bare, and grassy with vertical cliffs about 30 m and the Kerouard Islands, which are mostly grassy, unforested, and up to 76 m high. Horned Puffins were recorded near Cape St. James during the summers of 1972 through 1974 and also in 1977. H. D. Fisher (letter to SGS, 26 September 1974) was not aware "that the occurrence of Horned Puffins at the Cape (May to August) and carrying fish at that, would be valuable news. The common puffin in the Kerouards is the Tufted Puffin. But among these we always saw a few Horned Puffins. Whenever we were enroute to and from the sea-lion rookeries, they [Horned Puffins] seem to nest on the cliff directly below the weather station on the northernmost Kerouard, a very inaccessible place."

Triangle Island (50° 52'N, 129° 05'W). This, the most western of the Scott Islands, about 210 m high, is very precipitous with no trees. Horned Puffins were first recorded here in 1972 by C. J. Guiguet and have been observed nearly every summer since by biologists visiting or conducting research (Table 1; Vermeer et al. 1976). Although positive evidence is lacking, up to four pairs may breed on Triangle Island, all at the western end and near "Murre" rock.

Discussion

The observations presented here and those of Sealy and Nelson (1973) suggest that the Horned Puffin is more common in British Columbia than previously known. If this trend continues, opportunity will exist

TABLE 1.—Summer observations of Horned Puffins in British Columbia, 1972-1977

Locality ¹	Date	Number ²	Remarks
Queen Charlotte Islands			
Cox Island (Langara I.)	31 July 1977	1	Flying with Tufted Puffins
Darwin Sound	May 1977	4	In a flock flying south
Marble Island	19 July 1977	5	Suspected nesting
Marble Island	20 July 1977	2+	Flying with Tufted Puffins
Island NW Anthony I.	2 July 1977	6	Suspected nesting
Island NW Anthony I.	4 July 1977	5	Suspected nesting
Island NW Anthony I.	5 August 1977	4	Suspected nesting
Island E Anthony I.	4 July 1977	1	Flying alone
Cape St. James	May-August 1972	1 or 2	With Tufted Puffins
Cape St. James	May-August 1973	1 or 2	With Tufted Puffins
Cape St. James	May-August 1974	1 or 2	With Tufted Puffins
Cape St. James	5 July 1975	7	With Tufted Puffins
Cape St. James	27 July 1975	2	With Tufted Puffins
Cape St. James	3 July 1977	1	With Tufted Puffins
Cape St. James	4 July 1977	2	With Tufted Puffins
Mainland Coast			
Sinnett Island	27 June 1976	1	Alone off island on water
Joseph Island	28 June 1976	1	Flying alone
Vancouver Island			
Triangle Island	1 July 1972	2	Flying with Tufted Puffins
Triangle Island	16 June 1974	1+	On water near island
Triangle Island	2 July 1974	2+	On water near island
Triangle Island	21 August 1974	1	On nesting cliffs
Triangle Island	June-August 1975	1-6+	One carrying fish
Triangle Island	27 July 1977	1	On rocks on island
Triangle Island	28 July 1977	3	On water off island
Triangle Island	1 August 1977	8	On rocks
Solander Island	27 June 1975	3	Flying with Tufted Puffins
Barrier Islands	26 June 1975	1	On water off island
Wichaninnish Bay	20 June 1975	1	On water

¹Listed from north to south.

²All observations of birds in apparent definitive plumage.

to monitor it. Therefore, it is important to interpret carefully our observations so that its status in British Columbia up to 1977 is clear.

The finding of a Horned Puffin nest containing an egg, on an unnamed islet northwest of Anthony Island in 1977, provides positive proof of breeding. The observations (Table 1) of birds carrying fish in their bills is evidence short only of finding an egg or chick. Where the above evidence is lacking, observations must be viewed with caution. Myrberget (1959) found that the varying proportion of non-breeding Common Puffins (*F. arctica*) present in a colony may equal the number of breeding birds there, and after 4 yr of age many individuals prospect for and even "own" burrows but seldom breed (Petersen 1976a). Many more 5-yr-old birds breed but maximum reproductive output does not occur until the birds are 10-11 yr old. In Alaska, many occupied Horned Puffin burrows during the breeding season never reach the egg stage, possibly because their "owners" are immatures

(D. H. S. Wehle, personal communication). Such immatures in the Common Puffin are recognizable only on the basis of bill shape and the number and depth of bill furrows (Petersen 1976b). The presence of a Horned Puffin on a boulder or even in a burrow therefore does not imply nesting. Also, as noted by Lockley (1953), and confirmed by Petersen (1976a), Common Puffins that circle the periphery of a colony are generally immature. The breeders that are feeding young generally fly straight out to sea on leaving the burrows and straight back (carrying fish) when returning. In fact, Brun (1971) considered only those puffins carrying fish in their bills to be breeders when he censused colonies in northern Norway. Hence the presence of Horned Puffins of unknown age at best provides suggestive evidence for breeding. The finding of additional nests and additional observations of birds carrying fish will be required to confirm that this species is continuing to change its status in British Columbia.

Another puffin, the Rhinoceros Auklet (*Cerorhinca monocerata*), is actively expanding its breeding range (see Scott et al. 1974) and is recolonizing islands from which it had been exterminated (see Ainley and Lewis 1974).

Acknowledgments

We appreciate the assistance of R. Billings, T. Carson, H. D. Fisher, J. B. Foster, H. M. Garrioch, S. M. Guiguet, M. A. Paul, M. C. Lee, M. S. Rodway, M. G. Shepard, and K. R. Summers with field aspects of this work. C. J. Guiguet and J. B. Foster kindly read the manuscript. Supporting funds were received from the Ecological Reserve Unit, Department of Environment, Victoria, British Columbia.

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Received 5 April 1978

Accepted 11 August 1978