

THE OCCURRENCE AND STATUS OF THE HORNED PUFFIN IN THE WESTERN UNITED STATES

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The Horned Puffin (*Fratercula corniculata*) breeds in northeastern Siberia, throughout the Bering Sea, on the Aleutian Islands and along the south Alaska coast east to Glacier Bay and Forrester Island (AOU 1957). This publication lists the bird as a winter visitor to Washington and Oregon and casual to California. They are only occasionally seen south of the Queen Charlotte Islands, British Columbia, in any season (AOU 1957, Jewett et al. 1958, Gabrielson and Jewett 1940).

Thus, considerable interest was aroused when 1973 produced sightings of 10 separate birds along the West Coast of the United States and one near Victoria, British Columbia. Three birds were seen in southern California in May. June produced two records from central California and one each in Oregon and Victoria, B.C., and July showed two more birds in California and two more off Oregon. All but one record (July, Farallon Islands) were of live birds and most of these were seen from boat trips. The June record from Oregon was of a summer plumage bird seen sitting alone on a rock near Newport; it was seen between 0600 and 0630 on two consecutive days and flew off to sea both times.

SPATIAL DISTRIBUTION

These sightings were obviously not winter visitors and we were prompted to examine the reported occurrences of Horned Puffin along the West Coast. Table 1 gives a list of all sightings known to us along the coast of North America south of the 49th parallel.

There are 41 entries in Table 1; 24 from California, 10 from Oregon, 5 from Washington and 2 from Victoria. The California observations are mainly from Point Conception to Point Reyes (17) with 2 from around Humboldt Bay and 5 from southern California. Except for southern California, this distribution is consistent with presumed distribution of observers: thus, Horned Puffins seem less likely to be found south of Point Conception than north of there. Except for an unusual observation of a live bird found at Coulee City, Washington (Larrison and Sonnenberg 1968) which is 225 km from the nearest salt water, all birds were seen on the coast or from boats at sea.

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Table 1. Occurrences of Horned Puffins (*Fratercula corniculata*) on the West Coast of the United States. Condition code: *fresh*—dead but in good enough condition to make a good museum skin, or stated in the reference as *fresh*; *dead*—no data available on condition of specimen; *long dead*—desiccated, fragmentary or decomposed specimen; *alive*—includes incapacitated birds. Plumage code: winter and summer plumages are differentiated only in our own records and in cases where we were able to examine specimens or photographs, or where the condition of the plumage was discussed in the literature. Winter and summer plumages were distinguished largely by cheek color. The term breeding plumage was not used since some summer specimens examined had white cheeks but did not have the full nuptial development of the bill or the grey crown characteristic of breeding birds. Bill condition was frequently impossible to ascertain in photographs and in the field. *Audubon Field Notes* and *American Birds* are abbreviated AFN and AB, respectively.

YEAR	DATE	LOCATION	NO.	CON- DITION	PLU- MAGE	REFERENCE
1914	2-17	Pacific Grove Monterey Co., CA	1	dead	—	Grinnell and Miller 1944
1916	3-7	Netarts Tillamook Co., OR	1	dead	—	Gabrielson and Jewett 1940
1919	1-27	Tatoosh Island Clallam Co., WA	1	dead	—	Jewett et al. 1953
	2-16/23	Samoa Humboldt Co., CA	4	dead	—	Grinnell and Miller 1944
	3-2	Mussell Rock San Mateo Co., CA	1	dying	—	Ibid.
	3-15	Mercer Lane Co., OR	2	dead	—	Gabrielson and Jewett 1940
	5-17	Coast Ways San Mateo Co., CA	1	dead	—	Grinnell and Miller 1944
	5-24	Montara Beach San Mateo Co., CA	2	dead	—	Ibid.
1929	2-22	Del Monte Monterey Co., CA	1	dead	—	Ibid.
	8-25	Santa Cruz Santa Cruz Co., CA	1	long dead	—	Ibid.
1932-33	12-27/2-15	Oregon beaches	hundreds	dead and dying	—	Gabrielson and Jewett 1940
1933	1-22	San Francisco, CA	1	dead	—	Grinnell and Miller 1944
	1-29	Westport Gray's Harbor Co., WA	1	dead	—	Jewett et al. 1953
	2-25	La Jolla San Diego Co., CA	1	long dead	—	Grinnell and Miller 1944
1953	11-30	Rockaway Tillamook Co., OR	1	long dead	—	H. Nehls, pers. comm.
1955	5-9	Morro Bay San Luis Obispo Co., CA	1	dead	—	Munro 1957

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YEAR	DATE	LOCATION	NO.	CON-DITION	PLU-MAGE	REFERENCE
1956	8-3	San Francisco CA	1	dead	-	AFN 10:407, 1957
1959	2-15	Tillamook Tillamook Co., OR	1	fresh	winter	Alex Walker Collection
	2-19	10 mi. N Newport Lincoln Co., OR	3	fresh	winter	AFN 14:335, 1960
	4-1	Westport, WA	70	fresh	winter	Alcorn 1959
1960	8-14	Rodeo Lagoon Marin Co., CA	1	fresh	-	AFN 15:73, 1961
1964	6-12	Pt. Lobos Monterey Co., CA	1	fresh	-	AFN 18:484, 1964
	August	Pt. Reyes Marin Co., CA	1	long dead	-	AFN 19:73, 1965
	8-12	Victoria, B.C.	1	alive	-	Sealy and Nelson 1973
1966	1-21	Huntington Beach Orange Co., CA	1	alive	winter	AFN 20:460, 1966
1967	April	47° 43'N, 127° 25'W	2	alive	-	Sanger 1972
	6-6	Monterey Bay 6 mi. SW Santa Cruz, CA	1	alive	subadult	AFN 21:602, 1967
	June	Coulee City Grant Co., WA	1	alive	-	Larrison and Sonnenberg 1968
1968	7-21	Cape Lookout Tillamook Co., OR	1	alive	summer	W. Hoffman pers. comm.
1969	8-5	Florence Lane Co., OR	1	fresh	winter	AFN 24:86, 1970
	8-18	Pacific Grove, CA	1	long dead	imm.	AFN 24:91, 1970
1971	6-1	19 mi. SE San Clemente I., CA	1	alive	-	AFN 25:801, 1971
1973	5-13	Santa Cruz I., CA	1	alive	moltling?	AB 27:821, 1973
	5-20	Santa Barbara I., CA	2	alive	-	Ibid.
	6-2	Off Farallon Is., CA	1	alive	-	Ibid.:915
	6-10	6 mi. W Golden Gate, CA	1	alive	-	Ibid.
	6-20/21	On Yaquina Head Lincoln Co., OR	1	alive	summer	Ibid.:910
	6-27	Victoria, B.C.	1	alive	-	Ibid.
	7-14	3 mi. off Humboldt Bay Humboldt Co., CA	1	alive	-	Ibid.:915
	7-16	10 & 35 mi. off Newport Lincoln Co., OR	2	alive	summer	Ibid.:910
	(summer)	On Farallon Is., CA	1	dead	-	Ibid.:915

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Two entries deserve special mention. Alcorn (1959) reports 70 Horned Puffins dead on the beach near Westport, Washington on 1 April 1959 and Gabrielson and Jewett (1940) report "hundreds" washed up on the Oregon beaches from the end of December 1932 through the middle of February 1933. In both of these events large numbers of Tufted Puffins (*Lunda cirrhata*) were found also and in 1932-33 Parakeet Auklets (*Cyclorhynchus psittacula*), Ancient Murrelets (*Synthliborbampbus antiquus*) and Black-legged Kittiwakes (*Rissa tridactyla*) were also recorded in exceptional numbers. These occurrences may have resulted from major failures of the birds' food supply in the normal wintering areas. Other than these special occurrences the records are mostly of individual birds.

TEMPORAL DISTRIBUTION

The distribution in time of occurrences of Horned Puffins, as shown in Table 1, requires more discussion. The bird was reported in 3 of the 6 years from 1914 through 1919; was unreported from 1920-1928; found in 3 of the 5 years, 1929-1933; and unreported for the 19-year period, 1934-1952. Sightings were then reported in 12 of the 21 years, 1953-1973. Although we have examined only the data through 1973, we understand there have been sightings in both 1974 and 1975. Including these years then, Horned Puffins have been reported in 8 of the last 10 years; only 1970 and 1972 have failed to produce sightings.

There was a slight tendency for multiple occurrence in those years when the bird was sighted. In 9 of the 17 years of reported occurrences, more than one bird was found. The years 1919, 1933, 1959 and 1973 might be termed "invasion" years; in each of these years, more than 10 birds were reported, whereas no more than 4 were reported in any other year.

It is quite probable that the recent increase in sightings results from an increase in the number of observers, particularly since off-shore boat trips are becoming more popular. Low numbers of observers may have contributed to the 9-year gap between 1920-28, but it seems less likely the explanation for the 19-year gap, 1934-52.

Furthermore, there appears to have been a distinct shift in the seasonal occurrence between the 1914-1933 period and the 1953-1973 period. In the earlier period (counting the 1932-33 washup on the Oregon beaches as 3 separate occurrences in late December, January and February) 13 of the 16 sightings were in the cold season, late December through March, whereas in the more recent period, 20 of 26 sightings were in the months May-August, 4 were in January-February and one each was in November and April. (The April sighting was made about 225 km from land off the Washington coast and the only other April record is of 70 dead birds on 1 April, which could be ascribed to March.

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The November record is of a long-dead bird on the Oregon coast and is the only record we found between the end of August and the end of December). On the basis of these records it can be argued that Horned Puffins changed their pattern between these periods and are now summer visitors to the West Coast.

This hypothesis needs further examination, however. An argument could be made that a few Horned Puffins are well off-shore in all seasons except fall. Winter occurrences of beached birds are more likely than summer ones because winter is the season of most frequent storms which could disable the birds and wash them up. Furthermore, many of the recent summer sightings are from boats and it is certainly true that off-shore trips are much more frequent in the warm season and in recent years. This argument (which does not explain the 19-year hiatus) is not supported, however, by the records of dead birds or live birds known to have been seen on the mainland. All the records in the 1919-1933 period were of dead or dying birds. (The first record of a bird not dead or dying is from August 1964.) Since 1953 only 4 records of dead birds have been from the cold season, and these were all prior to 1960, whereas there are 8 records of dead birds and 2 of live birds on the mainland since 1953. Thus, a change in pattern of behavior does seem to have occurred.

If the pattern of occurrences shown in Table 1, mainly winter records 1914-1933, absence 1934-1957, mainly summer records 1953-1973, is truly representative of the Horned Puffin's behavior, what has caused the change? We do not have a definite answer but it is certainly possible that it lies in changes in the climate and the oceans. Oceanographers and meteorologists are beginning to recognize anomalies in oceanic temperatures and atmospheric circulations (e.g., Namias 1969) that may last for a decade or more. Wickett (1967) has discussed the effects of large-scale disturbances in the atmosphere-ocean system on the biological processes in the North Pacific. It is quite possible that *F. corniculata* is responding to some such change. The problem deserves further attention; anomalous behavior of the oceans and atmosphere should be considered by students of the distribution of marine birds.

ORIGIN OF WEST COAST BIRDS

One final point remains to be discussed here—where do the Horned Puffins on the West Coast come from?

Grinnell (1938) hypothesized that the birds found south of Canada were carcasses of birds that died or became incapacitated in the north and whose bodies were carried south by ocean currents. Apart from the problem of carcasses remaining intact long enough to make the journey to southern California, the ocean circulation does not provide

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currents flowing in the proper direction. There is a broad eastward flowing current (the North Pacific Current) south of the Aleutian Islands which divides near the Washington coast. The northern branch flows northward along the British Columbia-Alaska coast and the southern half flows south becoming the California Current. Unless a bird was sufficiently far south, i.e. below the U.S.-Canada border, it would not be carried into U.S. waters. Furthermore, the near-shore circulation along the northern California-Oregon-Washington coast is to the north in winter. Thus, to be washed up on the West Coast, the birds would have to be fairly far south in the first place and in the correct season.

It is tempting to assume the West Coast birds come from the breeding colonies in southeast Alaska. Sealy and Nelson (1973) discuss briefly the probable origin of the Horned Puffins found in the Queen Charlotte Islands and other British Columbia locations. They feel the summer birds are likely to be wanderers from the Alaskan breeding colonies on Forrester Island but point out that the birds found further south need not come from there, particularly in spring and winter. Certainly the birds found off our coast in spring and early summer are not post-breeding wanderers.

These authors point out our lack of knowledge of the bird's wintering habits. They cite some authors who feel the Horned Puffin does not migrate and is never found far from land and others who report wintering birds well off-shore. Thus, Hamilton (1958) observed "scattered individuals of the species over a wide area across the Pacific" between latitudes 40° and 48° N. M. T. Myres (pers. comm.) indicates that Horned Puffins are occasionally seen at Ocean Weather Station "P" (50° N, 145° W) and H. Oji (pers. comm.) found Horned Puffins, as well as Thick-billed Murres (*Uria lomvia*) wintering in numbers well south of the Aleutians in the western North Pacific. Further evidence for occasional wide dispersal is found in Clapp and Woodward (1968) who reported about 35 Horned Puffins beached on the Leeward Islands of Hawaii between January and March 1963. These observations, together with the fact that the congeneric Common Puffin (*F. arctica*) of the North Atlantic is considered the most pelagic of the Atlantic alcids (Tuck 1961), suggest that *F. corniculata* may well winter over a wide latitude range in the Pacific. Thus, there are likely to be a number of birds wintering at the latitudes of the West Coast and it is, therefore, quite possible that our birds are wind blown, non-breeding adults from the central North Pacific.

Some other evidence for the use of a route from the Bering Sea-central Aleutians area to the West Coast can be found in the extralimital dispersal of the Red-legged Kittiwake (*Rissa brevirostris*) and the above-mentioned Thick-billed Murre. The kittiwake breeds on the Komandorskie and Pribilof islands and normally winters in the adjacent waters

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(AOU 1957). However, of four published extralimital records, three are from Oregon beaches (Gabrielson and Jewett 1949, Munro 1953, Walker 1955). Another sighting was reported from the Washington coast during the winter of 1973-74. In recent years, Thick-billed Murres have been found several times off the coasts of California and Oregon (Yadon 1970, Scott and Nehls 1974). Since neither bird is apparently known in southeast Alaska, they presumably come from the open Pacific as the Horned Puffin may do.

SUMMARY

The Horned Puffin is now a late spring and early summer visitor to the West Coast of the U.S., appearing sometimes as far south as southern California, whereas previously it was considered only a winter visitor. It still may appear occasionally in winter. The apparent shift of behavior since 1953 may be the result of long term shifts in the atmosphere-ocean circulations but we do not have sufficient data to confirm this now. We also feel it is possible that the birds off the West Coast may come from the Aleutian-Bering Sea population rather than southeast Alaska.

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