Recent increases in Double-crested Cormorants in the United States Great Lakes

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THE RECENT HISTORICAL rise (1910-1945) and fall (1946-1975) of Great Lakes populations of the Double-crested Cormorant *(Phalacrocorax auritus)* has been well documented by Postupalsky (1978), and in reports of recent increases in Canadian waters of Lake Superior by Blokpoel *et al.* (1980). Further increases in the Canadian waters of Lake Huron, during 1980, have been reported by D. V. Weseloh *(pers. comm.)*. In this paper we report on the magnitude of increases in United States Great Lakes waters from 1977 to 1980.

The United States Great Lakes population of cormorants in 1977 was 157 in three colonies, a 26% increase over 1976 (Scharf *et al.* 1978 and 1979). In conjunction with a Common Tern *(Sterna hirundo)* survey of the Michigan Great Lakes shoreline in 1980 and with the cooperation of other observers, we were able to document a 454% increase in this species since 1977. The survey was conducted by actual nest counts and in some instances by counting nests on aerial photographs. We counted a total of 714 nests at 12 colonies on four United States Great Lakes (Table 1, Fig. 1).

Nuclei of reproductive success contributing to the recolonization process seem to be in three areas: a) at the Green Bay area of northwestern Lake Michigan where two new colonies were noted in 1976 and 1977; b) the Little Galloo Island colony of eastern Lake Ontario where colony growth has been over 200% since 1977; and c) the Lake Superior and western influx postulated by Blokpoel *et al.* (1980). These divergent hypothetical sources underscore the widespread nature of the population increase of this species and the probability of there being several sources of birds for recolonization.

Favored habitats for ground-nesting cormorants are cobble beaches or rock

Fig. 1

shelves on isolated islands. The tree-nesters utilize trees varying from deciduous elms (*Ulmus* spp.) and oaks (*Quercus* spp.) to coniferous cedars (*Thuja* spp.). One site, Cat and Willow islands in Lake Michigan's Green Bay, has 185 artificial nesting platforms built on utility poles erected in the bay by Wisconsin Public Service Corporation for the cormorants (Green Bay Press Gazette, May 17, 1980). At least two of the new colonies have both tree- and ground-nesting birds, and one, Scarecrow Island in Lake Huron, has only tree-nesters that are utilizing former Great Blue Heron *(Ardea herodias)* nests

All of the island habitats are shared by Herring Gulls *(Larus argentatus)*, that will prey upon eggs and small chicks of cormorants whenever the adult cormorants are kept off their nests. Hence, caution is suggested for census takers, banders and other intruding humans. In some colonies Ring-

Table 1. Cormorant nesting sites in United States Great Lakes, 1980.

Site	*Lake*	*Census Method*	*Nests*
1.[1] Gull Island	Superior	Ground Count—Kjos	53
2. Taquamenon Island	Superior	Ground Count	34
3. Cat-Willow Island	Michigan	G. B. Press Gazette	100
4. Gravelly Island	Michigan	Ground Count	91
5. Little Gull Island	Michigan	Ground Count	16
6. Fish Island	Michigan	Aerial Photog.	70
7. Gravel Island	Michigan	Aerial Photog.	25
8. Spider Island	Michigan	Aerial Photog.	45
9. Gull Island	Michigan	Ground Count	8
10. Scarecrow Island	Huron	Aerial Count	12
11. Black River Island	Huron	Ground Count	2
12. Little Galloo Island	Ontario	Ground Count—Weseloh	276

[1]Numbers are keyed to Figure 1.

billed Gulls *(Larus delawarensis)*, Black-crowned Night Herons *(Nycticorax nycticorax)* , and Cattle Egrets *(Bubulcus ibis)* nest in addition to the Herring Gulls and Great Blue Herons. At the colony at Gravelly Island, Lake Michigan, almost-fledged young were counted as an indication of productivity per nest July 12, 1980. There were 125 chicks and 87 nests, for an average of 1 43 per nest. On the same day at the same location there were four recent nests with 1-2 eggs each. The latest nesting cormorants were those on Gull Island, Lake Michigan. There were two nests and six chicks there on August 23, 1980. Similar late nestings were seen in 1976 at Fish Island, Lake Michigan, the first year the cormorants nested there.

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A North American record of the Asiatic Marbled Murrelet

(Brachyramphus marmoratus perdix)

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On August 9, 1981, at Mono Lake, Mono County, California, DRJ found a Marbled Murrelet *(Brachyramphus marmoratus)* in breeding plumage washed ashore on a beach that had been censused regularly all summer, most recently on August 6. JRJ, who prepared the specimen as a study skin, (San Diego Natural History Museum no. 41544; Fig. 1) estimated that it had been dead for 1½ days. The bird was an adult male, testes 10 × 3 mm; it was emaciated, lacking subcutaneous fat, and its stomach was empty.

In the field we recognized the murrelet as being unusually large. S. I. Bond and G. McCaskie compared it with reference material in the San Diego Natural History Museum and, on the basis of a description by Ridgway (1919), identified it as the asiatic race *B.m. perdix*. The identification was confirmed by Spencer G. Sealy.

Formerly recognized as a distinct species *(Brachyramphus perdix)* the Asiatic Marbled Murrelet has a distinct white eye-ring, lacks rufous tones on the upper parts in breeding plumage (Ridgway 1919), and is larger than the North American race *(B.m. marmoratus)*.

Dimensions of the Mono Lake specimen are: wing (flat) 146 mm; exposed culmen 22.3 mm; tarsus, 17.9 mm, weight 204 g (emaciated). Dimensions of breeding male *B.m. marmoratus* from British Columbia (Sealy 1975) are: wing (flat) 128-140 (134.2) mm, N = 25; exposed culmen 13.2-17.4 (15.5) mm, N = 38; tarsus 15.1-17.6 (16.2) mm, N = 37; weight 196.2-232.2 (218.5) g, N = 10.

Although the nest of the Asiatic Marbled Murrelet was discovered prior to that of the American form, the Asiatic bird is less well known. Its breeding range seems to be concentrated along the east coast of the Kamchatka Peninsula and on the mainland coast of the Sea of Okhotsk (Dement'ev and Gladov, 1951: 245-47). The closest nesting locality is approximately 6000 km from Mono Lake.

There are no published records of the Asiatic Marbled Murrelet in North America. Apparently the only previous inland report for a Marbled Murrelet anywhere in North America away from the immediate proximity of the breeding grounds of *B. m. marmoratus* (which may be as much as 40 km inland along the west coast) is from Quebec, where one was shot by a hunter in November 1979 (David and Gosselin, 1980). Fortunately, that report included a photograph with a ruled scale, which showed that the Quebec specimen was also large and possessed a white-eye ring Our suspicion that it represented an unrecognized example of *perdix* was confirmed by S. G. Sealy, who had anticipated our findings and had already examined the specimen in conjunction with his studies of the distribution and morphology of *Brachyramphus* murrelets.

Alcids are extremely rare inland and only two species, Dovekie *(Alle alle)* and Ancient Murrelet *(Synthliboramphus antiquus)* occur there with appreciable frequency. Almost all records seem to be associated with periods of severe coastal storm and poor visibility that occur during the late fall and early spring migration periods (Munyer 1965, Verbeek 1966; Murphy and Vogt, 1933). While that explanation may be relevant to the appearance of *perdix* in Quebec in November, it seems unlikely to apply to the Mono Lake specimen, which appeared in late summer following a calm and storm-free period that had persisted for the previous month in northern California.

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