TABLE 1

STATE OF OCCUPANCY OF 24 NEST SITES DURING CERTAIN YEARS FROM 1935 TO 1966

Site numbers	*1935*	*1940*	*1946*	*1951*	*1956*	*1961*	*1966*	*1966*
1	O[1]	O	U	U	U	U	U	E
2	O	O	O	O	O	U	U	E
3	O	A	O	O	A	U	U	N
4	O	O	U	U	A	U	U	Q
5	O	A	A	A	U	U	U	N
6	O	U	A	A	U	U	U	Q
7	O	O	O	O	U	U	U	Q
8	O	O	U	O	O	O	O	O
9	A	A	O	O	U	U	U	N
10	U	O	U	O	U	U	U	Q
11	O	U	U	U	U	U	U	E
12	O	A	U	U	U	U	U	N
13	O	U	O	O	U	U	U	N
14	U	U	O	O	U	A	O	O
15	O	A	O	O	O	U	O	O
16	O	O	O	O	A	O	O	O
17	O	O	O	O	O	U	U	Q
18	O	O	U	O	O	O	O	O
19	O	O	O	O	U	U	U	Q
20	A	U	U	O	O	U	U	Q
21	O	U	U	U	U	U	U	E
22	O	A	O	O	U	U	U	Q
23	O	O	O	O	O	O	U	N
24	O	U	O	U	O	O	O	O
Per cent of sites occupied	83	46	54	67	33	21	25	

[1] Abbreviations: A, active; E, extinct; N, nest; O, occupied; Q, questionable; U, unoccupied.

and was most cooperative in making the air search a thorough one. For the interest shown in this study and the assistance given me I am also indebted to the following officers of the John F. Kennedy Space Center: Kurt Debus, Director; Albert F. Siepert, Deputy Director; and John Nelson, Public Affairs Officer.—J. C. HOWELL, *Department of Zoology and Entomology, The University of Tennessee, Knoxville, Tennessee 37916.*

Encounters between Bald Eagles and other birds in winter.—A substantial population of Bald Eagles (*Haliaeetus leucocephalus*) summers on Cape Breton Island, Nova Scotia, but most of them leave in winter. Observations of encounters between the few Bald Eagles remaining and other scavenging birds during winter give some insight into their behavior in response to food shortage.

On 19 April 1961 a subadult Bald Eagle was feeding on a fragmentary carcass, apparently of a gull or similar-sized bird, on the ice edging the Margaree River near East Margaree. Two Common Crows (*Corvus brachyrhynchos*) walked around it at at distance of about 10 feet, but neither made any attempt to snatch food from the

carcass. After I watched for several minutes, the eagle left the carcass and waded into shallow water at the ice-edge, where it drank and repeatedly washed its beak. One crow then fed on the carcass, while the other chivvied the eagle by hopping around it, flying low over it, once landing momentarily on its back, and constantly calling. A Common Raven (*Corvus corax*) flew in and supplanted the crow at the carcass, only to be displaced a few minutes later by a second subadult Bald Eagle. The first eagle paid no further attention to the other birds near the carcass.

On 11 March 1964 I watched an adult Bald Eagle with seven ravens at a carcass, probably of a white-tailed deer (*Odocoileus virginianus*), far out on a frozen bay near Whycocomagh. While the eagle tugged at a part of the carcass, one or more ravens sidled in to peck at another part of it. Every minute or so the eagle made a sudden lunge at the ravens, which rose abruptly in a group and as rapidly settled again. The ravens bickered considerably among themselves, and I could not determine whether all or only two or three of them tried to feed on the carcass. Crows were heard nearby, but none joined the group on the ice.

On 18 April 1967 at Lennox Passage, an adult Bald Eagle flew rapidly across the channel to overtake a Great Black-backed Gull (*Larus marinus*) carrying a sizable object in its beak. The eagle forced the gull to drop its prey, deftly retrieved the object from the surface of the water, and flew off to a nearby ice-edge to feed. Later the same day at the Janvrin Island bridge a few miles to the southwest, a subadult eagle was eating something on the ice-edge when an adult eagle flew in at full speed and rushed it off its food. The two eagles fought, jumping around on the ice with madly thrashing wings, for about 30 seconds before the younger bird withdrew. The adult carried away the food, which gleamed golden in the sunlight, to the other side of the bay, where it began feeding. Three crows joined it, but did not approach the eagle nearer than about 4 feet. After a few minutes one crow tried to drive another away, while the third watched intently for the eagle to finish feeding and then started picking up scraps. Nearby a Double-crested Cormorant (*Phalacrocorax auritus*) surfaced with a flatfish of the same golden color as the eagle's prey. Before it could swallow its catch, it was set upon by a Great Black-backed Gull, which carried away the fish.

The weather in April of 1961 and 1967 when these observations were made was unusually cold, and snow and ice cover was comparable to winter conditions. I saw no encounters between eagles and other species (except that at Nyanza described below) in other, warmer springs from 1960 to 1966, but I was not in the area before mid-May in those years. The activities detailed above occurred at times when food would be expected to be least available.

At Nyanza on 28 May 1963 I watched a subadult Bald Eagle pursue a raven that was carrying something in its beak. Although the eagle easily overtook the raven in level flight, the raven was able to evade it by climbing in tight spirals. When these two birds came into view, one of two adult eagles in a tree a half mile away at the other side of the marsh took wing and flew rapidly towards them. Ignoring the raven, it drove the subadult eagle away out of sight. The adult eagles were probably nesting at the time, which may explain this apparently territorial behavior.

When food is abundant, Bald Eagles may tolerate much closer proximity to each other. Earl Godfrey (*Canadian Field-Nat.*, 72: 11, 1958) saw 12 eagles feeding on spawned-out alewives (*Alosa pseudoharengus*) within a stretch of 150 yards on the Baddeck River 19 June 1954, and I put up 10, including 6 adults, within a half mile along the shore of St. Patrick's Channel 12 July 1963.

If subadult eagles are consistently supplanted by adult birds as these observations

suggest, it is clearly advantageous for the younger birds to withdraw to areas where feeding is easier. I have seen a few eagles on winter visits to Cape Breton Island; 2 adults in December 1960, 1 adult and 1 subadult in January 1963, 2 adults in March 1964, and 3 adults in December 1965. Only 1 of the 9 birds was a subadult. All winter observations except that near Whycocomagh, described above, were around open water, which agrees with other evidence that this species feeds chiefly upon fish.

In summary, in late winter when food was probably scarce, Bald Eagles were seen to drive Common Ravens and a Great Black-backed Gull from their food, while adult eagles also largely supplanted subadults. While Common Crows often attended feeding eagles, they made no attempt to feed until the eagles had finished, and they were generally ignored by the larger birds.—ANTHONY J. ERSKINE, *Canadian Wildlife Service, Sackville, New Brunswick, Canada.*

Nesting performance and pesticide residues in Alaskan and Yukon Peregrines in 1967.—During the Conference on the Biology of the Peregrine Falcon at the University of Wisconsin in 1965, it became clear that populations of this species (*Falco peregrinus*) had become greatly reduced in large areas of Europe and the United States. Several efforts to determine the status of breeding populations, reproductive success, and levels of organochlorine residues in Peregrines in northern Canada and Alaska have resulted. Cade *et al.* (*Condor*, 70: 170–178, 1968) and Enderson and Berger (*Condor*, 70: 149–153, 1968) found that this species appeared to be nesting normally in 1966 in those regions, but carrying high residue levels in their tissues.

In early July, early August, and late August 1967, we traveled the Yukon River in Alaska and the Yukon Territory and in mid-July and in mid-August, the Porcupine River. In most cases on the Yukon prospective breeding areas were examined a minimum of three times; on the Porcupine most were searched twice. Phenologically these visits corresponded approximately to the middle of the nestling period, soon after fledging, and after the young were strong on the wing.

On 262 miles of the Yukon River we saw 14 pairs definitely nesting and pairs possibly with nests at six other places, or a mean of 13 river miles per pair, remarkably close to a mean of 12 miles per pair found by Cade on the same stretch in 1951 (*Univ. California Publ. Zool.*, 63: 151–290, 1960). In a 172-mile section of the river where Cade *et al.* (*op. cit.*) found 17 pairs in 1966, we found 10 pairs definitely nesting, plus 5 pairs possibly with nests. As the 1966 survey was probably more exhaustive than ours, Peregrine density on the Yukon was apparently similar in both years.

On the Yukon and Porcupine Rivers we saw 32 downy young in 13 nests, or a mean of about 2.5 young per pair, identical to that reported by Cade (loc. cit.: 185) for 75 nests in the arctic prior to 1960, and similar to 2.6 for 13 pairs with viable eggs near hatching or downy young on the Mackenzie River drainage in 1966 (Enderson and Berger, *op. cit.*). In August 1967 we saw 14 fledged young at 10 sites on the Yukon River, where we were able to determine the outcome of the nesting attempt, or a mean of 1.4 young per occupied cliff. This value is between the corresponding figures of 1.0 and 1.8 fledged young per occupied cliff on the Yukon in 1951 and 1966 respectively (Cade, unpublished data). All these data suggest that Peregrines we saw in 1967 were reproducing normally.

Four adult female Peregrines were trapped at sites on the Yukon and Porcupine rivers in 1967 and a sample of fat removed from each by biopsy. These were analysed for organochlorine residues by the Wisconsin Alumni Research Foundation, Madison,