day the phalarope nests were preyed upon, no Snow Goose nests were active, and only approximately 7% of all markers in the shorebird study area indicated nests containing eggs.

Three explanations other than nest markers being used to detect the nests may be discounted: (1) habitat cues were unlikely because of the varied nature of nest sites ranging from damp sedge areas to drier sites dominated by willows; (2) trails in the vegetation, resulting from our visits, were minimized because all nests were on small islands, and many were checked by us without walking on land; (3) even if Sandhill Cranes possess a sufficiently developed olfactory system, in most cases scents were not available since terminated nests had not been visited for weeks, and the abandoned Snow Goose nest was ignored by us all season.

Nest markers have seldom been shown conclusively to be of importance as cues to predators in nest predation, although it has frequently been acknowledged that markers pose a potential problem, particularly for such opportunistic predators as corvids (Hammond and Forward 1956). Picozzi (J. Wildl. Manage. 39:151–155, 1975) used artificial nests resembling those of Red Grouse (*Lagopus l. scoticus*) to study predation on marked and unmarked nests and found Carrion Crows learned to locate nests by the presence of brightly marked nest stakes. Predation was higher in marked than unmarked nests, even when markers were placed 10 and 20 m away. A similar study of predation on Sage Grouse (*Centrocercus urophasianus*) nests by Common Ravens (*Corvus corax*) suggested similar conclusions (Autenrieth, Sage Grouse Management in Idaho, Idaho Dept. Fish and Game, Wildl. Bull. No. 9, 1981).

Generally, birds which use active defense or inaccessibility to deter predation (e.g., most colonial species) will not be affected as strongly by nest markers. However, the evidence presented here of opportunistic predation by cranes, and the findings of others on corvids suggests that investigators studying birds that rely primarily upon crypsis for nest defense should be particularly cautious with nest markers.

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Northern Harrier kills Sandhill Crane.—On 2 August 1983 I observed an adult female Northern Harrier (*Circus cyaneus*) attack and kill a 5-week old Sandhill Crane (*Grus canadensis*). This attack occurred at approximately 10:00 at the Big Hole National Battlefield, 19 km west of Wisdom, Beaverhead Co., Montana. The juvenile crane was accompanied by two adults and one other juvenile. The cranes were foraging in a wet meadow at the time of the attack.

The young cranes were approximately 8 m from the adults and 2 m apart when the harrier made four passes to within 1 m and attacked. Both juvenile cranes looked up at the harrier as it passed overhead; the crane that was being attacked crouched down during the passes, while the other juvenile watched passively. The adults continued feeding, seemingly unaware

of the harrier's presence. On the fifth pass the harrier seized the young crane and held it on the ground for 5–6 sec. An adult crane approached within 3 m and the harrier flew off without the victim. Neither of the adults displayed any of the typical defensive postures described for cranes by Layne (Fla. Field Nat. 9:51–75, 1981). Both adults called periodically and all three cranes stayed near the victim until 12:00 when I approached the site. The attacked crane was dead, with several deep punctures at the base of the neck. The dead bird measured 67.5 cm from bill tip to base of feet and, based on size, was estimated to be 5 weeks old.

Food habits of the Northern Harrier are well documented (Errington and Breckenridge, Amer. Midl. Natur. 17:831–848, 1936; Bent, U.S. Natl. Mus. Bull. 167, 1937; Randall, Wilson Bull. 52:165–172, 1940; Schipper et al., Ardea 63:1–29, 1975). Accounts of avian predation on Sandhill Cranes have not been documented, although a recent study has identified the Great Horned Owl (*Bubo virginianus*) as a source of crane chick mortality (C. D. Littlefield, pers. comm.).

Judging from the adult cranes' behavior prior to the attack, the Northern Harrier may not be regarded as a predator. However, this observation may represent atypical parental behavior, and the paucity of records of such events recorded may be due to the difficulty of observing cranes in the tall vegetation that characterizes their nesting habitat. Hence, harrier attacks, such as the one reported here, may be more frequent than the literature suggests.—DAVID L. GENTER, *Dept. Zoology, Univ. Montana, Missoula, Montana 59812.* *Accepted 26 Nov. 1984.*

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Water-crossing behavior of raptors during migration.—Migration pathways of many birds are known to be influenced by large bodies of water (Ralph, Bird-Banding 49:237–247, 1978). The best example of lakes and oceans acting as barriers to migration is the aggregations of Falconiformes along coastlines and at the end of peninsulas (Allen and Peterson, Auk 53:393–404, 1936; Haugh and Cade, Wilson Bull. 78:88–110, 1966; Evans and Lathbury, Ibis 115:572–585, 1973; and summarized by Newton, Population Ecology of Raptors, Buteo Books, Vermillion, South Dakota, 1979). While some species are reluctant to cross water, others make long distance flights (>100 km) over water (Williamson, Br. Birds 47:434–441, 1954; Brown and Amadon, Eagles, Hawks and Falcons of the World, McGraw-Hill, New York, New York, 1968; Moreau, The Palearctic-African Bird Migration Systems, Academic Press, New York, New York, 1972; Beamon and Galea, Ibis 116:419–431, 1974; Walter, Eleonora's Falcon, Univ. Chicago Press, Chicago, Illinois, 1979; Kerlinger et al., Auk 100: 488–490, 1983). Few studies have been conducted to determine what species undertake water crossings and under what conditions birds cross (Kerlinger, Anim. Behav. 32:1029–1034, 1984). In this paper I report on the water crossing tendencies of 10 Falconiform species during migration at two locations in North America. In addition, I test the hypothesis that long, narrow-winged species undertake water crossings more readily than species with low aspect ratio.

Methods.—Study sites were located at Whitefish Point, Chippewa Co., Michigan (46°40'N, 84°57'W) for spring migration (27 April–6 May 1981) and at Cape May Point, Cape May Co., New Jersey (38°56'N, 74°58'W) for autumn migration (3 September–13 October 1980). Upon reaching the ends of these peninsulas, migrants must either cross >18 km of water or fly hundreds of km around Lake Superior or Delaware Bay in directions that are inappropriate for migration. The crossings are similar in distance (18.2 km at Cape May and