another hen's chicks. Kin selection has been used to explain seemingly altruistic behavior in several species (Brown, The Evolution of Behavior, W. W. Norton and Co., Inc., New York, 1975:203). This concept seems unlikely to apply in the present circumstance since the fall dispersal pattern of Ruffed Grouse (Godfrey and Marshall, op. cit., 1969) reduces the likelihood that adopted chicks would be closely related to the hen.

Clearly, there are situations (e.g., where food is limiting) when the presence of extra chicks would be detrimental to a hen's own young. Under these conditions a hen which adopted chicks would be selected against. Whether Ruffed Grouse hens can recognize their own chicks is not known. If brood adoption is disadvantageous, one would expect selection pressures for hens to recognize their own chicks and exclude others.

Since extra chicks apparently are tolerated, the possibility remains that hens actually benefit by accepting other chicks. After chicks are 2–5 weeks old, Ruffed Grouse eat a wide variety of plant foods (Bump et al., op. cit.: 850). Potential grouse food appeared to be abundant at Cedar Creek during this time and likely minimized the disadvantages of extra chicks in terms of competition for food. Where food is not limiting and where the effects of extra chicks in terms of predator attraction are offset by the increased probability of predator detection, a hen which adopts chicks or travels with another brood may increase her relative fitness because any chick captured by a predator would be less likely to be one of her own.

I am grateful to the personnel of the Cedar Creek Natural History Area and of the University of Minnesota Bioelectronics Laboratory (UMBL) for their cooperation during the study. I thank Richard A. Huempfner and Gary J. Erickson for assistance with the field observations. Lewis W. Oring and George-Ann Maxson made critical comments on the manuscript. This investigation was supported by the U.S. Atomic Energy Commission (COO-1332-108).—STEPHEN J. MAXSON, *Dept. of Ecology and Behavioral Biology, Univ. of Minnesota, St. Paul 55101* (Present address: *Dept. of Biology, Univ. of North Dakota, Grand Forks 58202*). *Accepted 7 Dec. 1976.*

Marsh Hawks follow hunting red fox.—At 11:00 on 11 January 1973, we observed a red fox (*Vulpes fulva*) hunting among scattered clumps of dead herbaceous vegetation in an otherwise heavily grazed pasture in northern Delaware County, Ohio. Snow cover was not present. Although the fox had a severe case of mange, the animal's behavior appeared normal. Its hunting behavior consisted of the typical canine search, pause, and pounce sequence. Two Marsh Hawks (*Circus cyaneus*) were near; 1 hawk circled at a low level over the hunting fox while the second bird perched on the ground at approximately 9 m to one side of the fox. As the fox completed its hunting activities in one clump of vegetation and moved to the next clump, 1 Marsh Hawk again perched on the ground near the fox while the other bird circled overhead. When the fox had exhausted the remaining huntable clumps in the general area and had proceeded off across the pasture, the hawks again followed. The trio was then lost from view as the fox entered an area of scattered woods at the end of the pasture. During the entire observation period of approximately 15 min, prey was not taken by either predator.

Two hypotheses may be advanced to account for the behavior of the Marsh Hawks: (1) the 2 hawks and the fox were involved in some form of cooperative feeding interaction, and (2) the movement of a small- to medium-sized mammalian predator may naturally elicit a following response among Marsh Hawks.

Cooperative feeding interactions involving two or more avian predators have been described for a number of species (Christman, Condor 59:343, 1957; Parks and Bressler, Auk 80:198, 1963; Meyerriecks and Nellis, Wilson Bull. 79:236, 1967; Dusi, Auk 85:129, 1968; Emlen and Ambrose, Auk 87:164–165, 1970; Haverschmit, Wilson Bull. 82:99, 1970; Mueller et al., Auk 89:190, 1972; Anderson, Wilson Bull. 86:462, 1974); however, only one account of a cooperative feeding interaction between an avian predator and a mammalian predator is given in the literature. Welty (*The Life of Birds*, W. B. Saunders Co., Philadelphia, 1975:396) described a cooperative feeding interaction which involved a Rough-legged Hawk (*Buteo lagopus*) that fed upon rodents dislodged by a hunting Arctic fox (*Alopex lagopus*).

The tendency for birds to follow mammalian predators in a situation which does not involve nest site defense has been reported for several avian predator species. Berger (Auk 73:288, 1956) gave an account of a Marsh Hawk pursuing a domestic cat (*Felis domestica*). A pair of Mountain Choughs (*Pyrrhocorax graculus*) were reported by Lane (Ibis 99:116, 1957) to follow a hunting stoat (*Mustela erminea*). Holland (Br. Birds 67: 212–213, 1974) observed an attraction and following tendency among Long-eared Owls (*Asio otus*) for a dachshund (*Canis familiaris*). Therefore, the tendency to follow mammalian predators may exist independently of the cooperative feeding phenomenon among Marsh Hawks and other avian predators. However, the tendency also could serve as the behavioral basis for cooperative feeding between avian and mammalian predators when the opportunity arises.—LeRoy W. Bandy and Barbara Bandy, *Rt. 1, Box 75, Stetson, Maine 04488.* *Accepted 4 March 1977.*

Predation ecology of coexistng Great Horned and Barn owls.—Food habits of the Great Horned Owl (*Bubo virginianus*) and the Barn Owl (*Tyto alba*) are well studied (e.g., Wilson, Auk 55:187–197, 1938; Graber, Condor 64:473–487, 1962), but an emphasis on feeding ecology and niche segregation is fairly recent (Marti, Condor 76:45–61, 1974). This paper details some of the mechanisms facilitating coexistence of these owls during the summer at Tule Lake National Wildlife Refuge, Siskiyou County, California.

Methods.—Observations extended from 17 June to 12 July 1975. Of the 107 km^2 study area, about half consisted of open water; the remainder included the eastern slope of a large ridge where both owl species roosted on rock cliffs, a region of natural vegetation along the base of the ridge, and agricultural fields to the east. The onset of owl activity at 2 rock cliffs (northern and southern, 5.3 km apart) was recorded on alternate evenings. Small rodents were trapped and tethered (with brass wire wrapped at the base of the tail) on 2 dirt roads, 1 with telephone poles and 1 without, to test the importance of high perches in the hunting patterns of the owls. Identity of predators was determined either from direct observation with a night scope or observation of wing marks and footprints around the kill. Kills of questionable identity were excluded. The presence of car and observer did not constitute a new or unusual feature at either site, since parked farm equipment is common along the roads. Habitat preferences and hunting patterns were studied by driving through the area in a non-systematic pattern between 22:00 and 04:00 PDT. Twenty-six h of these observations were recorded over 17 nights.

Pellets were used to determine food habits and were collected at weekly intervals at known owl roosts. Barn and Great Horned owl pellets were separated on the basis of size, shape, firmness, and exact location of collection, as suggested by Moon (Trans. Kans. Acad. Sci. 43:457–466, 1940); those of questionable origin were discarded.