IS SIMULTANEOUS HUNTING IN WINTER BY MERLINS COOPERATIVE?

KEY WORDS: Merlin; Falco columbarius; Dunlin; Calidris alpina; cooperation; hunting behavior.

A number of raptors are known to at least occasionally hunt cooperatively (Ellis et al. 1993). Curio (1976:199) posited that each participant in communal hunting ‘‘is supposed to benefit from attacks of its neighbors.’’ Hector (1986:248) indicated that cooperative foraging occurred when ‘‘two or more individuals hunt together with some degree of coordination.’’ From an evolutionary standpoint, benefits to cooperating raptors range from an increase in the probability of prey capture when two individuals hunt simultaneously but do not share, to intentional group efforts of related individuals that increase productivity and survival of offspring (Bednarz 1988, Ellis et al. 1993).

Hector (1986) identified six conditions that individually or collectively were associated with cooperative hunting: (1) individuals generally hunt together rather than alone, (2) similar prey are selected by members of the hunting party, (3) roles of individuals are clearly defined during the hunt, (4) active coordination occurs among group individuals, (5) food is shared among group members, and (6) group members monitor each other’s movements. Hector (1986) concluded that Aplomado Falcons (Falco femoralis) hunted cooperatively because five of these conditions were met.

Cooperative hunting has been documented in numerous falcon species, including Aplomado Falcon (Hector 1986), Black Falcon (F. subniger; Hollands 2003), Brown Falcon (F. berigora; Mooney 1989), Grey Falcon (F. hypoleucus; Czechura and Debis 1985), Eurasian Hobby (F. subbuteo; Poot 1991), Lanner Falcon (F. biarmicus; Leonardi 1999), Merlin (F. columbarius; Bengtson 1975), Peregrine Falcon (F. peregrinus; Jenkins 2000), Red-necked Falcon (F. chioquera; Malan 1991), Saker Falcon (F. cherrug; Gorman 1998), and Taita Falcon (F. fascinucha; Thomsett 1998). Among the falcons, cooperative hunting usually involves small- or medium-sized species that prey on birds. The species most often viewed as cooperative hunters (e.g., Aplomado Falcon, Brown Falcon, Red-necked Falcon, Lanner Falcon, Laggar Falcon [F. jugger]) occur in open to more open areas where they are then subject to cover to more open areas where they are then subject to attack by other member(s) of the cooperative hunting team (Hector 1986).

Merlins in Sweden apparently hunt cooperatively, as Bengtson (1975) reported 30% of hunting flights involved pairs. Hunting characterized by elements of cooperation has also been observed in Merlins during winter in prairie Canada (Sodhi et al. 1993). In other cases, Merlins have hunted together, but it was unclear whether cooperation was involved (Parker 1978). Here I describe observations of Merlins hunting simultaneously during winter in western Washington, U.S.A., and discuss whether the behavior involved cooperation.

I observed Merlins hunting Dunlins (Calidris alpina)at several estuaries and coastal beaches in western Washington during winter (November through April) between 1979 and 2009. These sites supported between 2000 and 50,000 Dunlins during the period of investigation (Brennan et al. 1985, Buchanan 1992, J. Buchanan unpubl. data). Descriptions of Merlin hunting behavior in western Washington are provided elsewhere (Buchanan et al. 1988).

Between November 1979 and March 2009 I observed or have records of 253 hunting flights by Merlins that were directed at Dunlins. In only three pairs of hunts (n = 6 flights; 2.4%) was simultaneous hunting observed. The first of these, on 1 Dec 1981, occurred at Bowerman Basin (46°58.481′N, 123°56.741′W), in Grays Harbor, beginning at about 1500 H, when a female F.c. suckleyi and a male F.c. columbarius stooped at and tail-chased a single Dunlin low over the water. Within a few seconds, the two Merlins began alternating their stoops at the Dunlin. These alternating attacks continued for about 90 sec until each falcon had stooped at and chased the Dunlin seven or eight times. Both falcons then chased the Dunlin together in horizontal flight, and one made a final stoop from about 10 m. The falcons then soared to about 75 m, chasing one another and briefly tumbling, apparently in an attempted grapple, although no contact was made. Both falcons later hunted independently, but neither captured prey.