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Winter Interactions of Sharp-shinned Hawks with Prey

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Bird feeders provide enhanced opportunities to observe events surrounding attacks on avian prey by Sharp-shinned Hawks (*Accipiter striatus*) and Cooper's Hawks (*A. cooperi*), even though studies of radio-tracked hawks suggest that both species are just as likely to hunt for birds elsewhere in the landscape as at bird feeders (Roth and Lima 2007, Roth et al. 2008). Nevertheless, feeders attract and concentrate potential prey species (especially passerines and columbiforms) consumed by these diurnal raptors (Bildstein et al. 2020, Rosenfield et al. 2020), and both accipiter species are successful at capturing birds at feeders (Dunn and Tessaglia 1994). The observations I report here of interactions involving Sharp-shinned Hawks with prey were made at my urban backyard feeding station in Missoula, Montana, USA (46.87228°N, 113.97787°W; 985 masl) during winter 2022.

On 11 November 2022, an immature Sharp-shinned Hawk perched at 0800 H in a cherry tree with a live female House Sparrow (*Passer domesticus*) grasped in one talon. Within 60 sec, a Black-billed Magpie (*Pica hudsonia*) landed in the same tree and began moving from branch to branch until it was positioned below the hawk. The hawk appeared to be a male, based on its body size (minus tail) in comparison to that of the magpie. The magpie made 10–12 close approaches, always from 0.5 m below and behind the perched hawk, attempting each time to dislodge the sparrow by grabbing at it while fluttering below the hawk. All of the approaches by the magpie were directed at the sparrow; the magpie never attempted to strike the hawk. The hawk remained perched in its original location, sometimes raising its wings when the magpie was fluttering beneath it and watching the movements of the magpie closely, but it never attempted to fly away or attack the magpie. The magpie flew off after about 8 min of unsuccessful attempts to steal the sparrow, and the hawk flew off about 20–30 sec later with the still-alive sparrow in its grasp.

On 16 December 2022, I noticed an immature Sharp-shinned Hawk at 1435 H on the snow-covered ground plucking a dead female House Sparrow. Five minutes later an adult Sharp-shinned Hawk arrived and perched in a cherry tree about 7 m from the immature and its kill, whereupon the immature immediately froze in position on the ground. The adult apparently failed to notice the immature with its kill or chose not to interact with the immature, which was 0.5 m from dense shrubbery. The adult flew from the yard after remaining perched for about 3 min. The immature appeared very aware of the adult's presence, however, and did not move any part of its body during the entire time the adult hawk was present. The immature only resumed plucking and feeding on the sparrow about 2 min after the adult departed. Although no attempted food theft or attack was involved in this encounter, the behavior of the immature clearly indicated the potential threat the adult posed to it. In this case the immature appeared smaller than the adult and may have been a male. I assumed the immature's behavior was a reaction to the possible theft of its kill and not avoidance of a predatory encounter, despite a large size difference between sexes (Bildstein et al. 2020). Sharp-shinned Hawks have broadly overlapping home ranges in winter regardless of age and sex, and do not appear to be territorial at that season (Roth et al. 2005, Roth and Lima 2007, Bildstein et al. 2020); they are aggressive toward conspecifics primarily during the breeding

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season. Further, cannibalism among adult Sharp-shinned Hawks is not mentioned in the latest comprehensive review (Bildstein et al. 2020), although there are reports of attacks on trapped conspecifics during migration (Klem et al. 1985), perhaps because the trapped individuals appeared injured. Nevertheless, avoidance of a predatory attack remains a possible explanation for what I observed.

On 24 December 2022, at 1430 H, an adult Sharp-shinned Hawk (sex undetermined) had captured a House Sparrow and begun to pluck it on the ground when a second adult Sharp-shinned Hawk (sex undetermined) flew into the yard directly at the first hawk. The hawks appeared to be of similar size. The first adult immediately flew, carrying the sparrow in its talons, and was pursued through the air by the second adult for about 4–6 sec as they looped twice through my backyard and a neighbor's yard before disappearing out of view, with about 1 m separating the two hawks during the pursuit. I interpreted this encounter as attempted food theft and not a predatory attack for the reasons given earlier, as well as the similar body size and age of the two hawks.

Kleptoparasitism (also termed piracy and food theft) refers to the stealing of food from another individual, either a member of the same species (intraspecific) or of a different species (interspecific), and is widely reported among birds, including members of the Accipitriformes (Brockmann and Barnard 1979). Most kleptoparasitic acts by birds are directed toward other birds. Members of the genus *Accipiter* appear to be rare participants in kleptoparasitism. The Eurasian Sparrowhawk (*A. nisus*) has been reported as both perpetrator and target of interspecific kleptoparasitic attempts (Brockmann and Barnard 1979), but no other *Accipiter* species is mentioned in that review. General reviews for North American members of the genus are consistent with the overall impression that piracy involving accipiters is rare or rarely observed; no food-theft interactions are mentioned for Bicolored Hawk (*A. bicolor*; Bierregaard et al. 2022), Cooper's Hawk (Rosenfield et al. 2020), American Goshawk (*A. atricapillus*; Squires et al. 2020), or Sharp-shinned Hawk (Bildstein et al. 2020). However, Roth and Lima (2003) reported four cases of kleptoparasitism of radio-tracked Cooper's Hawks by American Crows (*Corvus brachyrhynchos*) during two winters but provided no details regarding the interactions. Lack of reports of kleptoparasitic interactions involving North American accipiters is likely related to the secretive manner in which accipiters hunt, and the fact that they tend to be solitary and secretive when not breeding or migrating (Bildstein et al. 2020, Rosenfield et al. 2020, Squires et al. 2020).

The concentration of smaller birds at urban bird feeders is obviously a factor affecting the behavior of their predators (Lowry et al. 2013) including Sharp-shinned Hawks and Cooper's Hawks, attracting the predators to the feeding stations, increasing the probability of attempted intra- and interspecific piracy among the predators, and enhancing the possibility of observing those interactions. Prior to 2022 I never observed two Sharp-shinned Hawks at the same time in my yard, but during fall and winter of that year at least one appeared most weeks (sometimes several days in sequence), and at least three different Sharp-shinned Hawks (an immature and two adults) had home ranges that overlapped at my feeding station during November and December; all appeared there within a maximum span of 8 d. Feeding stations also increase opportunities for Black-billed Magpies to exploit various food sources, even preying on adult passerines (Hendricks and Hendricks 2022), as well as bringing the magpies into closer contact with bird-hunting raptors in winter. Prior to winter 2022 I did not notice any interactions between Black-billed Magpies and Sharp-shinned Hawks when a hawk had a kill, despite having had feeders present for over 20 yr. However, magpies (up to a dozen at a time) are now daily winter visitors to my yard, where they collect and cache seed, grain, dried mealworms (*Tenebrio molitor*), suet, and the remains of dead birds (Hendricks 2020). Magpies are known kleptoparasites (Brockmann and Barnard 1979) and have the potential to seriously or fatally injure smaller accipiters (Cox 1991), such as Sharp-shinned Hawks when several magpies together attempt to steal the hawk's prey, which is a foraging tactic magpies employ against eagles and other predators to gain access to fresh kills or carrion (Trost 2020).

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