

## AVIAN PREDATORS HUNTING BIRDS NEAR WINDOWS<sup>1</sup>

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### ABSTRACT

Records of avian predators hunting in the vicinity of windows were obtained from 1974 to 1979. These data indicate that *Accipiter* hawks and Loggerhead Shrikes (*Lanius ludovicianus*) are capable of exploiting prey-catching opportunities in human-modified environments by learning that prey are easily available near windows. The data further show that these predators kill themselves by flying into nearby windows while hunting. At least for accipiters and especially the Sharp-shinned Hawk (*A. striatus*), the habit of hunting birds at feeding stations near windows may explain why these raptors become frequent window-kills.

### INTRODUCTION

A number of papers in the ornithological literature describe how human-modified environments containing man-made structures with windows represent a fatal hazard to birds in general (1,2). Several studies include accounts of avian predators hunting near the windows of human dwellings (3,4,5). This paper is the first report dealing with avian predators suspected of learning to repeatedly exploit the areas around man-made structures as a source of easily available prey. Moreover, as a consequence of their hunting practices, I suggest that avian predator mortality, resulting from window strikes, should be of special concern to the conservation community, especially when the victims are locally rare, endangered or threatened species.

### MATERIALS AND METHODS

The data for this report were collected in Illinois from 1974 to 1979, and in part, contain selective findings of my comprehensive study of the bird-window collision phenomenon (6). The data consist of documented accounts of prey-predator interactions in the vicinity of windows. These accounts were obtained from my observations and those of others who cooperated in my investigation by registering observations at their homes or at other dwellings. Most of the data reported here was obtained from accounts registered by Paul, Clara, and Laura Yambert at

their rural home (RR 1, Carbondale, IL 62901; ca. 37° 40' 08" N, 89° 10' 28" W) located 7.5 km southeast of Carbondale, Jackson County, Illinois. Over four winters, beginning the winter of 1975-76, the Yamberts regularly observed the individual hunting practices of a Sharp-shinned Hawk and Loggerhead Shrike in the vicinity of their home.

The Yambert house has several large picture windows facing an open deciduous woodlot. The windows effectively represent a continuous expanse of glass interrupted by window frames and sections of wooden wall; glass occupies approximately one-third (18 m<sup>2</sup>) of the north-facing side of the house. For the purpose of family enjoyment several (> 10) seed and suet feeders were placed in front of the windows to attract birds to the area. All the feeders are within 1-3 m of the glass panes and are placed on an above-ground deck at the base of the windows, or on trees at varying heights in front of the glass surfaces. Directly below the windows and deck the land slopes away into a hollow.

### RESULTS AND DISCUSSION

Throughout each winter large mixed-species flocks consisting primarily of Downy Woodpeckers (*Picoides pubescens*), Blue Jays (*Cyanocitta cristata*), Carolina Chickadees (*Parus carolinensis*), White-breasted Nuthatches (*Sitta carolinensis*), Northern Cardinals (*Cardinalis cardinalis*), and Dark-eyed Juncos (*Junco hyemalis*) regularly attended the Yambert feeders. The following sequence of events typically occurred when either predator entered the woodlot and was seen by the feeder birds. Once aware of the presence of the predator the entire flock became immobile, "freezing" in place. An alarm call by Blue Jays, if they were present, or the slow approach or rush of either predator appeared to panic the flock and they scattered in every direction. While attempting their escape to safety some of the feeder birds would regularly strike the nearby windows; as many as seven were observed crashing into the windows at one time. The consequences of these collisions suggest that they are similar to those observed under other circumstances (6). The birds are either: (a) killed immediately, (b) knocked unconscious, or stunned and either subsequently succumb to their sustained injuries or recover enough to fly weakly off, or (c) appear unharmed and fly off immediately after impact.

Over the four winters both the Sharp-shinned Hawk and the Loggerhead Shrike were seen to seize and carry off cardinals and chickadees that lay dead beneath the windows. The hawk was also observed to frequently pursue fleeing birds flying away from the feeder area. During the first winter the Sharp-shinned

<sup>1</sup>Received for publication April 7, 1981; reviewed; accepted June 16, 1981.

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Hawk was regularly recorded hunting the area for a two week period, but was not seen after it struck one of the windows itself.

On 29 January 1979 an extended observation involving the shrike was possible when a female cardinal became a window-kill and landed on the deck in front of one of the large picture windows. Immediately after the impact the bird fell and the shrike appeared perched in a tree approximately 1 m from the body. After alighting on the deck the predator approached and picked at the lifeless victim. It then grasped it with one foot, and as if to aid its efforts to get into the air, it dragged the body approximately 0.5 m. to the edge of the deck. Here it grasped its quarry with both feet and pushed off into flight. Once in the air the shrike dipped slightly as if it were overloaded and then leveled out and made its way through the open wood. Later the same day the observers found the butchered carcass approximately 100 m southwest of the house; it was headless and stripped clean of meat. Interestingly, using known average weights for both predator and prey (7), my calculations indicate that the cardinal would have increased the weight of a male shrike by 69 percent and that of a female shrike by 80 percent. Whichever sex it was, this show of strength illustrates that Loggerhead Shrikes are capable of carrying off prey in excess of 50 percent of their own body weight.

No evidence is available to determine if the observed predators were the same individuals hunting the Yambert home over the four consecutive winters. However, Loggerhead Shrikes are permanent residents in this area and were known to nest on the edge of a field adjacent to the Yambert home. Moreover, the finds of similarly butchered carcasses of other birds in the same locality in which the cardinal was discovered would indicate the same shrike or its mate was involved.

It is generally known that predators are attracted to areas of high prey density (8). The literature also contains accounts of various avian predators learning to regularly return to areas where they previously captured prey (9, 10, 11). From three appearances of Sharp-shinned Hawks in parid roost areas, at emergence time, Gaddis (12) suggested that these raptors were capable of learning regularities in the movement patterns of their prey. Similarly, my data suggest that both the Sharp-shinned Hawk and Loggerhead Shrike were initially attracted to the Yambert home by the high prey density; recall that the prey were also attracted to the vicinity by the abundant food supplies provided for them near the windows. Even though individuals were not able to be identified, the regular occurrence of both these predators in the vicinity of the Yambert home over four consecutive winters further supports the conclusion that these predators are capable of learning to exploit a consistent source of abundant prey. Moreover, both predators probably obtained additional reinforcement to return to the area by regularly finding window casualties that were easily captured.

Evidence indicating that avian predators do not actually learn to use windows as tools (in the human sense of the word) to capture their prey is suggested by the fact that they also fall victim to the windows around which they hunt. In addition to the predator strikes already mentioned at the Yambert home, I have several records of other accipiters that were killed hunting in the vicinity of man-made structures. To cite but one example involving the Northern Goshawk (*A. gentilis*), R. Graber at the Illinois Natural History Survey (Urbana, Illinois) reported to me that three of these raptors were turned into their collection and listed as window-killed during an invasion year in 1972. All

three goshawks were suspected of hunting near windows because of the prey they were carrying when they crashed to their deaths. Two of these raptors had Mourning Doves (*Zenaida macroura*); the other held a Rock Dove (*Columba livia*) in its talons. Both these prey species are frequently found in the vicinity of man-made structures.

In other research, I have found that birds in general are unable to recognize clear and reflective windows as obstacles (6). These findings further support the conclusion that predators will not learn to capture their prey by using objects that they themselves cannot see. Rather, as stated earlier, they probably return to areas containing windows because they recall that prey was easily captured there.

Even though recent hawk watch surveys during migratory periods suggest an increase in the number of Sharp-shinned Hawks (13,14), this species remains a concern to conservationists. It is retained on the latest Audubon Blue List and is considered endangered in Ontario and threatened in Mississippi, Tennessee, Kentucky, Montana, and Georgia (15). The Loggerhead Shrike is also on the Audubon Blue List and is disappearing or drastically declining throughout most of its range (15). My combined data show that both these predators are killed flying into windows, but the Sharp-shinned Hawk was reported more often as a window-kill (6). From my survey of museums and selected individuals this accipiter ranked 30 of 213 species of birds reported to strike windows in North America north of Mexico. The survey data reveal that Sharp-shinned Hawks are known to strike windows more frequently than several other species that occur in greater abundance in the vicinity of windows. The high frequency with which these raptors become victims may be a consequence of the way in which they swiftly rush at their intended prey combined with their habit of hunting birds at feeding stations which are usually placed near windows. That Loggerhead Shrikes were not reported as window-kills as frequently may be a consequence of their declining numbers or due to some as yet unrecognized hunting practice which provides some protection.

The accounts described in this paper generally support the conclusion that windows pose a fatal hazard to certain predators that are attracted and subsequently learn to exploit easily available victimized prey in the vicinity of these invisible barriers. As the human population expands, more and more avian species are forced to share their haunts with man and his dwellings. Where human dwellings contain large expanses of glass, man unwittingly creates a fatal hazard for avian predators and their prey alike. At least with regard to the *Accipiter* hawks, windows represent yet another source of man-caused mortality which must be considered in our effort to protect these endangered and threatened species.

#### ACKNOWLEDGEMENTS

I thank Paul, Clara, and Laura Yambert for collecting data for my use; Dr. George H. Waring for his advice during the preparation of the manuscript; Drs. Carl S. Oplinger, Robert L. Schaeffer, Jr., and Irvin R. Schmoyer and Renee A. Klem for their critical review of various manuscript drafts. I am particularly grateful to the Department of Zoology at Southern Illinois University at Carbondale for their continuous support of my research.