

Loxia curvirostra minor.—Four females measure: wing, 83.2–88.3 mm.; culmen, 15.0–17.0; 12 males, wing, 86.8–93.0; culmen, 15.1–17.4. Ten of these were breeding birds taken by T. S. Roberts at Grand Marais, Cook Co., northeastern Minnesota, August, 1879. The only post-1900 specimen in the University of Minnesota Museum of Natural History collection is a male found dead near Minneapolis on February 22, 1956. There are apparently no valid records of *minor* outside the boreal regions during the 1950–51 flight (Tordoff, *loc. cit.*) of the western populations.

Roberts (*loc. cit.*) cites several sight records of juvenal Red Crossbills, but to date no specimens from the state have been reported. The collection of H. F. Kendall contained 11 Red Crossbills taken between August 12 and October 4, 1931; all in various stages of post-juvenal molt. However, the progress of this molt does not correlate with the date on which a given specimen was collected. A male taken August 20 has nearly completed the molt, whereas two males and a female, taken August 30 and September 1, have but a few new feathers on the back, throat and breast. Males taken on August 12 and 20 have more than half completed this molt, while a male taken October 4 has replaced fewer than half his juvenal feathers. The males are acquiring the mottled plumage ascribed to first winter birds of the eastern race, with red and green feathers interspersed. Most of these specimens show evidence of having been rather fat when collected. The two females measure: wing, 90 and 91 mm.; culmen, 17.0; males, wing, 89.7–93.4; culmen, 16.1–17.6. Gratitude is expressed to Mr. Kendall for his loan of these birds.

Loxia curvirostra bentii.—Two crossbills of this race flew into a window during a snowstorm on November 15, 1950, in a suburb of Minneapolis. These were an adult male and a first-year male; they measure, respectively: wing, 98 and 90 mm., culmen, 20.5 and 18.7.

Appreciation is expressed to Harrison B. Tordoff who examined certain specimens, and confirmed identification of those representing the race *bentii*.—ROBERT W. DICKERMAN, *University of Minnesota Museum of Natural History, Minneapolis, Minnesota, April 30, 1957.*

The look-out perch as a factor in predation by Crows.—On the grounds of the Preston Laboratories at Butler, Pennsylvania, we normally have a couple of dozen Mallards (*Anas platyrhynchos*) of which about 10 are females. They are fully flighted, and nest over a wide area inside the fence (100 acres) and sometimes outside it. We also have a pair of Common Crows (*Corvus brachyrhynchos*) which destroy all the early nests and most of the later ones, and also (apparently) catch the ducklings. This predation is successful to the point of holding the numbers of ducks to about two dozen, the number of ducklings raised per annum being three or four at this population density. It is probable that other predators help, perhaps raccoons (*Procyon lotor*) and opossums (*Didelphis marsupialis*) more particularly, but since eggs disappear from nests in the middle of the day and the other predators are essentially nocturnal, and since we observe the crows watching and searching, we believe that the crows are the effective agents. Each female duck probably makes at least three attempts to nest, and probably lays in excess of 20 eggs, since there are often 15 or more eggs in the first nest, though only half a dozen or so in late ones. Out of some 200 eggs, probably 20 hatch, 15 ducklings reach the water, and 3 or 4 are raised. This is an efficiency of about 2 per cent, and is much lower than Lack (1954. "The Natural Regulation of Animal Numbers," p. 79) gives in his tabulation.

The crows also discover and destroy the nests of Ring-necked Pheasants, (*Phasianus*

colchicus) and even peafowl (*Pavo cristatus*). When eggs or ducklings are not available, they will condescend to eat the grain we set out for the ducks. There is no evidence that these particular crows or their offspring search for dead rabbits along the neighboring roads, and I am not sure that they eat dead fish stranded by the lake or brought ashore by raccoons. They probably have sources of food other than those here mentioned, though it would not be necessary.

The crows sit in the treetops, and watch for the duck to go to her nest. At the time of first nesting the herbage is low, and, although the nest itself may be well hidden under a low evergreen, the duck must necessarily betray it.

On the later nestings, the nest is equally well hidden, usually among tall weeds and grasses, but the duck now has the advantage that she can sneak through such cover for many yards, and sometimes the crows do not find the nest. If the nest is well away from the water, the raccoons do not find it either. All goes well till the ducklings hatch, and then the mother must quack to call the ducklings to follow her to the lake. The crows appear to know what that means as well as do the ducklings. They fly to the tree nearest the sound, and each crow apparently captures its duckling. Thus, on June 25, 1955, in one nest in which nine of 11 eggs hatched, three crows settled in the oak tree nearest the nest, and six ducklings reached the water, where I saw them on June 26. It seems fairly clear what happened to the others. Then the crows moved down to trees by the lake, sometimes at one end thereof, sometimes at the other, depending, apparently, on where the mother and her brood were. By noon of June 28, the family was reduced to three, and by 7:00 p.m. the same day was down to one. The ducklings were safe on the water, but in danger when they came ashore and they disappeared one after the other till not one was left.

The Wood Ducks (*Aix sponsa*) which nest with us seem to be much more successful. To begin with, they nest in holes, or in the boxes we put up for them, and perhaps the crows do not like to venture into boxes. Some nests no doubt are destroyed, but most likely by other predators. None the less some of the early clutches hatch out, and by just about 100 per cent. The young are kept "out at sea" among the lily pads to a much greater extent than young Mallards, and there they are safe from both crows and hawks. When they do go ashore, the mother seems able to protect them and is very alert to place herself between the danger and the ducklings. In two or three years' observation, involving some scores of young, we have observed that very few were lost once they were hatched. In some way the Wood Duck is adapted to the presence of crows and able to outwit them, while the Mallard is extremely vulnerable.

This brings me to the main point, or question, of this memorandum. Logan J. Bennett (1938. "The Blue-winged Teal") several times comments on the incompatibility of trees and teal. He ascribes this to the fact that herbage does not grow well under trees to provide good nesting cover for the ducks, and also to the fact that trees provide nesting sites for Crows and Horned Owls (*Bubo virginianus*). These are valid reasons, but I here raise the question whether the bad influence of trees may not be more direct. The trees are lookout perches from which a crow may survey a meadow or prairie and locate duck nests by the movements of the mother. In the absence of the perches, the crow is relatively helpless, even if he has a good nesting site within commuting distance. He cannot hover, and if he cruises about overhead, he will use up a lot of energy, and even then may not be well-placed to survey the situation. I find that our crows use dead trees, trees not yet in leaf, and power poles to watch what goes on, and I suspect that if I could remove all elevated perches of this kind for a quarter mile around the lakes, Mallard hatching success would be much greater, and probably raising success also. I

offer this as a suggestion, without proof, since I am not in a position to make the experiment.

The behavior of the crow is similar to that of Brown-headed Cowbirds (*Molothrus ater*). They also sit in the treetops, watching for small birds to carry nesting material to their nests, so that the cowbird knows where the nest is before the first egg is laid. Sometimes she lays the first egg herself (Norris, 1947. *Wilson Bull.*, 59:92).

The effectiveness of this elevated look-out perch is clear from the behavior of the Eastern Bluebird, *Sialia sialis*, (Preston, 1948. *Wilson Bull.*, 60: 120) of the Loggerhead Shrike (*Lanius ludovicianus*) and other species.

We have seen that the crows are ineffective against the Wood Duck. They are also ineffective against our Canada Geese (*Branta canadensis*) or our Egyptian Geese (*Alopochen aegyptiacus*). This is probably because both parents keep a tight control over their young, and are very bellicose in their defense. The young come ashore freely, but the crows get few or none. It would probably be a very rash crow that attempted it.

In England as a boy I often found Mallard nests in hollow trees, and hence in wooded areas, but the game keepers had cleared out the Carrion Crow (*Corvus corone*) in those sections.

It would seem possible that one reason the great nesting grounds of many species of our North American ducks are in the prairies is because originally the prairie was treeless, thereby putting the crow at a disadvantage. Potholes, kettles, ponds and lakes exist in forested regions, and in partly wooded regions, and probably food is plentiful there, but the nesting ducks in such places are few, and largely those that nest in hollow trees.

Perhaps the predators' look-out perch is the clue to the situation, and the prairies could be depopulated of ducks by a modest amount of tree planting supplemented with lines of telephone poles. At any rate the crow has increased in the prairies with the coming of settlement, and is now an important factor in waterfowl predation there.

Perhaps as a sort of appendix I may be permitted to add an account of the behavior of the Carrion Crow as a predator on the Red Grouse (*Lagopus scoticus*) on the Scottish moors. This is secondhand information given to me by a gamekeeper in northern Scotland in 1949, when I spent some time with him after the main nesting season.

"When the hen grouse is incubating, the cock frequently sits conspicuously upon a rock or other perch at a little distance. The crow, observing him, alights on another neighboring rock and waits to see if he is attacked. If he isn't, he moves to another perch and repeats this till he is attacked. He then knows the hidden female is near, and looks around till he finds her. He then fights with the female. In the melee the eggs are scattered, which is the crow's objective. He can then gather them at his leisure, while the grouse must abandon the site. This goes on as long as the crow has young in the nest, and so effective are the tactics that no grouse can hatch its eggs in the crow's territory. However, when the young crows have left the nest, the crows seem much less interested in eggs. The grouse then reneest and may have a fair measure of success." This complete suppression of the early nestings of the grouse and the incomplete suppression of the late renestings agrees exactly with what we observe with the Mallards on our Laboratory grounds.—F. W. PRESTON, *Box 149, Butler, Pennsylvania, June 13, 1957.*

Broad-winged Hawk in Coahuila.—On July 6, 1955, I obtained a Broad-winged Hawk (*Buteo platypterus platypterus*) 13 miles east of San Antonio de las Alazanas, Coahuila, in a Douglas fir-pine-aspen association. The specimen (KU 32628), an adult male, lacked the right foot and distal one-third of the tarsus. Despite this abnormality the animal was not emaciated. Pertinent measurements, in millimeters, were: right testis,