

**SOME COMMON BIRDS IN
THEIR RELATION TO
AGRICULTURE. FARMER'S
BULLETIN NO.54. MAY, 1897**

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F. E. L. BEAL

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U. S. DEPARTMENT OF AGRICULTURE.

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SOME COMMON BIRDS

IN THEIR RELATION TO AGRICULTURE.

BY

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SOME COMMON BIRDS IN THEIR RELATION TO AGRICULTURE.

INTRODUCTION.

It has long been known that birds play an important part in relation to agriculture, but there seems to be a tendency to dwell on the harm they do rather than on the good. Whether a bird is injurious or beneficial depends almost entirely upon what it eats, and in the case of species which are unusually abundant or which depend in part upon the farmer's crops for subsistence the character of the food often becomes a very practical question. If crows or blackbirds are seen in numbers about cornfields, or if woodpeckers are noticed at work in an orchard, it is perhaps not surprising that they are accused of doing harm. Careful investigation, however, often shows that they are actually destroying noxious insects, and also that even those which do harm at one season may compensate for it by eating noxious species at another. Insects are eaten at all times by the majority of land birds, and during the breeding season most kinds subsist largely and rear their young exclusively on this food. When insects are unusually plentiful, they are eaten by many birds which ordinarily do not touch them. Even birds of prey resort to this diet, and when insects are more easily obtained than other fare, the smaller hawks and owls live on them almost entirely. This was well illustrated during the recent plague of Rocky Mountain locusts in the Western States, when it was found that locusts were eaten by nearly every bird in the region, and that they formed almost the entire food of a large majority of the species.

Within certain limits, birds feed upon the kind of food that is most accessible. Thus, as a rule, insectivorous birds eat the insects that are most easily obtained, provided they do not have some peculiarly disagreeable property. It is not probable that a bird habitually passes by one kind of insect to look for another which is more appetizing, and there seems little evidence in support of the theory that the selection of food is restricted to any particular species of insect, for it is evident that a bird eats those which by its own method of seeking are most easily obtained. Thus, a ground-feeding bird eats those it finds among the dead leaves and grass; a flycatcher, watching for its prey from some vantage point, captures entirely different kinds; and the

woodpecker and warbler, in the tree tops, select still others. It is thus apparent that a bird's diet is likely to be quite varied, and to differ at different seasons of the year.

In investigating the food habits of birds, field observation can be relied on only to a limited extent, for it is not always easy to determine what a bird really eats by watching it. In order to be positive on this point, it is necessary to examine the stomach contents. When birds are suspected of doing injury to field crops or fruit trees, a few individuals should be shot and their stomachs examined. This will show unmistakably whether or not the birds are guilty.

In response to a general demand for definite information regarding the food habits of our native birds, the Biological Survey of the Department of Agriculture has for some years past been conducting a systematic investigation of the food of species which are believed to be of economic importance. Thousands of birds' stomachs have been carefully examined in the laboratory, and all the available data respecting the food brought together. The results of the investigations relating to birds of prey, based on an examination of nearly 3,000 stomachs, were published in 1893, in a special bulletin entitled *The Hawks and Owls of the United States*. Many other species have been similarly studied and the results published, either in special bulletins or as articles in the yearbooks. The present bulletin contains brief abstracts of the results of food studies of about 30 grain and insect eating birds belonging to 10 different families.¹

These species comprise among others the crow blackbirds and rice-birds, against which serious complaints have been made on account of the damage they do to corn, wheat, rice, and other crops; and also the cuckoos, grosbeaks, and thrashers, which are generally admitted to be beneficial, but whose true value as insect destroyers has not been fully appreciated. The practical value of birds in controlling insect pests should be more generally recognized. It may be an easy matter to exterminate the birds in an orchard or grain field, but it is an extremely difficult one to control the insect pests. It is certain, too, that the value of our native sparrows as weed destroyers is not appreciated. Weed seed forms an important item of the winter food of many of these birds, and it is impossible to estimate the immense numbers of noxious weeds which are thus annually destroyed.

¹The limits of this bulletin preclude giving more than a very brief statement regarding the food of each bird, but more detailed accounts of some of the species will be found in the following reports of the Biological Survey (formerly Division of Ornithology and Mammalogy): *The Crow*—Bulletin No. 6, 1895, pp. 1-98; *Woodpeckers*—Bulletin No. 7, 1895, pp. 1-39; *Kingbird*—Annual Report Secretary of Agriculture, for 1893, pp. 233-234; *Baltimore Oriole*—Yearbook United States Department of Agriculture for 1895, pp. 426-430; *Grackles*—Yearbook for 1894, pp. 233-248; *Meadowlark*—Yearbook for 1895, pp. 420-426; *Cedarbird*—Annual Report Secretary of Agriculture, for 1892, pp. 197-200; *Catbird, Brown Thrasher, and Wren*—Yearbook for 1895, pp. 405-418.

If birds are protected and encouraged to nest about the farm and garden, they will do their share in destroying noxious insects and weeds, and a few hours spent in putting up boxes for bluebirds, martins, and wrens will prove a good investment. Birds are protected by law in many States, but it remains for the agriculturists to see that the laws are faithfully observed.

THE CUCKOOS.

(*Coccyzus americanus* and *C. erythrophthalmus*.)

Two species of cuckoos, the yellow-billed (fig. 1) and the black-billed, are common in the United States east of the Plains, and a subspecies of the yellow-billed extends westward to the Pacific. While the two species are quite distinct, they do not differ greatly in food habits, and their economic status is practically the same.

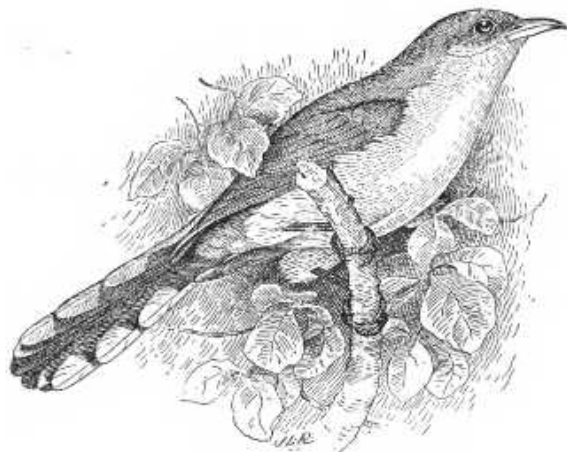


FIG. 1.—Yellow-billed cuckoo.

An examination of 37 stomachs has shown that these cuckoos are much given to eating caterpillars, and, unlike most birds, do not reject those covered with hair. In fact, cuckoos eat so many hairy caterpillars that the hairs pierce the inner lining of the stomach and remain there, so that when the stomach is opened and turned inside out, it appears to be lined with a thin coating of fur.

An examination of the stomachs of 16 black-billed cuckoos, taken during the summer months, showed the remains of 328 caterpillars, 11 beetles, 15 grasshoppers, 63 sawflies, 3 stink bugs, and 4 spiders. In all probability more individuals than these were represented, but their remains were too badly broken for recognition. Most of the caterpillars were hairy, and many of them belonged to a genus that lives in colonies and feeds on the leaves of trees, including the apple tree. One stomach was filled with larvæ of a caterpillar belonging to the

same genus as the tent caterpillar, and possibly to that species. Other larvae were those of large moths, for which the bird seems to have a special fondness. The beetles were for the most part click beetles and weevils, with a few May beetles and some others. The sawflies were all found in two stomachs, one of which contained no less than 60 in the larval stage.

Of the yellow-billed cuckoo, 21 stomachs (collected from May to October, inclusive) were examined. The contents consisted of 355 caterpillars, 18 beetles, 23 grasshoppers, 31 sawflies, 14 bugs, 6 flies, and 12 spiders. As in the case of the black-billed cuckoo, most of the caterpillars belonged to hairy species and many of them were of large size. One stomach contained 12 American tent caterpillars; another 217 fall webworms. The beetles were distributed among several families, but all more or less harmful to agriculture. In the same stomach which contained the tent caterpillars were two Colorado potato beetles; in another were three goldsmith beetles and remains of several other large beetles. Besides ordinary grasshoppers were several katydids and tree crickets. The sawflies were in the larval stage, in which they resemble caterpillars so closely that they are commonly called false caterpillars by entomologists, and perhaps this likeness may be the reason the cuckoos eat them so freely. The bugs consisted of stink bugs and cicadas or dog-day harvest flies, with the single exception of one wheel bug, which was the only useful insect eaten, unless the spiders be counted as such.

THE WOODPECKERS.

Five or six species of woodpeckers are familiarly known throughout the eastern United States, and in the west are replaced by others of similar habits. Several species remain in the northern States through the entire year, while others are more or less migratory.

Farmers are prone to look upon woodpeckers with suspicion. When the birds are seen scrambling over fruit trees and pecking at the bark, and fresh holes are found in the tree, it is concluded that they are doing harm. Careful observers, however, have noticed that, excepting a single species, these birds rarely leave any important mark on a healthy tree, but that when a tree is affected by wood-boring larvae the insects are accurately located, dislodged, and devoured. In case the holes from which the borers are taken are afterwards occupied and enlarged by colonies of ants, these ants in turn are drawn out and eaten.

Two of the best known woodpeckers, the hairy woodpecker (*Dryobates villosus*) (fig. 2) and the downy woodpecker (*D. pubescens*), including their races, range over the greater part of the United States, and for the most part remain throughout the year in their usual haunts. They differ chiefly in size, for their colors are practically the same, and the males, like other woodpeckers, are distinguished by a scarlet patch on the head.

An examination of many stomachs of these two birds shows that from two-thirds to three-fourths of the food consists of insects, chiefly noxious. Wood-boring beetles, both adults and larvæ, are conspicuous, and with them are associated many caterpillars, mostly species that burrow into trees. Next in importance are the ants that live in decaying wood, all of which are sought by woodpeckers and eaten in great quantities. Many ants are particularly harmful to timber, for if they find a small spot of decay in the vacant burrow of some wood-borer, they enlarge the hole, and as their colony is always on the increase, continue to eat away the wood until the whole trunk is honey-



FIG. 2.—Hairy woodpecker.

combed. Moreover, these insects are not accessible to other birds, and could pursue their career of destruction unmolested were it not that the woodpeckers, with beaks and tongues especially fitted for such work, dig out and devour them. It is thus evident that woodpeckers are great conservators of forests. To them, more than to any other agency, we owe the preservation of timber from hordes of destructive insects.

One of the larger woodpeckers familiar to everyone is the flicker, or golden-winged woodpecker (*Colaptes auratus*) (fig. 3), which is generally distributed throughout the United States from the Atlantic Coast to