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To

Dr. Charles W. Richmond
with the compliments of
T. Gilbert Pearson

New York City

October 22, 1926

PORTRAITS AND HABITS OF OUR BIRDS

§ Birds

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v.1
Birds

Portraits and Habits of Our Birds

Prepared by Various Authors

Edited by
T. Gilbert Pearson, LL.D.

Illustrated with Fifty Colored Plates by Louis Agassiz Fuertes, R. Bruce Horsfall, Edmund J. Sawyer, and Allan Brooks; also Thirty-eight Photographs and Drawings from Nature

Volume I



National Association of Audubon Societies
New York City
1925

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EDITOR'S NOTE

THAT branch of the field of science, which deals with the naming and describing of new birds has practically reached the point of exhaustion in the United States. It would seem safe to make the statement that within our borders there is not left one species of bird that has gone unnamed or undescribed.

Many students of ornithology, therefore, are turning their attention more especially to that realm which deals with the habits and activities of birds. This vast field of research is open, not only to those of scientifically trained minds, but to all who love birds and whose interest in the subject extends even slightly beyond the range of casualty. There is a world of facts to be learned about the habits and movements of even our most common birds. Does the House Wren have the same mate every year until one of the pair succumbs, and to what age does it live? Does the same pair of birds return to your bird box year after year? You may think so, but what is your proof? Why have the Cliff Swallows in many parts of the country decreased in numbers, while the Barn Swallows, whose habits of nesting and feeding are very similar, have held their own in these same regions? Of a flock of ducks raised in a Minnesota slough, why do some fly to Canada, some to California and others to the coast of Virginia? Who knows where the Chimney Swift goes in autumn and where does it spend the winter months?

To a man who cares little for technical ornithology, but who enjoys having the birds about his home, the subject is a source of never-failing interest, and his zeal increases as he reads of their activities or watches their movements.

This book, consisting of the first fifty Educational Leaflets issued by the National Association of Audubon Societies, deals in a large measure with the habits and movements of fifty of our native birds. The articles are written by men and women of much field experience who are attempting to stimulate the further study of birds by passing on various observations that have to them proven so absorbing. The colored illustrations, made from water-color drawings by America's leading bird artists, will greatly aid the student in identifying these particular species. The outline drawings contained in this volume will furnish the child with an opportunity for the use of crayons or water-colors.

It is intended that this volume shall be followed from time to time by others of a similar nature.

T. GILBERT PEARSON.

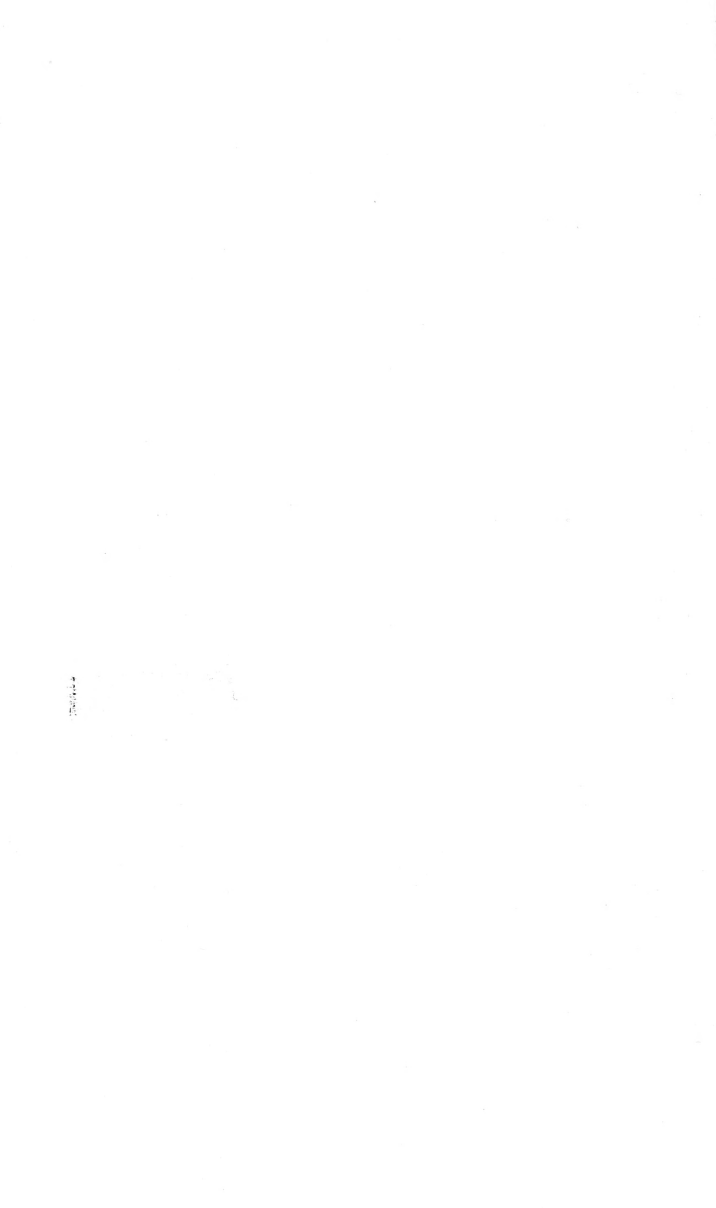


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THE NIGHTHAWK

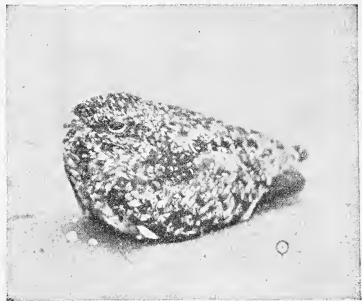
By F. E. L. BEAL

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES
Educational Leaflet No. 1

The Nighthawk does not attract attention by either beauty of plumage or sweetness of song. It is found over nearly the whole of the United States in summer, but spends its winters in South America. Its name is a misnomer, for except a slight resemblance when on the wing



EGGS OF THE NIGHTHAWK



A YOUNG NIGHTHAWK

Photographed by Beecher S. Bowdish

it is entirely unlike any species of hawk. All the birds of prey are noted for their strong, sharp, hooked beaks, and stout, curved claws—points in which the Nighthawk differs from them notably.

It has a curious outward resemblance to the Whip-poor-will, but in habits the two birds are widely different. While more like each other than either is like any other bird, as far as plumage and color are concerned, there is little resemblance in their general habits. The Whip-poor-wills fly only after dark, and apparently only in short flights. The Nighthawk, on the contrary, delights in long circling flights during the late afternoon and early evening, as well as during moonlit nights and just before dawn; and at such times it utters its only note, which much resembles the *scaip* of the Woodcock. The skilful evolutions of a company of Nighthawks, as the birds gracefully cleave the air in intersecting circles, is a sight to be remembered. So expert are they on the wing that no insect is safe from them, even the swift dragon-fly being captured with ease.

Unlike
Whip-poor-will

The bird has a habit, while making these flights, of taking sudden plunges downward, making a quick curve upward when near the ground, at which time is heard a peculiar groaning sound, now known to be made by the rush of the air through the wings; and it is to this booming

Voice and Booming

that the bird owes its Southern name "Bull-bat." These noises, and its reiterated *k-ze-e-et*, suggesting the sudden tearing of calico, sometimes annoy light

sleepers, especially in towns.

When at rest the Nighthawk is usually seen—if seen at all, for its pose and coloring make it then very unnoticeable—squatting on the bare limb of a tree, or on the rail of a fence, where it sits with the body lengthwise of the perch, instead of crosswise, as is the general custom of birds.

The writer was engaged in railroad work in the State of Nebraska at the time when that State was mostly a bare, treeless prairie. At that time Nighthawks were very abundant there—in fact, the most abundant of any birds; but as there were no trees or fences they could perch only on the ground. As soon as the stakes were set for the railroad each was taken possession of by some bird, generally a Sparrow, and occupied all day, although not always by the same bird. When the telegraph-poles were set the small Sparrow Hawks, also an abundant

Prairie Perches

species, at once took possession of each as a convenient and long-needed lookout from which to watch for ground-squirrels. When the rails were laid on the road-bed the Nighthawks immediately used them as roosting-places, and in the afternoon of each day two long lines of these birds could be seen stretching away in either direction as far as the eye could reach.

The Nighthawk does not attach itself to the abodes of man, and render itself agreeable by sprightly manners and pleasing companionship, but holds itself aloof from the works of civilization, and brings forth its two young ones upon a flat rock or a bare knoll, remote from human dwellings. To this rule, however, it makes one curious and advantageous exception. In large cities, where most of the buildings are high, with flat roofs, often covered with gravel, the house-tops are usually as free from human intrusion as the top of a mountain; and the Nighthawks take advantage of this artificial desert to lay their eggs and rear their young safe from man, who crawls about in the crevices

Eggs on House-roofs

of streets far below. Hence, the citizens, even of the metropolis itself, constantly see and hear this wild bird circling swiftly above the city's heat and clamor, its plumage touched brightly by the setting sun.

The body of the Nighthawk is much smaller than one would suppose from seeing the bird upon the wing. The long pinions, and the loose, fluffy feathers, tend to give an exaggerated appearance of size. The body is actually so small, and with so little flesh on the loose skeleton, that it is about the last bird one would suppose that anyone would kill for food. The muscles of the breast, which move the long wings, con-

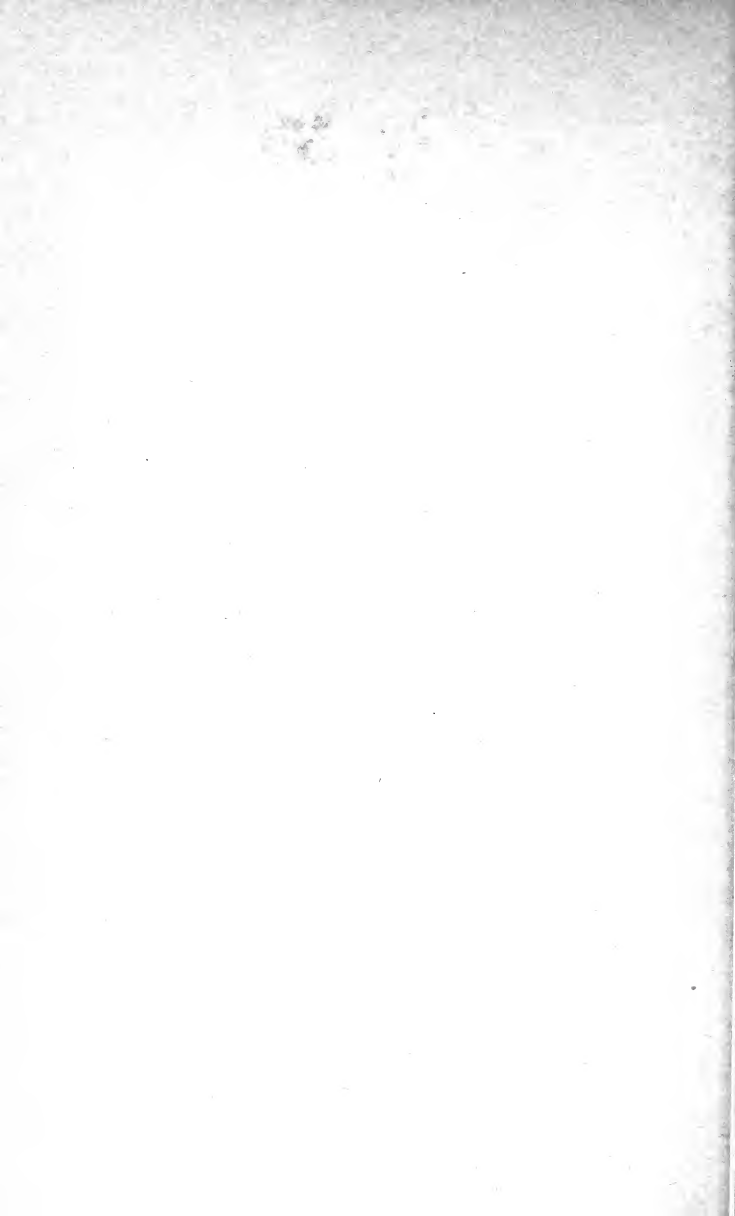


NIGHTHAWK

Family—CAPRIMULGIDÆ
Species—VIRGINIANUS

Order—MACROCHIRÆ
Genus—CHORDEILES

National Association of Audubon Societies



stitute the only part where there is much flesh. The legs are small and weak, and do not appear to have much use, as the muscles that move them are thin and soft. At one point, however, the Nighthawk's anatomy is fully developed—its stomach is huge for so small a bird, fully equaling, or perhaps exceeding, in capacity that of the Pigeon, whose body is twice as big. It is right here that the Nighthawk's usefulness appears. This enormous stomach must be kept filled to supply motive power for the long wings which are kept in motion so many hours. To facilitate this work nature has given the bird an enormous mouth, which is really more like that of a frog than of a bird, has short bristles, and is merely tipped with the minute beak.

Uses of the big Mouth

The food consists of insects taken flying, and so greedy is the bird that when food is plenty it stuffs its stomach almost to bursting. To ascertain the character of the food taken, more than three hundred stomachs have been examined by the United States Biological Survey, with interesting results. Flying ants constituted a conspicuous part of the contents, their remains occurring in a large number of cases, once to the amount of 1800!

While ants may sometimes be useful to us, they are, for the most part, annoying and harmful insects; and it is evident that they would be much more numerous than they are were not their ranks so severely thinned by the attacks of the Nighthawks. Moreover, these ants are killed at the most important epoch of their lives, when they are preparing to propagate their kind, so that the death of every female means a loss of hundreds, or perhaps of thousands, to the next generation. In this work the Nighthawks rank next to, or even with, the Woodpeckers, the acknowledged ant-eaters among northern birds, and thus become rivals of the Flickers.

Destruction of Ants

Grasshoppers are another important article of the Nighthawk's diet. One stomach contained the remains of 60 of them, probably the refuse of several meals, as the jaws of the insects were the principal remains. Another stomach contained 38, another 22, and still another, 19; these last were mostly entire, and served to show how much the stomach of a Nighthawk might hold.

May-beetles, or June-bugs (*Lachnosterna*), were found in several stomachs—one held the remains of 34, another 23, and a third 17. The larvæ of these beetles are the hated white grubs, one of the worst pests of agriculture. They feed upon the roots of grass and other cultivated plants, ruin lawns, and are often the cause of failure in cropping.

Other well-known pests destroyed by the Nighthawk are the potato-beetle, cucumber-beetle, chestnut, rice, clover-leaf and cotton-boll weevils, bill-bugs, bark-beetles, squash-bugs, and moths of the cotton-worm. Several species of mosquitoes, including *Anopheles*, the transmitter of malaria, are eaten.

Bugs and Beetles Eaten

The grain-destroying bugs of the chinch-bug family were found in considerable numbers, and also the troublesome leaf-hoppers. Many

stomachs were nearly filled with soft-bodied ephemerids and caddis-flies; and, altogether, more than 600 species of insects have been identified from the stomachs already examined.

From these glimpses of the Nighthawk's food-habits, it must be evident that it is one of our most useful birds. Not only does it do a great amount of positive good by the destruction of enormous numbers of insects, but it is to be commended for its negative qualities, in that it not only does not destroy any of the farmer's crops, but does not even visit them or use them for nesting-sites. It never touches grain or fruit; it never troubles the garden; and in the orchard it only perches upon the branch of an apple-tree. It does not even ask a blade of grass with which to build its nest, for it makes no nest. It does not injure the grass by laying its eggs thereon, for its two, purplish, mottled eggs are laid upon bare earth, or on a rock, or a graveled roof. It does not molest

**Admirable
Qualities**

poultry nor the nests of other birds. Indeed, where may we look to find a bird whose direct contact with man and his works is so slight, yet is so constantly in his presence and industriously serving his interests?

When we consider that this bird renders so signal a service to man, and asks nothing and takes nothing in return, it seems as if it should have every protection that can be afforded. In some parts of the country the Nighthawk is not only killed for food, but is used as a target for gun-practice on the wing, under the impression that it is a worthless creature. How erroneous this is we have already shown. When we consider that during many hours of the evening, and often all day, these birds sweep the air with their dragnets of mouths, we do not wonder at the enormous number of insects from whose harm or annoyance they relieve us.

In view of these facts, the practice of killing this bird, whether for food or for sport, should wholly stop. It is a practice which, at best, affords poor returns, and which entails an almost incalculable injury upon farmers and gardeners, and results in much needless suffering to the birds.

Classification and Distribution

The Nighthawk belongs to the Order *Macrochires*, the Suborder *Caprimulgi*, and the Family *Caprimulgidae*—the Nightjars. Its scientific name is *Chordeiles virginianus virginianus*. It is found in summer from northern Canada southward to the northern part of the Gulf States, and from the Atlantic Coast westward to the plains. Four subspecies, slightly varying in size and markings, are recognized by ornithologists. These are Western Nighthawk (*C. v. henryi*); Florida Nighthawk (*C. v. chapmani*); Sennett's Nighthawk (*C. v. sennetti*), and Pacific Nighthawk (*C. v. hesperis*).

THE MOURNING DOVE

By T. GILBERT PEARSON

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 2

Years ago, before the Audubon Society was formed, I frequently accompanied a local hunter on his trips afield. My business was to retrieve the birds which fell before his double-barreled, muzzle-loading shot-gun, and to carry the shot-pouch and powder-horn whenever the sportsman found it necessary to advance in a stooping attitude while stalking his game. The bird most hunted was the Mourning Dove, and many of these feathered beauties fell before his aim.



NEST AND EGGS OF MOURNING DOVE
Photographed at Demarest, N. J., by B. S. Bowdish

Late one summer evening, I recall, we tramped for two or three miles through the pine-woods to a pond where we had been told the doves came of an evening to drink. Just before sundown they began to arrive. After a busy day passed in the woods and fields they came flying in to this small, sequestered body of water to refresh themselves before sleeping.

Drinking-place
of Doves

My companion never shot birds on the wing—that was too difficult; so, on this occasion, he waited until they had alighted near the pond to drink from one of the little puddles where cows had stepped in the mud. I remember distinctly that he killed only one Dove that evening. I was

not sent to fetch it at once, for fear that my presence might frighten away the other birds that were coming in. While we waited and watched, a large bullfrog came out of the pond and grasped the dead bird in its mouth. Few things in nature have ever surprised me more. Evidently the frog was attempting to swallow it, and only desisted when I rushed forward with shouts of disapproval.

Most of the hunting for Doves was done in the early fall, when they would come in great numbers to the peanut-fields. It was an easy matter to creep along under cover of an old rail-fence, get two or three birds in line, and blaze away. This was a common practice in those days, indulged in by thousands of persons in the South, without a thought of wrongdoing, until it was forbidden by recent wise laws.

Southern Dove-shoots

In parts of Georgia and South Carolina large "Dove-shoots" used to take place every autumn. With this sport in view some grain was left standing, or else certain fields were baited by scattering grain over the ground. After a few days the birds were to be seen gathering to the deceptive feast by thousands. Then the hunt was organized, and, on an appointed morning, many men and boys surrounded the field and began shooting. All day long the birds were flying in or out of the slaughter-pen, and frequently several thousands were killed before the sun went down. The number killed often far exceeded the local consumption, which meant that the surplus bodies were thrown away, or were left for the hogs to eat.

There was some excuse for regarding these doves as game, and shooting them in moderation, as their flesh, although dark, is palatable, and a young dove, taken a few weeks after it begins to fly, and nicely cooked, is a delicious morsel. But such slaughter as the "shoots" caused was a criminal waste, and no one can regret their stoppage when he considers the very great value these birds are to the farming interests of the country, and particularly to those of the Southern States.

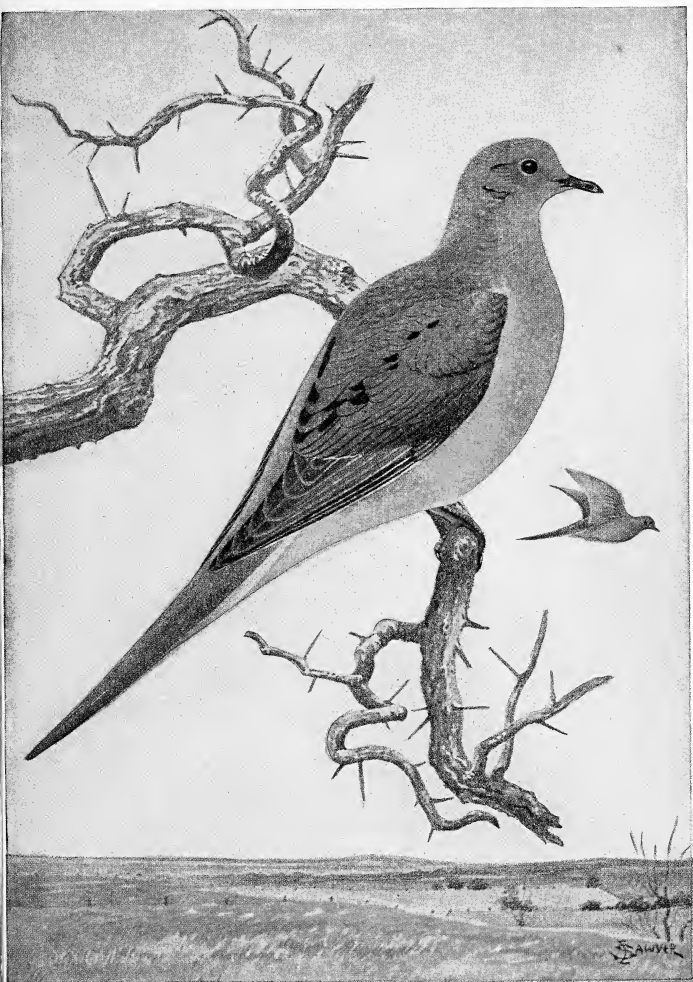
Mr. William Dutcher, President of the National Association of Audubon Societies, in writing of the feeding-habits of the Mourning Dove, has made the statements that follow:

The Farmer's Helper

"Is there a farmer in the country who, after a hard day's work has not wished that some other means could be devised to prevent the rapid growth of noxious weeds, and, at the same time, emancipate him from the sweating brow, the blistered hands, and the aching back?

"There is one means of weed-destroying that has been entirely overlooked by the agriculturist, probably because they never seriously considered the food-habits of the Dove.

"Recent investigations made by the Biological Survey (United States Department of Agriculture) of the food of the Dove, prove this bird to be of incalculable value. The examination of the contents of 237 stomachs of the Dove shows that more than 99 per cent of its food consists wholly of vegetable matter in the shape of seeds; less than 1 per cent

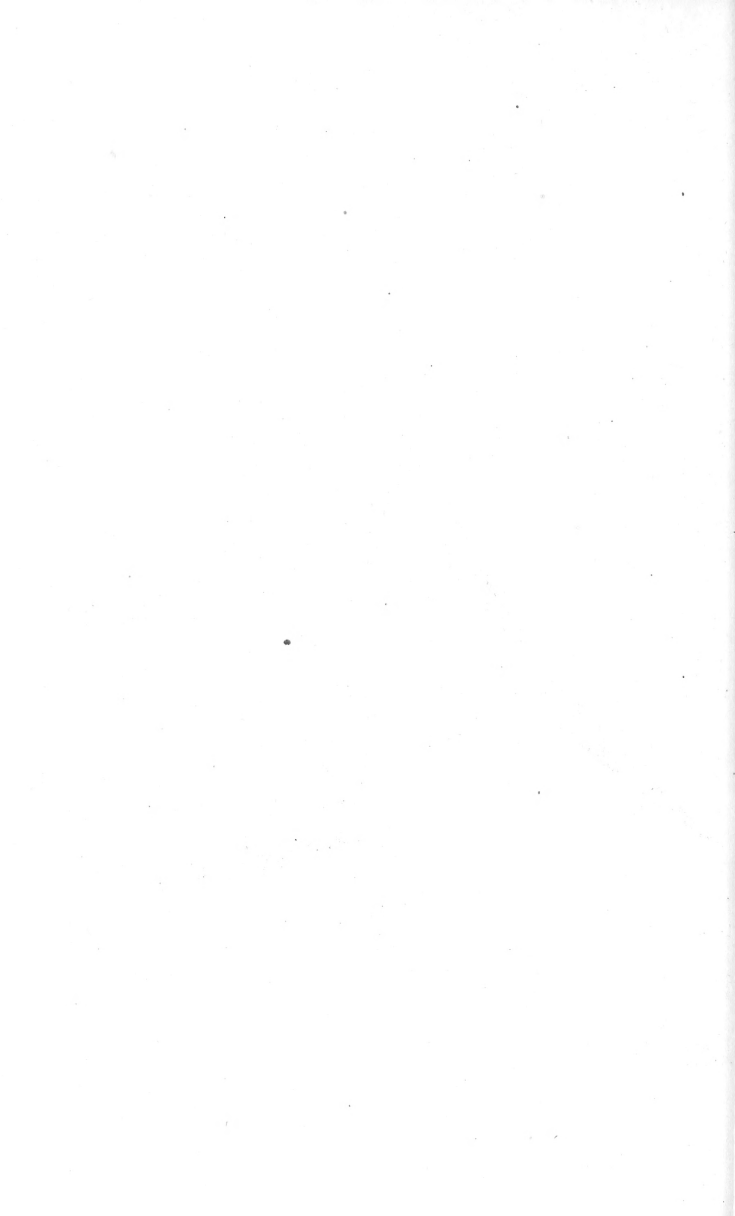


MOURNING DOVE

Order—COLUMBÆ
Genus—ZENAIDURA

Family—COLUMBIDÆ
Species—MACROURA CAROLINENSIS

National Association of Audubon Societies



being animal food. Wheat, oats, rye, corn, barley and buckwheat were found in 150 of the stomachs, and constituted 32 per cent of the total food, and three-fourths of this amount was wasted grain, picked up in the fields after the harvesting was over. Of the various grains eaten, wheat is the favorite, and is almost the only one taken when it is in good condition, and most of this was eaten in the months of July and August. Corn, the second in amount, was all damaged grain taken from the fields after the harvest, or from roads or stockyards in summer.

"The principal and almost constant diet, however, is the seeds of weeds. These are eaten at all seasons of the year. They constitute 64 per cent of the annual food-supply, and show very little variation during any month. Some of the seeds eaten were so minute that it would seem that none but the smallest species of birds would eat them, and then only when driven to do so by lack of other food. Some instances of the vast numbers of seeds that individual birds consumed will be of interest. In one stomach were found 7,500 seeds of the yellow wood-sorrel; in another 6,400 seeds of barn-grass or fox-tail; and a third had eaten the following combination: slender joint-grass, 2,600; orange hawkweed, 4,820; hoary vervain, 950; Carolina cranesbill, 120; yellow wood-sorrel, 50; panicum, 620; and other weed-seeds of various kinds, 40; making a total of 9,200. None in the above-written list is useful, and most of them are noxious.

**Enormous
Consumption
of Weed-seeds**

"The three Doves in question benefited the farmers, on whose land they fed, by destroying 23,100 prospective weeds. Is there a farmer in this land who would not welcome as a friend the man who would offer to uproot and kill 23,100 weeds? Yet, because the Doves go about silently and unobtrusively, and make no loud boasts about the good they are doing, they are thought of little or no value. In many parts of the country this valuable, harmless and gentle creature is considered a game bird, and is shot during a large part of the year. It is a question for the farmers to settle whether they will permit anyone to kill on their land birds that annually destroy tons of the seeds of pigeon-grass, rag-weed, smartweed, bindweed, and many other noxious plants, and are thus worth so much as helpers on farms. The matter resolves itself into a question of figures, i. e., dollars and cents to the farmers. If three Doves, at one meal, destroy 23,100 weed-seeds, and thus prevent the growth of the same number of prospective weeds, how much good will all the Doves on a farm or in a State, or in the country at large, accomplish? Or, to present the case in another way, how much will it cost in time, labor and actual cash to destroy what the Doves will eat if they are protected and encouraged to remain on the farms? The farmers in the United States spent, in 1899, the enormous sum of \$365,305,921 for labor; how much of this was paid for killing weeds, and how much of it could have been saved if no Doves had been killed but all had been protected and permitted to perform the work that the Creator designed them to do? The Dove is far too valuable an auxiliary to the agriculturist to have it classed as a game bird. Its value consists in its weed-destroying activities, and not in the few ounces of food it may furnish."

This really charming bird is one of the earliest to arrive in the Northern States in spring, and before the leaves are fairly out the plaintive call of the male, which seems so mournful to some ears, is heard floating over the woods. The name Carolina Dove, found in old books, refers to the fact that the first specimens described came from that part of the country. It is sometimes called Turtle Dove, although not very closely allied to the true European Turtle Dove, and may well be known simply as *the Dove*, now that the Wild Pigeon has become extinct.

Name and Habits

The nest of the Dove is usually placed on a horizontal limb of some small or medium-sized tree. Occasionally, one may come across it in the crotch where two large limbs meet. Now and then it is situated on an old rail-fence or a stump. In the deserts of Arizona the writer has found the nests on the bare ground, sheltered only by the uncertain foliage of a little greasewood-bush. The eggs are usually two in number, pure white, and elliptical in form. When the parent is disturbed while in attendance on the eggs or young, it will usually drop to the ground and flutter away as if injured, the evident intention of the bird being to distract the attention of the intruder from the nest. It is commonly asserted that the pairs of this Dove remain mated as long as they live, but positive evidence of this is lacking.

The Mourning Dove has sometimes been confused with the Wild, or Passenger Pigeon, especially since the search for possible relics of that lost species has excited so much interest. It is about four inches less in length and seven inches less in spread of wings than was the Wild Pigeon, and has not the blue tint about the head, nor the reddish under-surface of that bird. It never gathers in great flocks for nesting-purposes, the small winter flocks breaking up in spring into solitary pairs. On the Pacific coast the Band-tailed Pigeon might be mistaken on first acquaintance for this species, but that bird is larger than the Dove, and has a square-ended tail crossed by a dusky band, and a noticeable white bar on the nape. Its cry, too, is more like the hooting of an owl than the cooing of doves.

Distinctions

Classification and Distribution

The Mourning Dove belongs to the Order *Columbæ* and the Family *Columbidæ*—Pigeons. Its scientific name is *Zenaidura macroura carolinensis*. This bird breeds in all the southern Canadian provinces and thence southward throughout the United States and Mexico. In winter it occurs from Oregon, Ohio and North Carolina southward to Panama.

THE MEADOWLARK

By T. GILBERT PEARSON

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 3

Uncle Pauldo was old, and black, and extremely lazy, but he was most entertaining to a certain boy of nine years who learned from him many things about birds and animals and "varmints." One day the boy went to the cotton-field with a message and met Uncle Pauldo at the big dead pine where he had just come for water. As he lifted the water-gourd to his lips, a Meadowlark sang cheerily from the fence a few rods away.

"There now," exclaimed the old man, "do you know what de Ol' Fiel' Lark is 'hollerin'?' You don't? Well, when he sing dat bird is sayin' 'Laziness will kill you.'"

**Uncle Pauldo's
Version**

Perhaps Uncle Pauldo spoke truthfully—I cannot say; but I do know that all through the years since that day whenever the boy has heard a Meadowlark sending its clear song ringing across the fields, to his ears those are the words it seems to say.

Of all the twelve hundred kinds of birds found in North America there are comparatively few whose notes people commonly translate into words. Who, for example, ever heard of a writer trying to state in English language what a Wren says in Wren language, or who will tell us in plain words what a Red-headed Woodpecker is talking about when he shouts to his mate from the old dead limb?

Among those birds, however, that are popularly supposed to say things one can understand is the Meadowlark, but, as usual, in similar cases all hearers do not agree as to what is the proper translation. Some New England people entertain the idea that the bird sings "Spring o' the Y-e-a-r!" While there are those in New Jersey to whose ear the song sounds like this: "I see y-o-u-u-u! You ca-a-a-n't see me-e-e-e!"

Let it be borne in mind that this bird's song has a distinct quality about it that at once sets it off from the songs of any other denizen of the countryside. This much may be said of it for a certainty, that once heard distinctly it is not probable that one will fail to recall its author the next time its

**Quality
of the Song**

chime-like whistle comes down on the wind. A young bird-student may at times be puzzled to distinguish between the song of the Red-eyed Vireo and that of the Robin, or may become confused in endeavoring to tell which of the Warblers is singing in the tree-tops near by, but to hear the Meadowlark at his best is to listen to a song that will ever afterward be known to him,

Like all singing birds, so far as my knowledge extends, the musical performances of this inhabitant of the open country begin with the day. At intervals until night the whistling melody continues. There is noticeable variation in the quality of the singing of different birds. Not all men can sing with the same degree of melody, nor can all Meadowlarks.

These birds are found from the southern prairie Provinces of Canada southward throughout the United States and into Mexico. They are more numerous, of course, in some regions than in others, but wherever found they are much in evidence, and are always known by the dwellers of the country round about. Few people can pass this yellow-breasted, black-bibbed, loud-singing musician without noticing its presence.

The Meadowlark is one of the species of birds that has increased in numbers since the coming of the white man to America. Vast areas of our country, particularly in the Eastern and Southern States, were originally covered with heavy forests. The Meadowlark, being a bird of open lands, was therefore restricted to the comparatively few prairies that then existed. These conditions began to change as soon as the settlers commenced felling the forest trees, and as fields and meadows appeared Meadowlarks began to increase.

**Increase in
Numbers**

If you want to find a Meadowlark's nest you must look for it on the ground. It is usually made entirely of dead grasses, although at times a thin lining of horsehair is added. Most of the nests I have examined possessed a dome-shaped roof of grass, thus allowing inspection from one side only. This snug little house is hid under the edge of a clump of grass or weeds. Sometimes one finds it in a field of corn, or concealed by a stump around which grass is growing, or elsewhere protected by an overhanging grassy clod left unbroken at the spring plowing.

It is something of an adventure to find one of these stationary cradles built for the comfort of the wee Larks to come. Usually it is discovered quite by accident as one pursues his way across a meadow or field. So closely do the colors of the feathers on the head and back of the bird resemble its surroundings that if it could restrain its fear one might pass within a foot of the spot with small chance of discovering the secret. The bird seems to be conscious of this fact, and often will permit one almost to step on it before fluttering away. One day, after a forenoon spent in a marsh with two other bird-lovers, we came out on the dry meadowland for lunch. After spending half an hour lunching and lounging on the ground we rose to go, when suddenly up flew a Meadowlark from her nest with its five speckled eggs not over twelve feet from where our lunch had been spread. There she had been sitting all that time, and probably would not have moved when she did had I not stepped within a foot of her hiding-place.

**Home
Well Hidden**

It is a very discouraging task to attempt to find a Meadowlark's nest by watching the birds go to it, for the reason that when one of them wishes to approach the spot, it alights on the ground many yards away

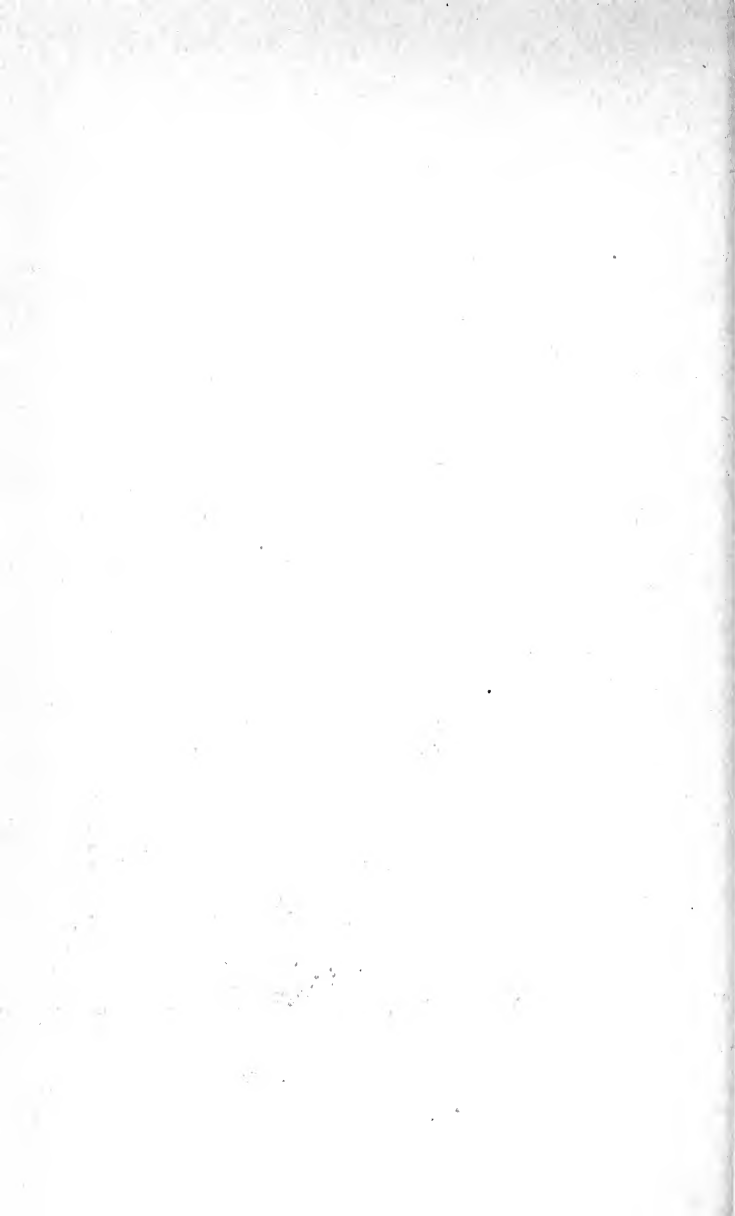


MEADOWLARK

Order—PASSERES
Genus—STURNELLA

Family—ICTERIDÆ
Species—MAGNA

National Association of Audubon Societies



and walks quietly through the grass to its destination. Ordinarily it leaves its home in the same careful manner. Certain well-defined paths of travel may often be noted radiating from the nest.

There is a great difference in the length of time that the young of various birds stay in the nest. Baby Ducks, Quails, Killdeers, and Pheasants, as examples, can run about within a few hours after being hatched. It seems that about all one of these little fellows needs to do before starting in the race of life is to wait until his coat has dried and his small



A MEADOWLARK'S NEST

brothers and sisters have kicked themselves free from their shells. The nest is useful as long as he is an egg, but when he becomes a bird he must up and away at once.

But how different all this is with a tiny Meadowlark, who comes into the world weak and helpless! Close to two weeks' time must pass before it is strong enough to follow its mother out among the waving grass-clumps and the towering weeds.

Late in the summer the birds assemble and in more or less straggling companies go foraging about over the fields. Sometimes one may find only half a dozen together, but in crossing meadows I have at times seen fifty or a hundred at a time. They do not fly in compact flocks like Blackbirds, nor do all the members of a company spring into the air at

once as is the custom with Quails. Their flight is leisurely and rather slow, which renders them an easy mark for the amateur gunner.

In many States Meadowlarks are protected by law, but over considerable areas of the southern part of our country the birds are still persistently shot for sport and for the small morsel of flesh to be found on their bodies. How can anyone enjoy shooting the life out of one of these beautiful guardians of the meadow? Think how devoid of all the finer feelings a man or boy must be who can experience a thrill

**Not a
Game-bird**

of pleasure in seeing a song-bird fall torn and bleeding to the earth. I refuse to believe that of all the hundreds of thousands of Junior members of the Au-

dubon Society in this country to-day there is one who, when he becomes a man, will shoot a Meadowlark.

Quite aside from the beauty of its song and of its plumage, this bird by eating insects and weed-seeds is helping every farmer and gardener to raise his crops. Meadowlarks do extremely little damage to fruit or grain, and in many parts of the country they are never accused of doing any harm whatever. Now and then some of them get a few grains of corn or wheat, but they pay for this a thousand fold by the good services they render to the man who is trying to raise the corn or wheat.

Out on the plains of the far West, and along the Pacific Coast, there is found the Western Meadowlark. In appearance it closely resembles the eastern bird of the same name, but it is a far more famous singer. At times it appears to possess the wonderful powers of the ventriloquist. I remember one morning in northeastern California when I vainly sought to see one of these birds, that sounded as though its song might be coming from some stake along a fence two hundred feet away. With my field-glass I swept the fence from right to left and back again.

**Western
Meadowlark**

Over and over I did this, searching for the splendid musician whose song sounded again and again in the clear air; and then by accident I discovered the bird standing on a bush not twenty feet from me. These Western Meadowlarks often come into towns, and there make themselves quite at home. The first one I ever heard singing, indeed, was in a city, the city of San Diego, California. For ten minutes I harkened to its song as it stood on a telephone-pole, and all the while hundreds of people were passing.

Classification and Distribution

The Meadowlark belongs to the Order *Passeres*, Suborder *Oscines* and Family *Icterida*. Its scientific name is *Sturnella magna magna*. Three geographical races are recognized in the United States, in addition to the eastern bird: Rio Grande Meadowlark (*Sturnella hoopesi*); Southern Meadowlark (*Sturnella m. argutula*); and Western Meadowlark (*Sturnella m. neglecta*). The Meadowlark breeds throughout the United States, in southern Ontario, and northwestward to the Saskatchewan Valley; and it winters wherever cold and snowfall are not severe.

THE UPLAND PLOVER

By EDWARD HOWE FORBUSH

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES
Educational Leaflet No. 4

This lovely, dove-like bird, although really a Sandpiper, has become so widely and generally known as a Plover that the wise men of the American Ornithologists' Union have ceased to use the early book-name, Bartram's, or the Bartramian, Sandpiper, and have adopted the popular name Upland Plover. It is known also in various parts of the country as the Grass, Field, Highland, Pasture, Plain, Cornfield, and



NEST AND EGGS OF UPLAND PLOVER

Photographed by Herbert K. Job

Gray Plover. In the West it is named Prairie Pigeon, Prairie Snipe, Meadow Plover and Whistling Plover. It has not the short neck and legs, and the short pigeon-like bill of a true plover, and it has four toes, where the typical plover has three; still, it resembles a plover somewhat in form and habits, and frequents localities where formerly the Golden Plover was abundant.

Years ago, when spring greenery began to dress the hillsides, we listened for the call of the Upland Plover. In sweet May nights, when the gentle south wind blew, we harked for the wing-beats and call-notes indicating the northward night-flight, some sounding faint and high in the dark dome, others just above the tree-tops. All the dim strata of the air were laden with swift, winged shapes, passing unseen as the great flood of bird-life surged ever northward through the dewy gloom. Above all other sounds came again and again the whistle of the Tattlers; and the wild Plover's call, now near, now far, fell through the spaces of the starlit night, soft, rich, and sweet to the listening ear.

Night
Flights

The Upland Plover was the only large wader commonly seen on

farms throughout the greater part of the land during the breeding-season. It was a bird of good omen, harmless and useful, and, as Abbott Thayer says, it filled a place on American farms similar to that taken by the Lapwing in Europe. We must speak here in the past tense, because, unfortunately, the bird to-day is far on the road to extinction. Nevertheless, the pitiful remnants of its thinning ranks still wander over most of North and South America.

Most of the cries of the Upland Plover are unique. A common call-note may be represented by the words *quitty-quit*, uttered in a soft, sweet tone. Late in May a long, bubbling whistle may be heard, sometimes weird and mournful, though always mellow.

Voice Professor Lynds Jones, who furnishes the best description of its voice that I have seen, says that its common rolling call is not unlike the cry of a "tree-toad," but of a different and unmistakable quality and caliber.

The note, he remarks, is commonly double, the first part rising upward nearly half an octave and terminating abruptly, the second part beginning where the first began, swelling rapidly for almost, if not quite, an octave, and then decreasing in volume to a close several tones higher than its beginning. The long whistling cry is usually trilled at the beginning, and sometimes to the end, but oftener it grows clear before the culmination and continues a clear whistle to the finish. Sometimes the whistled part is not reached and the call stops as if interrupted. Often, upon alighting, the bird holds its wings straight upward, folding them slowly down as it utters its long, mellow call. As the breeding-season passes, some of the notes change, and in autumn, when it comes in and alights on a hill-pasture to feed, it emits a chuckling call, an imitation of which is used by gunners to attract the birds. Ordinarily most of its notes are given in flight. When alarmed it has a peculiar sharp call, much like that of some others of its family.

Nest and Eggs The Upland Plover formerly summered in the northern parts of the United States and built its nest in every suitable grassy spot from the Atlantic Ocean to the Rocky Mountains. The eggs, usually four, large for the bird (1 inch in diameter to 1.75 inches, or more, in length), are pale gray, spotted with umber, yellowish brown, reddish brown, and black, becoming blotchy toward the larger end.

The nest is merely a slight grass-lined depression at the foot of a small bush on a hill-pasture or a prairie, or in a hollow in plowed land, and usually is well concealed. In the West, it is often situated on the edge of the woods or close to some slough or pool, sometimes on a dry spot in a marsh. As the prairies came under the plow the Plover often chooses as her nesting-site a hill of corn. The female sits so closely sometimes as to be almost trodden underfoot, while the male tries to entice the intruder away. When warned in advance of her danger, the female often leaves the nest and steals away through the grass for thirty or forty yards before taking wing.



UPLAND PLOVER

Order—LIMICOLÆ
Genus—BARTRAMIA

Family—SCOLOPACIDÆ
Species—LONGICAUDA

The downy young are hatched in June, and take to their legs at once, running quickly about, tender and timid. Curious, unbalanced, fluffy little things they are, with legs disproportionately large and long, like those of a little calf, or of a fawn or a colt. Throughout the early summer they dwell in the grass-land in security, feeding largely on insects and wild strawberries. Their anxious parents lead them about and sound the alarm at the approach of an enemy, when the little ones scatter, squat and hide. In July, when the hay is cut, they are well able to look out for themselves, although they have not yet learned fully to fear the sportsman.

**Care of
Young**

Long years ago, when August came it brought a great gathering of the Upland Plover clan. The young birds were then strong on the wing, and all the hill-pastures knew them well in grasshopper time. As the spring tide of birds flowed northward, so the fall tide ebbed southward, but there was a difference in the route. The spring migration appeared to come up through the interior of South America, crossing the Gulf of Mexico, landing in Louisiana and Texas, and diverging thence over the whole country; but in autumn the trend of the eastern flight seems to have been southeast to the Atlantic Coast, where the birds put out to sea and crossed the great spaces of ocean without chart or compass. Some individuals still take the western route through Mexico, and all spend the winter in South America.

**Varied
Diet**

In feeding, the Plover, even when in the greatest numbers, appears to have been entirely harmless and beneficial. In spring the insect-diet was varied somewhat by a few nips at tender, budding vegetation. A good deal of waste grain was picked up in the stubble of wheat and rye in the fall, and quantities of grass-seeds and weed-seeds, and some wild berries, were eaten. The bird is a gourmand for grasshoppers, locusts and crickets. Professor Aughey, who studied the habits of the species in Nebraska for several years previous to 1877, found that they fed on insects during all the time they stayed in that State.

**Noxious
Insects
Eaten**

Waldo L. McAtee, of the Biological Survey, shows, as a result of many examinations of the contents of stomachs, that the Upland Plover is a friend to cattle, because it devours the North American fever tick, which carries a deadly fever from one animal to another. He says that it destroys crane-fly larvæ also, which often are seriously destructive to grass-lands and wheatfields; cutworms, which are detrimental to many crops; the boll-weevil, which now menaces the cotton-crop of the South; the clover-leaf weevil, the cow-pea weevil, and other weevils that attack cotton, grapes, and sugar-beets. Bill-bugs, destructive to corn, are a favorite food of this bird, and wire-worms, which destroy many garden-crops, are eaten. Crayfishes, which are pests in ricefields and cornfields in the South, and which injure levees, are constantly caught and devoured. On the prairies these Plovers feed largely on snails, beetles, and grass-eating insects. Why, then, have the people of the United States

allowed the destruction of this beautiful, interesting and useful bird?

When the white man came to this country the Upland Plover must have been a rare bird east of the prairies in the nesting season, as it normally lives on open lands, and the Atlantic seaboard was then a wooded region; but, as the country was cleared, and fields and pastures took the place of the wilderness of forests, the bird must have increased tremendously in numbers until it bred commonly in all the settled regions of the Northeast. The advance of population and of market-hunting, however, put a stop to its increase, and then its decrease began.

**Decrease
Explained**

Although for years laws protecting the Upland Plover had been enacted in several States, these statutes rarely were enforced, and the birds were shot for the market in spring and throughout the breeding-season. About the year 1880, when approaching extinction caused the spring supply of Passenger Pigeons in market to fail, the market-men looked about for birds to take the vacant place, and found, among others, the Upland Plover, which moved north through the interior of the United States, and offered them a large supply of dainty bird-flesh. There were tales of organized hunting, of cars loaded with various plovers, of the raiding of State after State by thousands of hunters in the interest of the great markets. Probably these stories were exaggerated, but we know that barrels of plovers began to come into the larger cities of the country in dozens and hundreds. A few years later the Upland Plover was seen to be rapidly disappearing; and by 1910 the bird was rare or wanting over nearly all the great region where once it was so plentiful.

The threatened extermination was checked by the adoption and enforcement of the Audubon Model Law in various Western and Middle States; and more lately by the passage of Federal laws, especially the Migratory-Bird Law, enacted under the guidance of Senator George P. McLean, of Connecticut, in 1913. Canada, also, has extended more efficient protection than formerly to this and related birds of her prairie provinces in the Northwest. It may be hoped, therefore, that a few years hence this beautiful, useful, and friendly bird may become again a numerous and welcome visitor to the prairies and farmsteads of our land, as it will do if not mercilessly shot and robbed of its eggs.

**Legal
Protection**

Classification and Distribution

The Upland Plover belongs to the order *Limicolæ* and the Family *Scolopacidæ*. Its scientific name is *Bartramia longicauda*. It breeds locally as far north as the upper Yukon and North-Saskatchewan valleys, Manitoba, southern Ontario, and Maine; as far south as the Potomac and Ohio valleys, and Oklahoma; and westward to the base of the Sierra Nevada. Its winters are spent on the pampas of Argentina, its migrations thus carrying it, as a species, nearly the whole length of the two Americas.

THE FLICKER

By T. GILBERT PEARSON

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 5

One of the first birds with which the student in most States is likely to become acquainted is the Flicker, although it may not always be known by that name. In the Ohio Valley it is sometimes called High-holder; many persons in New England know it as the Golden-winged Woodpecker; at Cape Hatteras the only name it is ever called is Wilcrissen; and in Florida I have heard boys refer to it as the Yocker-bird. More people probably know it as the Yellowhammer, however, than by any other of its seventy or more local names. Few, indeed, must be those who have not made the acquaintance of this bright bird, which everywhere is so much in evidence both to the eye and to the ear, and everywhere is so friendly.

Many Names

The Flicker is the largest of our common woodpeckers, and has a more marked individuality than any of them. It does the most unconventional, unheard of things, which no other woodpecker would think of doing. It seems to be possessed with a strong curiosity, and is forever longing to look into places where you would never think it had any real business. Frequently it will go into barns, or more especially deserted houses, and fly about exploring every nook and cranny, but for what it is hunting on such occasions I have never been able to determine.

Some years ago, in a rural community which had the distinction of possessing a haunted house, I went to the abandoned farm where stood the building regarded with so much local interest. We climbed in through a front window and cautiously tip-toed to the kitchen. Apparently there was no doubt that a ghost was in the loft even then, for we could hear strange noises through the thin ceiling. I stationed my companion on the outside where he could watch the open window, and going to the loft opened a small door leading into the room over the kitchen. On a joist stood a large Flicker, much astonished at my intrusion. A moment later he sprang through the open window and went bounding down the hill to a dead chestnut, from a limb of which he shouted for several minutes before flying on to the woods.

A Bird-Ghost

On Roanoke Island, North Carolina, is a church with four large, hollow, wooden pillars supporting the veranda. Should you go there, you would find that these pillars are perforated with not less than twenty holes big enough for the entrance of a Flicker's body. The persons who take care of the building have sometimes nailed pieces of tin over these holes dug by the Flickers, and whenever this was done the birds im-

mediately proceeded to make new ones. They have also cut holes through the weather-boarding under the eaves, and have been known to enter the church and fly about among the rafters when services were being held.

Woodpeckers as a family secure their living chiefly by examining the bark of trees or picking into decayed wood, but the Flicker, which has its own way of doing things, seldom looks in such places for food. When it is hungry, you will usually find it on the ground hopping along in the grass or disturbing the fallen leaves in the woods. It eats beetles, moths, butterflies and a variety of other insects. Now and then it takes

**Wild Berries
Eaten**

a little fruit as dessert, most of which comes from trees not cultivated for human food. Some of the fruits it eats are: Choke-cherry, wild black cherry, elder, dogwood, hackberry, Virginia creeper, sumac, poison-ivy, blackberry, blueberry, huckleberry, wild grape, cedarberry and persimmons.

Of all the list of things that nature has provided so abundantly for the food of wild birds the Flicker likes nothing so well as ants. These he gets by tearing up their hills with his bill. This operation, of course, excites the ants very much, and when he begins his work of destroying their little, circular, funnel-shaped fortifications the word is quickly carried down through the intricate tunnels beneath the surface that something terrible is happening. Out rush the ants to see what is the disturbance, and there stands the Flicker ready to seize them with its long tongue, which is shooting out continually for the purpose.

Ants make up more than half of everything the Flicker eats. Because of this fact alone, everybody ought to feel kindly disposed toward this bird, for ants are universally regarded as a decided nuisance. In some parts of the country long lines of ants may be seen any day marching in under the kitchen-door and carrying off fragments of food. In those regions they give the farmer's wife no end of trouble. Ants do damage in a more pronounced way than this. Prof. John H. Comstock, the noted entomologist, has this to say about ants in his *Manual of the Study of Insects*:

**Harm Done
by Ants**

"Writers long ago showed that ants protect plant-lice by driving away from them ladybugs and other enemies. Recently, however, Professor Forbes demonstrated that, in certain cases at least, a more important service is rendered. In his studies of the corn plant-louse, he found that this species winters in the wingless form in the earth of previously infested corn-fields, and that in the spring the plant-lice are strictly dependent upon a species of ant, which mines along the principal roots of the corn, collects the plant-lice, and conveys them into these burrows and there watches and protects them. Without the aid of these ants, the plant-lice were unable to reach the roots of the corn. Ants take very good care of their cattle (aphids), and will carry them to new pastures if the old ones dry up. They also carry the aphids' eggs into their nests and keep them sheltered during the winter, and then carry the young plant-lice out and put them on plants in the spring."



FLICKER

Order—PICI
Genus—COLAPTUS

Family—PICIDÆ
Species—AURATUS

National Association of Audubon Societies

Plant-lice do great damage to vegetation, and as ants care for the plant-lice, because they like the honey-dew which the plant-lice produce, it is easy to see that the ant is an enemy to some of our valuable crops; knowing these facts we may understand clearly how the Flicker renders us a distinct service by reducing the number of ants.

All woodpeckers lay their eggs in holes, which they excavate in trees for the purpose. The Flicker is no exception to this rule, for although it has wandered far afield in some other habits, it has not yet lost the instinct inherited from thousands of years of ancestors to dig a hole for its nest in the limb or body of some dead tree. Now and then you will find the nest in an old snag in the forest far away from the homes of men; again you may come across it in a tall dead stump left standing in a corn-field or a cotton-field. I recall a pair that for three years in succession made their home in the dead upright limb of a locust-tree that stood beside a path along which

Nest-holes

at least two or three hundred persons passed daily. They come into the towns and dig their holes in telephone-poles.

They have also been known to dig through the weather-boarding of ice-houses and lay their eggs in a cavity in the sawdust beyond. Almost any summer day you may see Flickers in the larger parks of New York City. Give them a place where they can get food and rear their young in comparative safety, and there you are pretty sure to find this fine bird. Some persons have even succeeded in getting more of them to come and live on their estates by placing artificial nesting-holes where the woodpeckers would be likely to occupy them.

The eggs are pure white and usually range in number from four to six. Many birds will desert their nests when disturbed, especially if some of the eggs are removed. The Flicker will not always do so. The bird should not be robbed of its eggs, of course, but this will sometimes happen, and then the mother-bird tries hard to make the best of it. I knew a naturalist some years ago who found a Flicker's nest containing three freshly laid eggs, two of which he took. Going back the next day, he found that the bird had laid another egg; he took this, and continued to do this day after day and the bird went right on laying, just as a domestic hen does when its eggs are taken. In thirty-three days that Flicker had laid thirty-one eggs. There is another record of seventy-one eggs in seventy-three days.

**Eggs and
Young**

One of the most unprepossessing objects in the world is a young Flicker from the moment it is hatched until the feathers begin to appear many days later. Most young creatures are attractive. A baby rabbit makes a wonderfully strong appeal to the appreciative mind—so does a little chicken or a duckling. The impulse at sight of a young quail in its soft, downy coat is to pick it up and caress it. But who could love a baby Flicker? It is absolutely naked, the skin is slack and wrinkled, and the body has no semblance to the beautiful proportions it will later assume.

Of course the parents love their offspring, and are very attentive to them, for, like other young birds, they must be fed frequently to be kept in good condition.

The Flicker must be popular with some of the other birds of the country, if wild birds ever really feel gratification from benefits they derive through the activities of another bird. Sparrow Hawks and Screech Owls choose the hollows of trees in which to rear their young. In many places they would have a hard time indeed to find suitable nesting cavities were it not for the fact that, after some search, they usually discover an abandoned Flicker's nest, which so well suits their needs. As the Flicker usually digs a new hole every year, it means that a considerable number of convenient nesting-places are left for other birds that like to use such sites. Now and then we find even Bluebirds nesting in Flicker holes.

Down in the pine-barrens skirting the Everglades of southern Florida, the writer recently came to a place where five or six pine-trees had been killed, possibly by a heavy thunderbolt. A pair of
New Tenants Flickers had once dug a nest in the side of one of these trees. The next year, liking the locality, they made another excavation in which they doubtless reared their young.

This year they occupied their third hole, which contained young large enough to look out of the entrance and receive there the food their parents brought. One of the abandoned holes had been appropriated this spring by a Florida Grackle; and climbing up the dead tree I saw her young in the nest. Into the other unused hole Purple Martins were carrying nesting-materials. Another pair of Martins were anxious to nest in the neighborhood of their friends. With fragments of grass and leaves in her bill, the female would fly up to the Flicker's occupied nest, evidently with a view to taking possession of it. At the moment she alighted a young Flicker would thrust its bill out in her face and beg for food. For some time I watched the discomfort of these birds, and am still wondering what was the final outcome.

Classification and Distribution

The Flicker belongs to the Order *Pici*, the Family *Picidae*, and the Genus *Colaptes*. Its scientific name is *Colaptes auratus auratus*. It is found in eastern North America, from the coast of the Gulf of Mexico northward through the United States and Canada until the tree-limit is reached. One subspecies is recognized—the Northern Flicker (*C. a. luteus*), a slightly larger bird, confined chiefly to the timbered regions of Canada.

THE PASSENGER PIGEON

By EDWARD HOWE FORBUSH

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 6

The Passenger Pigeon undoubtedly was one of the greatest zoölogical wonders of the world. Formerly the most abundant gregarious bird ever known in any land, ranging over the greater part of North America in innumerable hosts, it has disappeared to the last bird. Many persons now living have seen its vast and apparently illimitable hordes marshaled in the sky, have viewed great forest roosting-places broken by their clustering millions as by a hurricane, and have seen markets overcrowded to the sidewalks with barrels of dead birds. Those who have witnessed the passing of the Pigeons find it hard to believe that all the millions of individuals of this elegant species could have been wiped off the face of the earth. Nevertheless this is just what has occurred.

**Extinction
Incredible**

John Josselyn, in his *Two Voyages to New England*, published in 1672, describes the vast numbers of these pigeons and says: "But of late they are much diminished, the English taking them with nets."

This seems to indicate that the extirpation of the species began within forty years after the first settlement of New England, and exhibits the net as one of the chief causes of depletion. From soon after the first occupancy of New England by Europeans until about the year 1895, the netting of the Passenger Pigeon in North America never ceased. Thousands of nets were spread all along the Atlantic seaboard; they were set wherever Pigeons appeared, but there were no great markets for them to supply until the nineteenth century. Early in that century the markets were often so glutted with pigeons that the birds could not be sold at any price. Schooners were loaded in bulk with them on the Hudson River for the New York market, and later, as cities grew up along the shores of the Great Lakes, vessels were loaded with them there; but all this slaughter had no perceptible effect on the numbers of the Pigeons in the West until railroads were built throughout that country, and the demand of a rapidly increasing population stimulated the netters.

**Wholesale
Slaughter**

Wherever the Wild Pigeon nested the pioneers soon found them, and destroyed most of the young in the nests and many of the adult birds as well. Every great market from St. Louis to Boston received hundreds or thousands of barrels of Pigeons every season. The New York market sometimes took one hundred barrels a day without a break in the price. Often a single western town near the nesting-grounds sent millions of pigeons to the market during the nesting-season, as was shown by the shipping-records.

Nesting after nesting was broken up and the young destroyed until, about 1878, the Wild Pigeons, driven by persecution from other States, concentrated in a few localities in Michigan, where a tremendous slaughter took place. These were the last great nesting-grounds of which we have any record. Smaller nestings were known for ten years afterward, and large numbers of Pigeons were seen and killed; but after 1890 they be-

**Final
Disappearance**

came fewer and fewer until 1898, when the last instances of their capture occurred that can be substantiated by preserved specimens. Since that time two apparently authentic instances of the capture of the Passenger Pigeon have been recorded, one in Ohio and the other in Wisconsin; and my investigations have revealed a few more, which have been published in my History of the Game Birds, Wild Fowl and Shore Birds.

Otto Widmann, who kindly undertook to look for me into the history of the Passenger Pigeon in the markets of St. Louis, states that F. H. Miller, a marketman in that city, received twelve dozen from Rogers, Arkansas, in 1902, and later a single bird, shipped to him from Black River in 1906. No exact dates can be given. Glover M. Allen, in his list of New England birds, published by the Boston Society of Natural History in 1909, records a specimen killed at Bar Harbor, Maine, in 1904. A careful investigation leads me to believe that this is an authentic record, although I have not yet seen the specimen. It was mounted by J. Bert Baxter, of Bangor, and was seen by Harry Merrill, who was perfectly competent to identify it. The specimen, when mounted, was returned to the man who shot it, but Mr. Baxter lost his record of the name of the owner. A. Learo, taxidermist, of Montreal, told me that a specimen was taken by Pacifique Couture in St. Vincent, Province of Quebec, Canada, September 23, 1907. Mr. Learo asserted that he returned the bird to Mr. Couture, but I have been unable to find that gentleman or to learn anything more about the specimen.

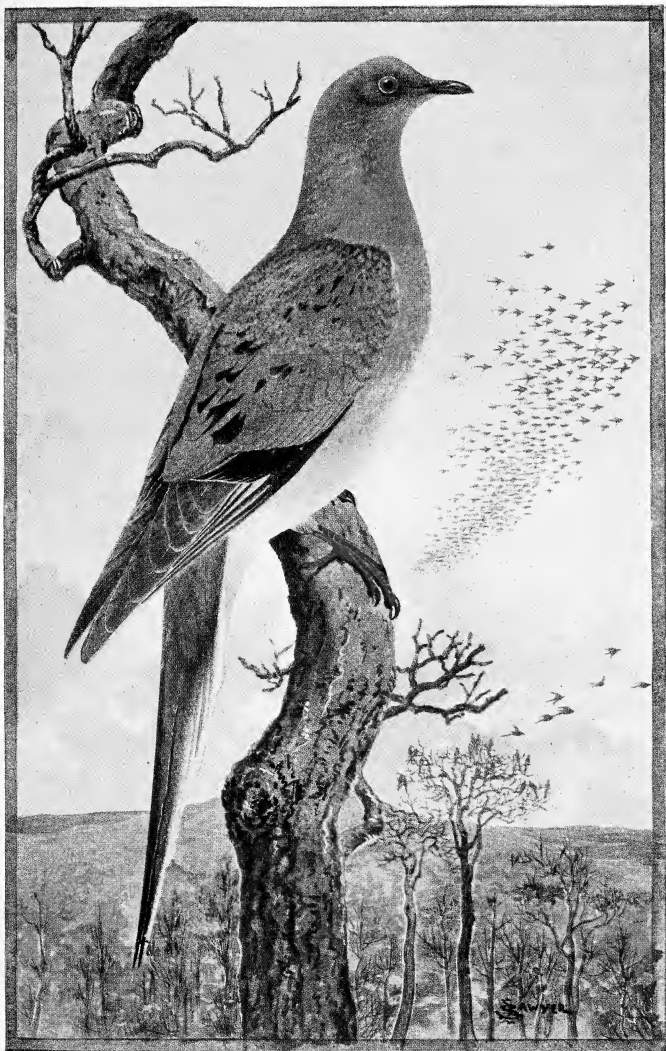
Now for the last Passenger Pigeon of which we have any information.

**Death of the
Last One**

David Whittaker, of Milwaukee, Wisconsin, procured a pair of young birds in northern Wisconsin in 1888, and fifteen young were bred from this pair. A part of this flock finally passed into the possession of Prof. Charles O. Whitman, of Chicago University. In 1904 he had ten birds, but both his flock and the Whittaker flock weakened by confinement and inbreeding, gradually died out.

In 1878 the Cincinnati Zoölogical Society bought ten pairs of pigeons, and these bred as long as they lived, but their offspring were almost unproductive. At last a single pair of the first generation alone survived, and the male died in 1911. The female, which, as the director of the Garden asserts, was born in 1885, lived until September 1, 1914, when it, too, expired, twenty-nine years old. By its death the species became extinct.

Many attempts have been made by gunners, marketmen, and others,



PASSENGER PIGEON

Order—COLUMBÆ

Family—COLUMBIDÆ

Genus—ECTOPISTES

Species—MIGRATORIUS

National Association of Audubon Societies

to account for the disappearance of the Pigeons by attributing it to some other means than the hand of man. Stories have been published to the effect that the Pigeons migrated to South America or to Australia; that they were destroyed by parasites or disease; or that all were drowned in the Gulf of Mexico, in the Great Lakes, or in the Atlantic Ocean.

There is nothing in substantiation of these tales that would be accepted as evidence by any careful investigator. The species has never been recorded in South America or Australia, and the other explanations of its disappearance are either imaginary or rest on hearsay evidence or rumors. Undoubtedly many Pigeons periodically were confused by fog and drowned in the Great Lakes, and there are two possibly authentic stories regarding the drowning of large numbers of Pigeons at sea.

**Erroneous
Theories**

None of these occurrences had any permanent effect on the numbers of the Pigeons, although the destruction of the forests undoubtedly had some effect. There is evidence that large numbers of these birds went north from Michigan in 1878, and great flocks bred in Manitoba that year. As Pigeons were sometimes overwhelmed by unseasonable snow-storms in the breeding season in the United States, they must have been still more subject to them in northern Canada; and if they were driven by persecution to the far north to breed, they might have been unable to rear young during the succeeding summers.

In his book, *Michigan Bird-Life*, Prof. Walter B. Barrows gives his opinion that some such catastrophe as this is accountable for a large part of the marked diminution in their numbers. This opinion is logical, though there is no direct evidence in support of it. Those who study with care the history of the extermination of the Pigeons will see, however, that all of the theories brought forward to account for the destruction of the birds by other causes than man's agency are wholly inadequate. There was but one cause for the diminution of the birds, which was widespread, annual, perennial, continuous, and enormously destructive—their persecution by mankind.

Every great nesting-ground known was besieged by a host of people as soon as it was discovered, many of them professional pigeoners, armed with all the most effective engines of slaughter known. Many times the birds were so persecuted that they finally left their young to the mercies of the pigeoners, and even when they remained most of the young were killed and sent to the market, and the hosts of the adults were decimated.

**Persecuted to
Death**

This Pigeon in nature probably lived not more than five years. Specimens may have lived twenty-five years or more in confinement, but this does not indicate, by any means, their average length of life when exposed to destruction by man, and by the natural enemies and vicissitudes of the Wild Pigeon's migratory existence. Marked birds of smaller species have been known to return to their homes for four or five years in succession and it seems not unreasonable to give the Passenger Pigeon as

long an average lease of life, although it was an object of constant pursuit by mankind. The destruction of most of the young birds for a series of years would bring about such a diminution of the species as occurred soon after 1878. One egg was the complement for each nest. Before the country was settled, while the birds were comparatively unmolested, they bred in large colonies. This, in itself, was a means of protection, and they probably doubled their numbers every year by changing their nesting-places two or three times annually, and rearing two or three young birds to each pair. Under such conditions any destruction by the Indians and the other natural enemies of these Pigeons, and by the many accidents of migration, was offset by the yearly increase.

Breeding in Colonies

The change for the worse began with the settlement of the country by Europeans. Later, when all the resources of civilized man were brought to bear against them, their very gregariousness, which formerly protected them, now contributed to their destruction; and when at last they were driven to the far North to breed, and scattered far and wide, the death-rate rapidly outran the birth-rate. Wherever they settled to roost or to nest, winter or summer, spring or fall, they were followed and destroyed until, unable to rear young, they scattered over the country, pursued everywhere as targets for thousands of shot-guns, with no hope of safety save in the vast northern wilderness, where the rigors of nature forbade them to procreate. Thus they gradually succumbed to the inevitable and passed into the unknown.

The food of the Passenger Pigeon consisted largely of vegetable matter. During the spring and summer, however, they lived more or less on insects and probably fed quantities of these to their young, for it is recorded that they destroyed all caterpillars in the oak-woods for many miles around their nesting-places. Doubtless that which gave the excellent flavor and delicacy to the flesh of these Pigeons, however, was the acorns, beech-nuts, chestnuts, and the seeds of the pine, hemlock, elm, and maple that the birds ate. They also ate wild fruits of many varieties and the tender shoots of vegetation. When wooded land was cleared and cut up into farms the Pigeons attacked grain, such as buckwheat and Indian corn. They often were destructive to oats and rye, and sometimes to peas and hemp-seed. In feeding on the forest-floor the hindermost birds were continually flying over the foremost birds in order to come at ground that had not been gleaned. Thus the flock appeared to roll along through the woods.

Food

Classification and Distribution

The Passenger Pigeon belongs to the Order *Columbæ*, and the Family *Columbidæ*. Its scientific name is *Ectopistes migratorius*. It formerly bred from the southern Canadian provinces to Kansas and Mississippi, and wintered chiefly from Arkansas and North Carolina southward to Florida and Texas.

This and other Educational Leaflets are for sale, at 2 cents each, by the National Association of Audubon Societies, 1974 Broadway, New York City. Lists given on request.

THE WOOD DUCK

By T. GILBERT PEARSON

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 7

When the famous naturalist Linnæus described the Wood Duck, and gave it a scientific name, he called it *Aix sponsa*. *Sponsa*, we are told, means "the bride." He thought that Bridal Duck would be a good name to apply to this, the most beautiful and wonderfully adorned of all the wild ducks found in America. The male is a most exquisitely colored creature, and in the feathers of its long crest are reflected all the colors of the rainbow. It is a favorite of artists, and none of our wild water-fowl has so often been painted. In the Southern States, wherever found, it seems to be a resident throughout the year. Being thus the only duck usually seen in summer it is quite natural that people should call it the Summer Duck, by which name it is usually known in that part of our country.

This bird feeds along the margins of lakes and streams, and is especially fond of staying in small ponds situated in deep woods where there is little danger of its being disturbed by persons passing. Most ducks make their nests on the ground near water, or in thick growths of plants where the water is shallow. Such is not the habit of the Wood Duck, however, for when spring comes it seeks an abode for its eggs in the hollow of some tree or tall snag, often at considerable distance from any water.

Feeding Places

One spring, while spending some time in a heavily wooded country, I often watched a pair of these birds flying back and forth between the forest and their feeding-grounds in a small lake. They always flew in the same manner, the female leading, the male either following a few feet behind or more rarely flying at her side. They moved very rapidly and in a few seconds would be out of sight among the tree-tops. The outgoing trip to the woods was usually made about seven o'clock in the morning, and the returning trip three or four hours later.

It was evident from these movements that the birds had a nest somewhere back in the forest, and I spent many hours in hunting it. One day, by chance, I detected the male sitting on the bough of a tree fully fifty feet from the ground. Doubtless he saw me, but, as birds often do when not suspecting themselves seen, he remained perfectly quiet, not willing to risk so much as a movement of the head. For half an hour I waited, and then was rewarded by seeing the female emerge from the top of a tall stump. At once the male joined her and the two sped swiftly away in the direction of the lake.

The stump from which the female had flown was what remained of a once large forest tree that had withstood the gales of a hundred years or more, and then at some period in its old age had broken off about twenty feet from the ground. The heart of the stump had

The Nest decayed from the top downward nearly four feet, leaving a solid rim of wood on the outside. In this

hollow the Wood Duck had made her nest. She had come that morning to lay an egg, and while thus occupied her mate had gallantly waited to escort her back to the lake. Climbing up I found four eggs almost entirely concealed in a soft bed of feathers that the female had plucked from her body to make the nest soft and warm.

The following afternoon I went with a friend to look at my new-found treasures in the wilderness. Coming in sight of the nesting-s snag, great was our disgust to find an old Crow standing on a stump close by eating one of the duck's eggs. We rushed toward him with angry gestures, but the black rogue merely retired to the limb of a tree and wiped his bill on the bark with the most diabolical unconcern. He could see we had no gun, and so was in no hurry to leave. Shrewdly he guessed that we would soon depart and leave him free to finish the feast which he had found in the snag.

The shells of two or three eggs, from which the contents had been eaten, were lying about on the ground, and upon climbing to the nest I found it held but a single one. I visited the place frequently afterward in the hope that the ducks would continue to use it, but they at once deserted the nest which had met with such ill fortune.

It has been stated by some observers that the young are carried from the nest, one at a time, in the bill of the parent birds, and deposited on the ground at the root of the nesting-tree, whence they are afterwards led in a body to the water. Still others say that the young drop from the nest, spreading their feet and moving their wings to break the force of their fall.

**Leaving
the Nest**

Perhaps both methods are employed, depending on the situation of the nest. This one was a mile and a half distant from the nearest body of water, and to reach it, if the young walked, they would be forced to pass through forest and plowed fields; surely a most tiresome and perilous undertaking. Doubtless the parents carried them to the lake.

The next morning I crossed the field to the shallow arm of the grassy lake from which the ducks had so often come. Approaching cautiously I was able to make out two old ones some distance from shore. There was much marsh-grass here which partly obstructed the view, but I was sure that I detected a number of young swimming with their parents. Being satisfied that the family was now located, I went up the shore some distance and, getting a skiff, came cautiously back toward the feeding birds. I used every precaution. Lying in the boat with one arm over the side near the stern, I slowly sculled around the last bend in the marsh-grass and came in full view of the spot where I had seen the brood.



Allen
Brooke
'06

WOOD DUCK

Family—ANATIDÆ
Species—SPONSA

Order—ANSERES
Genus—AIX

But only the old birds were to be seen. There they sat silent, with heads erect and necks stiff, at some distance from the position they had recently occupied. In a moment they had risen from the water with a great noise of whistling wings that made the little dell resound, and gathering headway rushed whizzing away like a pair of departing bombshells.

Surely there were no young about, to be deserted in this way. To make sure I shoved the skiff here and there through the grass and reeds, and struck the water repeatedly with the paddle, but no young could be found. While this was going on, the old ones returned, and, after circling several times, settled in the lake half a mile away.

**Cunning
Concealment**

Some hours later I again approached the ducks' feeding-ground and again saw the old ones with the young. I determined to outwit them if possible and see what had become of the young. Taking a boy in the boat we boldly approached the ducks. As we rounded the point of grass there were the male and female sitting alone as before. Instantly they were upon the wing. An old rail-fence, which had now partly fallen, extended from the field out through the grass into the shallow water. On this I climbed, and lying at full length on a couple of rails but a few inches above the water found myself well hidden from view. The boy now paddled away with my hat and coat decorating one of the paddles which he leaned against the middle thwart. I lay in the sunshine and waited.

Twenty minutes later the ducks came flying back, the female in the lead. Silently they lit in the water near the bend of the grass, and soon swam directly toward my hiding-place. Feeling sure both men had gone away in the boat they did not stop long to reconnoitre, and one of them soon gave a few low clucks which quickly brought the young out of their hiding-places in the grass. How the little fuzzy fellows did gather about their parents, and how happy they seemed at the old ones' return!

In the midst of the performance a slight noise from my direction caused the quick danger-signal to be given by the father. At once the brood was in action, hurrying away for the friendly cover of the grass. Wishing to catch one for closer inspection I rose hastily and went splashing through the water toward them. This time there was no desertion by the parents; the young were not yet hidden and so could not be left in safety. Here and there, round and round, the anxious old ducks fluttered as if helpless from broken wings.

**Protecting
the Young**

The female hurried the youngsters on by alternate leading and driving, while the male endeavored to divert my attention to himself in another direction. Even after the brood had distanced me in the chase, and were well secreted, the parents did not leave the pool. Their secret had been discovered and they continued to feign lameness until I had waded ashore and departed across the fields.

Wood Ducks sometimes select for their nests trees close to water, but the dozen or more which I have found were all some distance away.

In fact I have never seen one closer than half a mile to a lake or running stream. The entrance-hole to the nest is sometimes so small that it seems almost impossible that the bird should be able to enter. Once I found a nest in a tall stump, the entrance to which had been made by a flicker.

Although the uncleared forest is their chosen nesting-haunt, they will sometimes build close to the homes of man. Among the wooded sand-hills of Cape Hatteras there is a living holly tree standing in a dooryard, in the cavity of which some Wood Ducks made their home each spring for several years. The opening to the cavity is ten feet from the ground, and the hollow is eight inches in depth. Here the duck would sit and hatch her eggs while carts passed along the sandy road within thirty feet, and on the ground beneath it the hens cackled and children played.

**In the
Holly Tree**

That habit which this bird has of lining her nest with the feathers of her body serves a double purpose; not only do the feathers make a soft bed, but the down-covered skin of the bird's breast gives a greater warmth to the eggs than would a feathered breast.

The Wood Duck is a favorite game-bird in many places and is much relished as food. Along in August, when the young are nearly grown, the sport of the local gunners begins. In regions where the birds are numerous they may be found on nearly every pond and stream of any size. Often two or more families unite and thus large flocks are formed. Their feeding-ground is usually in the clear patches of shallow water among rushes and grass, where sometimes they may be approached with ease.

The sight of a group of feeding Wood Ducks, as they bob about, dipping their heads under water, is a novel and fascinating one. While at rest they enjoy standing or sitting on partly submerged logs or stumps, and when feeding appear often to have one or more sentinels posted, sometimes on a tree or snag several feet above the water.

This is one of the birds that has suffered so much by the advance of civilization that in many States laws have been passed prohibiting anyone from shooting them. Wild Wood Ducks are now becoming so scarce they should never be shot, nor should their nests or broods be disturbed.

**Protection
Needed**

There are many game-farms and private estates in the country where Wood Ducks are now raised for pleasure and profit.

Classification and Distribution

The Wood Duck belongs to the Order *Anseres*, and Family *Anatidæ* (Ducks, Geese, and Swans); its scientific name is *Aix sponsa*. This species breeds locally from Florida to Hudson Bay, and winters from New Jersey and Indiana southward to southern Mexico, Cuba, and Jamaica.

THE MARSH HAWK

By P. BERNARD PHILIPP

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 8

The Marsh Hawk, known also locally as Harrier, Blue Hawk, and Mouse Hawk, is one of the most abundant, valuable, and widely distributed of the hawk family in North America; and it differs little from the Hen Harrier (*Circus cyaneus*) of the Old World.

This is one of the handsomest of our birds of prey. The male comes north in the spring in a bright nuptial dress, bluish-gray above, white



YOUNG MARSH HAWKS IN THEIR NEST

Photographed at Stump Lake Reservation, South Dakota, by Alfred Eastgate

on the rump, and the tail barred with dark bands; lower parts, grayish-white profusely marked with light-brown dashes, lines and spots; tips of wings, blackish. The female is considerably larger than her mate (total length 22 inches), and she is much darker in her coloring, and more heavily streaked; immature birds resemble her.

This hawk is easily to be recognized, whatever the age or sex of the specimen may be, by the large white patch at the base of the tail, which is conspicuous in flight. When in repose its whitish look, owing to the disk of short feathers about the face, is a distinguishing mark.

In northern New Jersey, where, in suitable localities, it is quite common, its arrival in spring may be looked for in the last week of March or the first week in April. Then these birds may be seen sweeping low over open fields and wet meadows, singly or in twos and threes, searching for their food. Mating begins soon after arrival, and the pair resort to the meadow chosen as a summer home.

Haunts

Nesting begins early in April in the South, in the Middle States in May, and still later farther north. In New Jersey the situation usually chosen is a grassy meadow, well away from human habitations, not very wet, and preferably one in which clumps and patches of low bushes are scattered about among grass-tussocks. A good time to look for the nest of the Marsh Hawk is early in May, when the tussocks have grown tall, when the bloodroot is in blossom, and the cowslips are yellowing the pools along the edge of the meadow, for full complements of eggs are not to be expected until about the 10th of the month.

Like many others of the hawk tribe, these birds seem to have a great fondness for some particular place, and resort to it year after year, despite being frequently disturbed, though the exact nesting-spot may be, and frequently is, changed from year to year. One small marsh I have in mind has been occupied by a pair of these birds continuously for twelve years, and usually the nest has been within a few feet of the spot occupied the preceding season.

Local Attachment

The nest of the Marsh Hawk is on the ground, or close to it, as on a high, dry tussock, or in a clear space amid a clump of low bushes, without any pretense at concealment. Unless the marsh or meadow is very extensive it is seldom occupied by more than one pair of these hawks; yet I know of one small marsh in New Jersey where three pairs of birds have nested for three successive years in a spot not more than a mile long; but such cases are rare.

Both birds assist in the building of the nest, which is at best a crude and slight affair. A small amount of dried grass and weed-stems, with occasionally a few sticks loosely arranged around the edges to form a shallow central cavity, are gathered at the chosen spot; and a scanty lining of small tufts of grass, a few dead leaves, and perhaps some feathers, completes the structure.

Structure of Nests

Nests left undisturbed may be repaired and occupied several years in succession, presumably by the same pair of birds, for it is believed that these hawks remain mated as long as both live.

The five eggs ordinarily laid are not as handsome as those of many of the hawk family, being, as a rule, pale bluish or greenish-white, which speedily becomes much soiled. Sometimes eggs are found sparingly

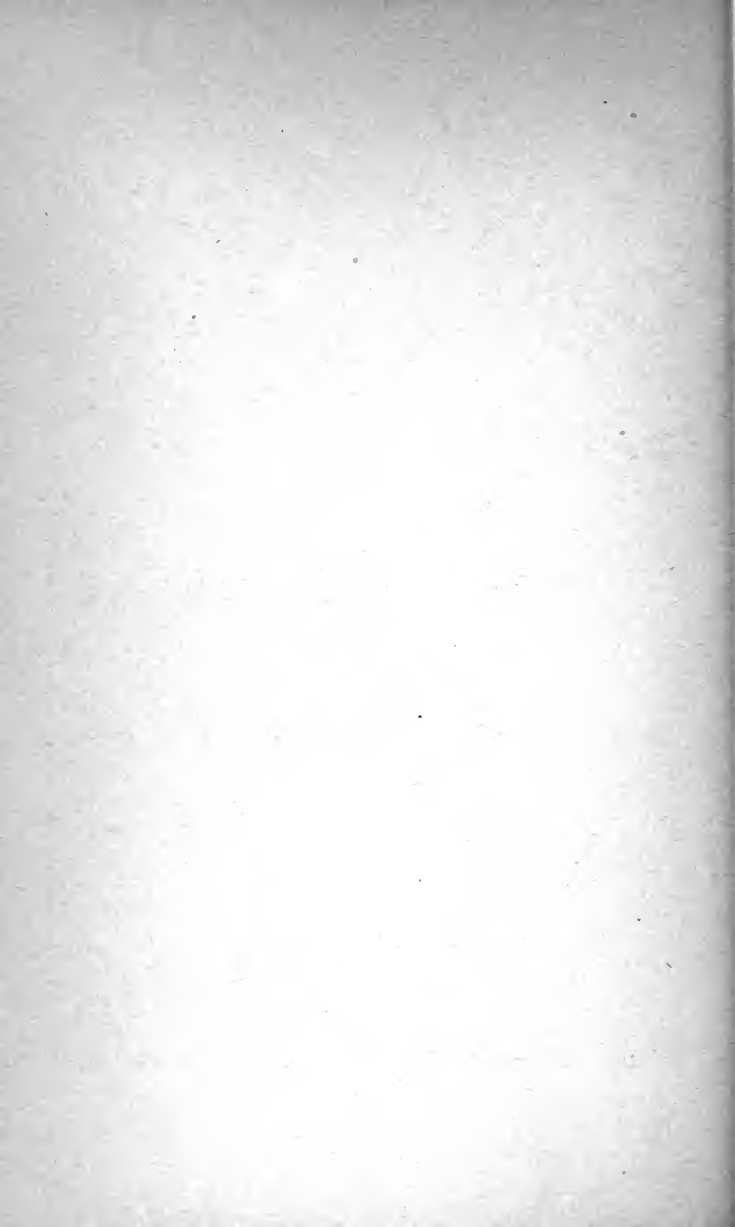


MARSH HAWK

Order—RAPTORES
Genus—CIRCUS

Family—DUTEONIDÆ
Species—HUDSONIUS

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spotted with brown or amber, and more rarely a specimen will have a large blotch of rusty brown. Incubation continues for nearly four weeks, and the young, when hatched, are covered with whitish down. The females are very close sitters, and usually will not rise from the eggs until closely approached, so that the finding of the nest is by no means easy. The young stay in or near the nest three weeks or more, and then for some time accompany the parents, so that the family party may be seen about the marsh where the young were reared until well into the autumn. Both parents bring food to the nestlings, and are very solicitous for their welfare, especially when newly hatched, frequently swooping at an intruder in a menacing manner. The young themselves, before they are able to leave the nest, are pugnacious little fellows, and make a bold stand against any close investigation, striking out bravely with talons and beak.

**Care of
Young**

No one at all familiar with the larger hawks can fail to identify the Marsh Hawk on sight; and therefore no one can plead mistaken identity as an excuse for killing it. Its long tail and wings, its peculiar wing-beats, and, especially, the large white patch on the rump, are unmistakable marks.

Few birds are more graceful in flight than the Marsh Hawk. Anyone much a-field in the autumn is sure to see one or more of these hawks seeking food. On wings unusually long for the size of the body, one of these splendid creatures will come sweeping slowly and evenly along over the brown fields, usually within a few yards of the ground until, at a fence or thicket, it will rise high enough to pass over the obstruction, and then, sinking again to within five or ten feet of the earth, will continue its course.

**Graceful
Flight**

It drops on its prey with incredible swiftness, and usually devours what it takes on the spot of capture, when it is not to be carried to its mate or offspring.

During the nesting-season this hawk often flies apparently for pure joy in flying, wheeling, circling, and tumbling heels over head high in the air, with occasional arrow-like descents almost to the ground, followed by a quick upward course, suggesting to observers the "stunts" of daring aeroplanists.

Those Marsh Hawks that have passed the summer north of the middle parts of the United States migrate in winter south of about the 40th parallel of latitude. Audubon refers to this in his "Birds of America" as follows:

I have observed it in our western prairies in autumn moving in flocks of twenty, thirty, or even so many as forty individuals, and appearing to be migrating, as they passed along at a height of fifty or sixty yards, without paying any attention to the objects below; but I could never find that they were bent on any general course more than another, as some days a flock would be proceeding southward, on the next to the northward or eastward. Many times have I seen them follow the grassy margins of our great

Migration

streams, such as the Ohio and Mississippi, at the approach of winter, as if bent on going southward, but have become assured that they were merely attracted by the vast multitude of finches or sparrows of various sorts which are then advancing in that direction.

In winter, the notes which the Marsh Hawk emits while on wing are sharp, and sound like the syllables *bee, bee, bee*, the first slightly pronounced, the last louder, much prolonged, and ending plaintively. During the love-season, its cry more resembles that of our Pigeon Hawk, especially when the males meet, they being apparently tenacious of their assumed right to a certain locality, as well as to the female of their choice.

This hawk should be most rigidly protected, as all the facts obtained show it to be one of the most useful of the family, and one which has a very high economic value. Its food consists largely of small rodents, as meadow-mice, small squirrels, young rabbits and ground-squirrels. It is of particular value in the Prairie States, as it is the inveterate enemy of the gopher, an animal that does an enormous amount of damage to crops. It feeds largely, also, on small lizards, frogs, snakes, and insects. It does,

**Service
to Man**

to a small extent, hunt and capture song-birds, and now and then seizes game-birds or poultry; but, as Dr. Fisher remarks, its economic value as a destroyer of rodents is so great that its slight irregularities should be pardoned.

"Unfortunately, however, the farmer and the sportsman shoot it down at sight, regardless or ignorant of the fact that it preserves an immense quantity of grain, thousands of fruit-trees, and innumerable nests of game-birds by destroying the vermin which eat the grain, girdle the trees, and devour the eggs and young of the birds. The Marsh Hawk is unquestionably one of the most beneficial, as it is one of our most abundant hawks, and its presence and increase should be encouraged in every way possible, not only by protecting it by law, but by disseminating a knowledge of the benefits it confers. It is probably the most active and determined foe of meadow-mice and ground-squirrels, destroying greater numbers of these pests than any other species of hawk, and this fact alone should entitle it to protection."

These strong statements are supported not only by the observations of wise men in the field, but by the scientific study of the stomach-contents of several hundred examples of the species killed in various parts of the country, and at all seasons of the year. A farmer who wantonly kills a Marsh Hawk is doing himself a great injury.

Classification and Distribution

The Marsh Hawk belongs to the Order *Raptores*, suborder *Falcones*, and Family *Buteonidae*. Its scientific name is *Circus hudsonius*. Its habitat extends over substantially the whole of North America. It winters southward from Iowa, the Ohio Valley and southern New York in the East, to Cuba, the Bahamas and Colombia.

THE RED-SHOULDERED HAWK

By WILLIAM DUTCHER

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 9

The generic name of this hawk (*Buteo*, a buzzard) is of very ancient origin, and is mentioned in the writings of Pliny; its specific name is from *linea*, a line, referring to the streaking of the plumage. It is to be found numerously in all parts of temperate North America, and several near relatives exist, as the Red-tailed Buzzard-Hawk, the Broad-winged, and others.

As a class they are rather heavy, deliberate fliers, much given to soaring in circles at a great height. At other times they are prone to select some point of observation on a dead limb in wooded districts, or on a knoll in the prairie regions, where they will remain in perfect repose for a long period, seemingly asleep; any attempt by an observer to approach them quickly shows, however, that they are alert and watchful. Unfortunately, the harmless and beneficial hawks of the *Buteo* tribe are scapegoats for all that is bad in the hawk family, and are made to suffer for most of the sins that have been magnified by the prejudice and ignorance of ages to a mountain of crime.

Without reason they are called "Chicken-hawks" and "Hen-hawks," simply because a farmer from time to time may miss from his flock a barnyard-fowl, or may find its scattered feathers where a tragedy has occurred. Many a farmer does not consider that this crime may have been committed by a fox, skunk, mink, weasel, cat, or some other carnivorous animal, but at once attributes it to a hawk, and immediately registers a vow to kill every hawk that he sees, without reflecting that by doing so he may be killing one of his best friends.

Farmers are not the only persons who have a prejudice against hawks, for it is unfortunately too true that a large percentage of sportsmen attribute the rapidly diminishing numbers of game-birds to hawks, and consequently never fail to kill one when an opportunity occurs. There is really very little doubt but that an increase in the number of hawks of the *Buteo* class would result in an increase of game-birds, but this is because these hawks reduce the number of small predaceous mammals that are so destructive to the young of game-birds.

Unjust
Accusations

It is certainly a very short-sighted policy on the part of any one to condemn hawks on hearsay evidence. The proper method to judge of the

good or evil that hawks do is to consider the results of a thorough and scientific investigation of the food of a large number of them collected from widely separated sections of the country and at all seasons of the year. Under certain conditions an individual hawk may be guilty of doing harm owing to his peculiar surroundings, but that is no reason for condemning all hawks, any more than it would be for charging with crime every citizen in a village because one misguided man was caught robbing the bank.

The subject of the economic status of hawks is one of great importance, and the agriculturist who is not willing to examine carefully all of the evidence presented certainly is not living up to the advanced ideas of the twentieth century, but is still groping in darkness. The wideawake farmer investigates every problem that will enable him to increase his products. If it can be proved that hawks destroy enormous quantities of insects and vermin that are known to be a serious menace to agriculture, should they not be protected as valuable auxiliaries to this industry, which is by far the most important and valuable of all that engage the attention of man?

**Economic
Status**

The following evidence regarding Red-shouldered Hawks is taken from the report of the Ornithologist of the State Board of Agriculture of Pennsylvania for 1890:

“In my examination of 57 of these hawks which have been captured in Pennsylvania 43 had been eating field-mice, some few other small quadrupeds, grasshoppers and insects, mostly beetles; nine revealed frogs and insects; two, small birds, remains of small mammals, and a few beetles; two, snakes, and portions of frogs. The gizzard of one bird contained a few hairs of a field-mouse, and some long black hair which appeared very much like that of a skunk, and the bird on dissection gave a very decided odor of skunk. In two of these hawks, shot in Florida, I found in one portions of a small catfish, and in the other remains of a small mammal and some few coleopterous insects (beetles).”

**Food in
Pennsylvania**

In 1893 the United States Department of Agriculture presented the results of stomach examinations made by Dr. A. K. Fisher, which showed that mice was the staple food, that almost every sort of small animal and large insect was eaten, and that only about 1½ per cent. of 220 examined contained evidence of poultry. To sum up, the food of this hawk consists of at least 65 per cent. of small rodents, which are very injurious to the farmer, and less than 2 per cent. of poultry. It seems hardly necessary to more than mention this fact to an intelligent person to convince him of the folly and shortsightedness of destroying this valuable bird, and of the necessity of fostering and protecting it in the farm lands and orchards.

**Evidence
of Diet**

Dryden says: “The field-mouse builds her garner under ground,” but he does not explain that the stores with which it is filled are stolen from the farmers’ crops. Every farmer knows the enormous number of these

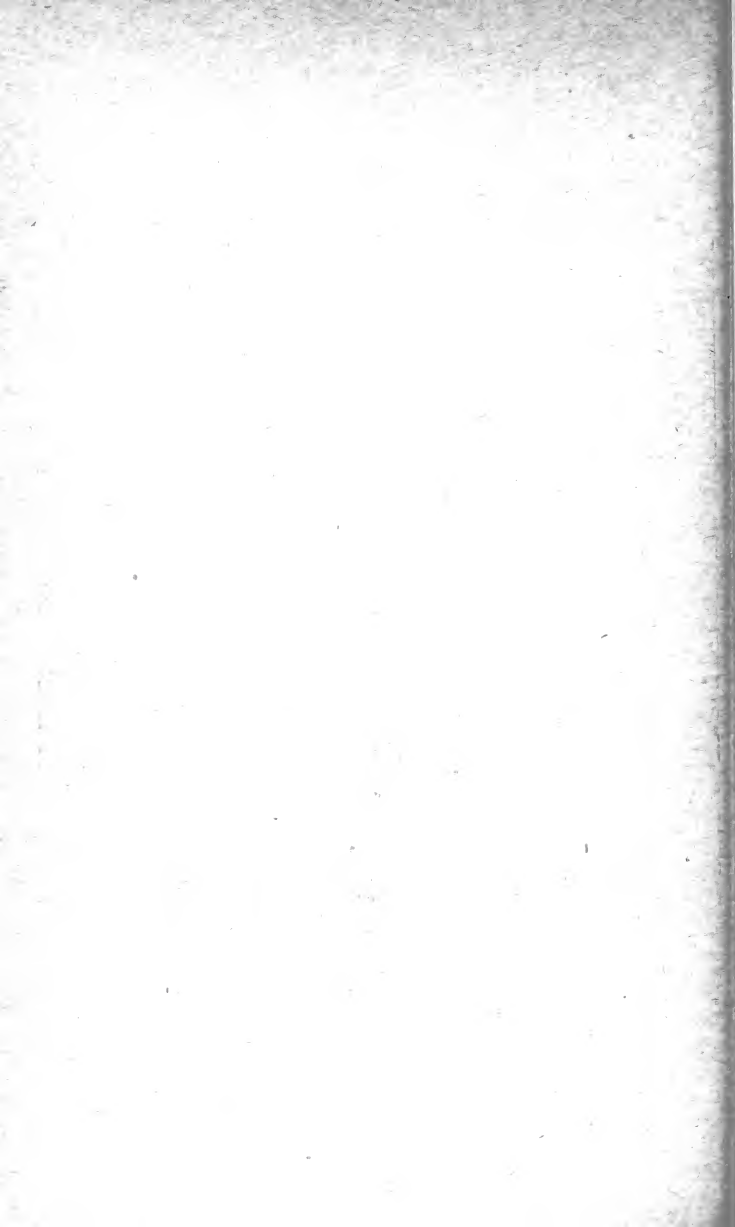


RED-SHOULDERED HAWK

Order—RAPTORES
Genus—BUTEO

Family—BUTEONIDÆ
Species—LINEATUS LINEATUS

National Association of Audubon Societies



small rodents that can be found in a cornfield at the time of husking; and although each mouse destroys but a small amount of grain, yet the aggregate amount that is lost on every acre must amount to a great deal in the course of a year on a farm. These small mammals are numerous in species and are very prolific, and if their numbers were not kept in check by birds of prey, they would soon become a serious menace to agriculture. If the farmers of the country could have a Pied Piper of Hamelin to rid them of their rodent pests they might not need the aid of hawks, but Browning's wierd creation cannot be summoned in this matter-of-fact age.

Hawks Control Vermin

Beecher S. Bowdish, of Demarest, New Jersey, submits the following regarding the nesting-habits of a pair of Red-shouldered Hawks:

"On March 23, 1910, I found the female on the nest, which had been occupied for at least five or six years. On April 30, it contained three young birds, newly hatched, and one egg. It was situated about sixty-five feet from the ground in a main fork of a white-oak. We placed a blind intended to conceal a camera in a beech-tree about fifteen feet from the nest and left it. On May 4 the nest held four young, only one of which was able to sit up for any length of time. On the 14th a blind was placed on the ground, beneath the tree, from which the camera above could be tripped. On the 15th a good photograph of the hawk and her young was obtained, and it was noted that she had placed a branch of green leaves in the nest. Several others had also been brought within the past few days. This is a habit common to several of the hawks; and as it appears to be done on clear, hot days, it seems reasonable to believe that the object is to secure moisture to the nest's contents. On this occasion the hawk visited the nest and quickly left without giving her young food. Directly after, it was found that the smallest, a weakling, had been killed and partly devoured by his brethren, whose appetites are rapacious.

Nesting Habits

By the 29th, the young were more than half grown, and by June 4 the two larger young were so well developed that they easily flapped from the nest to near-by trees. Camera and operator were in the blind from 10:30 a. m. until 2:30 p. m. and while the other youngsters were repeatedly fed, the unfortunate bird in the nest was neglected. He took his fate very philosophically, and while showing the keenest interest in the clamor of his brethren at feeding-time, never made a cry during the whole period.

Photographing a Buteo Family

"In 1911 the hawks started housekeeping in the same nest. On April 1, the bird was on the nest. On the 8th, she deserted this nest, leaving three eggs.

"The pair shortly took up their domicile in a crow's nest of the year before, which they repaired for the purpose. This was about thirty feet up in a dead chestnut-tree, and a thick beech-tree close at hand offered exceptional concealment for a blind. On May 21, the bird was found

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sitting on two eggs. She was left undisturbed till June 4, when there were two young, apparently about a week old. Observations from the blind were made frequently, often for almost a whole day at a time until July 8 when the young had left; and in no instance were the birds seen to bring poultry or game-birds to the young. In two cases small birds were brought. Usually the food was mice, and once what appeared to be the skinned and bloody body of a rat.

“Where necessary the parents tore up the food for the young. The latter, when unable to swallow mice whole, laboriously tore and ate them piece-meal. Usually the young took turns at the food without quarreling. On one occasion when the smaller hawk seemed unable to tear up a mouse his larger brother seized it and tore it up with ease. The disappointed youngster watched this operation greedily, occasionally making furtive grabs at stray bits, one or two of which he secured. On another occasion the smaller hawk seized a young bird brought by the parent and quickly ate it, while its larger companion made no effort to rise from its reclining position. Its meal disposed of the young bird performed a ‘dance,’ seemingly in great happiness. This dance was apparently a common performance with the young after feeding. They would stand high on straightened legs, and flap their wings as they danced about the nest, apparently in a paroxysm of excitement.

“As the time draws near for the young to leave the nest they alternately exercise their wings and rest, sprawling flat in the nest with legs outstretched. When they are ready to leave, their wings are strong and they easily flap to near-by trees and are lost to sight.”

Classification and Distribution

The Red-shouldered Hawk belongs to the Order *Raptores* and the Family *Buteonidae*. Its scientific name is *Buteo lineatus lineatus*. It breeds from Manitoba, southern Quebec, Nova Scotia and Prince Edward Island south nearly to the Gulf States, and west to the edge of the great plains; winters south to the Gulf Coast.

The subspecies are: Florida Red-shouldered Hawk, *B. l. alleni*, ranging from South Carolina through Texas into Mexico; and Red-bellied Hawk, *B. l. elegans*, ranging from southern British Columbia to northwestern Mexico.

THE SPARROW HAWK

By WILLIAM DUTCHER

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES
Educational Leaflet No. 10

The Sparrow Hawk is the smallest of the North American hawks, and is also our most beautiful species, as well as one of the most beneficial. Its name is singularly inappropriate, as it has no resemblance



THE SPARROW HAWK, A MALE, NEARLY ONE-HALF NATURAL SIZE

to a sparrow in form or habits, nor does it eat sparrows in preference to anything else. It might more properly be called Grasshopper Hawk, because it destroys enormous quantities of these pestilent insects.

The only hawks with which this falcon may be confused are the Pigeon Hawk and the Sharp-shinned Hawk.

The large amount of chestnut on the back and tail of both sexes

of the Sparrow Hawk is a strong distinguishing mark, the Pigeon Hawk and Sharpshin being much darker. Seen from below, the Sparrow Hawk presents a much lighter effect than either of the other species, which are heavily barred or streaked underneath. The length of the wings is another point of difference: the wings of the Sparrow Hawk when folded reach nearly to the end of the tail, while those of the Sharp-shinned Hawk fall far short of it.

**Distinguishing
Colors**

These small hawks differ decidedly in behavior. The Sparrow Hawk is much given to hovering in the open, then dropping to the ground, not very rapidly, to seize its humble game (usually a grasshopper) and then fly back to a perch to eat it. The Pigeon Hawk and Sharp-shinned Hawk, on the other hand, make a few rapid wing-strokes and then sail on for some distance. The Sparrow Hawk hunts and perches in open places, while the Sharpshin confines itself to the woods and thickets, perching in a tree where it may be hidden.

The note of the Sparrow Hawk, once heard, will always serve to distinguish this species from the other two. Another very excellent means of identification is the situation of the nest; if it is in a hole of any kind it is fairly sure to belong to a Sparrow Hawk; but if it is built of sticks and other material in the branches of a tree it is almost sure to be the nest of a Pigeon Hawk, or, more likely, that of a Sharpshin.

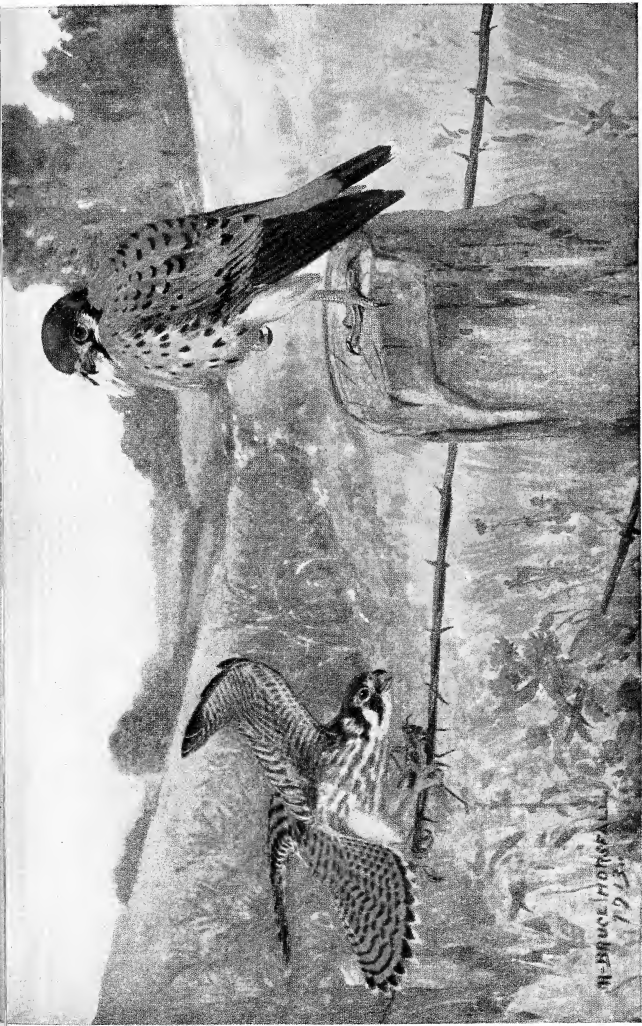
These distinguishing marks are given with the earnest hope that farmers, sportsmen, and others who in the past have killed all hawks, will in the future spare the Sparrow Hawk, on account of its great service to agriculture. When in doubt regarding the identity of a small hawk, give the benefit of the doubt to the hawk and refrain from killing it, for you may thus save a valuable bird, belonging to a species which, during every one of the twelve months, renders a service to the agricultural industry of the country that is far beyond computation.

**A Hawk to
be Saved**

In the exhaustive report on this species made in 1893 by Dr. A. K. Fisher, of the United States Department of Agriculture, will be found indisputable evidence of the absolute value of the Sparrow Hawk as a destroyer of grasshoppers and of rodents, and, on the other hand, of the fact that it does very little harm.

The contents of the stomachs of 320 specimens of this hawk, which had been collected in widely separated parts of the country, and in all seasons of the year, were examined by Government experts; in one only were found remains of a game-bird, and that among a mass of insects. This fact shows that sportsmen have no excuse for killing a Sparrow Hawk, as it certainly does not molest game-birds. Dr. Fisher summarizes the matter as follows:

The subject of the food of this hawk is one of great interest, and, considered in its economic bearings, is one that should be carefully studied. The Sparrow Hawk is almost exclusively insectivorous, except



SPARROW HAWK

Family—FALCONIDÆ

Species—SPARVERIUS SPARVERIUS

Order—RAPTORES

Genus—FALCO

National Association of Audubon Societies



when insect-food is difficult to obtain. In localities where grasshoppers and crickets are abundant these hawks congregate often in moderate-sized flocks, and gorge themselves continuously. Rarely do they touch any other form of food until, either by the advancing season or other natural causes, the grasshopper-crop is so lessened that their hunger cannot be appeased without undue exertion. Then other kinds of insects and other forms of life contribute to their fare; and beetles, spiders, mice, shrews, small snakes, lizards, or even birds, may be required to bring up the balance.

**Grasshoppers
Preferred**

In some places in the West and South telegraph-poles pass for miles through treeless plains and savannas. For lack of better perches, the Sparrow Hawks often use these poles for resting-places, from which they make short trips to pick up a grasshopper or mouse, which they carry back to their perch. At times when grasshoppers are abundant such a line of poles is pretty well occupied by these hawks. In the vicinity of Washington, D. C., remarkable as it may appear to those who have not interested themselves especially in the matter, it is the exception not to find grasshoppers or crickets in the stomachs of the Sparrow Hawks, even when killed during the months of January and February, unless the ground is covered with snow. It is wonderful how the birds can discover the half-concealed, semi-dormant insects, which in color so closely resemble the ground or dry grass.

In the spring, when new ground or meadow is broken by the plow, they often become very tame if not molested. They fly down, even alighting under the very horses for an instant in their endeavor to capture an unearthed mouse or insect.

In speaking of its nesting-habits, T. Gilbert Pearson says:

In the Southern States the eggs are almost invariably laid in the abandoned nesting-cavity of the Flicker, a bird which is very abundant, particularly in the pine-tree regions. If undisturbed, the birds will often continue to use the hole year after year until one or the other of the pair is killed. They appear to mate for life, and even during the season when not employed in rearing young they display an attachment somewhat unusual among birds. While not demonstrative in the least at this period they nevertheless remain in close proximity to each other, feeding frequently in the same field, and often roosting at night under the eave of the same building.

**Nest
and
Eggs**

The eggs number usually four, but sometimes five. They exhibit a wonderful variety of rich markings of various shades of brown, chocolate and lavender. These spots and splotches usually show a tendency to cluster in a circle around the larger end, but not infrequently this intensity of marking is noticeably gathered about the smaller end. Now and then, but rarely, an egg is found almost destitute of color-decorations of any character except the pale blue ground-color of the shell.

One family of young is reared in a season, but if accident befalls these before leaving the nest, or the eggs are taken, the parents will lay a second clutch, often in the same cavity, if this has not been torn open. I knew one pair of Sparrow Hawks to lay three sets of eggs.

In parts of the United States where trees are scarce, and therefore

suitable cavities are few, these birds may sometimes be induced to nest in elongated bird-boxes nailed to trees or poles. To insure their occupancy it is desirable that the bottom of the box be supplied with a thick layer of sawdust, which takes the place of the small chips or fragments of decaying wood usually found lining hollows in trees.

The male is very attentive to his mate during the nesting-season. Not only does he frequently take his turn at keeping the eggs warm, or brooding the newly hatched young, but he makes numerous trips to the nest with food for his mate while she is thus engaged. Many times I have watched with interest a male Sparrow Hawk as, sitting on a tree near the nest, he would call over and over to his loved one to leave the eggs and come for the dainty tidbits which he had brought to her.

Domestic Traits

Sometimes she would respond at once, but sometimes would turn a deaf ear to his entreaties, allowing him to repeat his supplications for many minutes before going to him. At times he seems to grow weary of waiting, and begins to eat the captured insect or lizard he is holding. As he eats he continues to call, and the thick, half-interrupted notes must convey to her alert ears some suggestion of the joys that she is missing. More often, however, he yields to a more generous impulse, and at last flies to the hole and presents the food to her, as any self-respecting head of a family should do.

At this time of the year the male is much given to shouting. Unable to express his feelings in rapturous song, as he hears the Mockingbird, the Thrasher, or the Wren doing all about him, he employs the only means at his command, and,—swinging in long curves through the air, or circling aloft, gives vent to his feelings by repeated cries of *killy, killy, killy*. We can readily understand, therefore, why this bird has acquired the name "Killy Hawk," by which it is almost universally known to the farm-boys of the South.

Classification and Distribution

The Sparrow Hawk belongs to the Order *Raptores*, the Suborder *Falcones*, the Family *Falconidae* and the Subfamily *Falconinae*. The scientific name of the typical eastern form is *Falco sparverius sparverius*. It breeds from Alaska to Florida, and in winter may be found from Ohio and Massachusetts south through eastern Mexico to Costa Rica. Three subspecies are recognized as follows: Desert Sparrow Hawk (*F. s. phalena*), chiefly west of the Rocky Mountains; San Lucas Sparrow Hawk (*F. s. peninsularis*), reported from southern Lower California; and Little Sparrow Hawk (*F. s. paulus*), of Florida.

THE SCREECH OWL

By WILLIAM DUTCHER

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 11

When studying the Screech Owl, the student must always bear in mind its two phases of color—red and gray. A bird of one color may be mated with a bird of another color, and all their young may be of one color, either red or gray, or the parents may be of one color and the young of mixed colors; hence this is often called Mottled Owl. However, no matter what the phase of color is, no person can mistake a Screech Owl for any other species. The only other owl that might possibly be confounded with it is the Saw-whet, which lacks ear-tufts, is brown, and does not have black wing-shafts.

In the Eastern States Screech Owls are very fond of living in apple-orchards, especially where the trees have been neglected and are decaying, thus furnishing holes in which the birds may breed or hide. The man who

**A Lover of
Old Orchards**

is so fortunate as to have Screech Owls attach themselves to his orchard should consider himself especially favored, for the good that they will do him by keeping in subjection pestilent mice is beyond calculation.

A very intelligent farmer living in Seneca County, New York, informed me that mice and rabbits, principally the former, had in one winter (1899-1900) killed every tree in a five-acre peach-orchard. The trees were girdled a few inches from the ground by these rodents. The value of his 800 bearing trees was not less than \$2,000. In this case, would it not have been more economical for the owner to have encouraged owls and other birds-of-prey, which live largely on mice and rabbits, to remain on his premises, even if a chicken were lost occasionally.

It is probably a fact that Screech Owls remain mated during life; and, as they are non-migratory, if once they become attached to a locality, they are likely to remain there, unless they are harassed and driven away, or their home is destroyed, and even then they do not move any great distance. For this reason they are doubly of value to the agriculturist, as they help him during the entire year. Their prey, the mice, are yearly tenants, and the farmer who is wise will give the Screech Owl on his acres a perpetual lease.

**Preying on
Mice**

Another feature in the life-history of the Screech Owl, and one that makes this bird particularly valuable, is that it hunts for food at night when most other birds are at rest. It thus supplements the day-work of the rodent-eating hawks, providing a continuous check on the four-footed vermin of the ground. While the Screech Owls are nocturnal by choice,

yet they have no difficulty in seeing in the daytime, although then they are not alert and wide-awake, as they are after sundown, nor are their voices heard.

During the daytime they hide in holes in trees, or in some secluded place in the foliage, to escape observation. Should they be discovered they are likely to be mobbed by other birds, especially Blue Jays. This fact must have been well known to the ancients, for Aristotle recorded it three centuries before the beginning of the Christian era, in the following words which referred to the common Little Owl of Greece:

**Nocturnal
Habits**

“The Noctuæ, and the rest, which cannot see by day, obtain their food by seeking it at night; and yet they do not do this all night long, only at eventide and dawn. They hunt, moreover, mice, lizards and scorpions, and small beasts of the like kind. All other birds flock around the Noctua, or, as men say, admire, and, flying at it, buffet it. Wherefore, this being its nature, fowlers catch with it many and different kinds of little birds.”

Owls are supposed by many superstitious people to be birds of bad omen; this probably arises in the case of the Screech Owl from its weird, tremulous, shivering, wailing, yet melodious note, which has given it the name Shivering Owl in some places. To me there is a singular and fascinating attraction in its notes, which are heard in the dusk of early nightfall, and especially when its shadowy form is noiselessly flitting by like a huge, night-flying moth, to be seen only as it crosses a background of fading western light—a ghostly suggestion of night and solitude.

**Tremulous
Call**

While the life-history of the Screech Owl is interesting, yet its economic status is the important fact which needs wide publicity. All scientific students of the food-habits of this species of owl join in pronouncing it to be one of the most beneficial and least harmful of birds. In addition to the great number of rodents it destroys, it eats enormous quantities of noxious insects. In the First Annual Report of the United States Entomological Commission (1877) it is stated that the injury by the Rocky Mountains locust to agriculture west of the Mississippi had been so great during the years 1873-1876, that the evil had assumed national importance. On page 119 of the report it is shown that in the four corn-growing States, Kansas, Nebraska, Iowa, and Missouri, the loss by locusts in 1874 was 142,942,800 bushels, with a money-value, at 28 cents per bushel, of \$40,000,000. An examination of the contents of the stomachs of eight Screech Owls, taken at that time in Nebraska, disclosed the fact that the birds had eaten, just prior to their capture, 219 locusts and 247 other insects, besides two mice; one had eaten a small bird, but it had also eaten 32 locusts and eight other insects.

**Statistics
of Service**

George C. Jones, of Fairfield County, Connecticut, says: “I think the smaller species of owl feed upon the cutworm to some extent. I have found them in the stomach of the common Screech Owl. The fact that both cutworms and owls are nocturnal leads me to believe that owls, of



SCREECH OWL

Order—RAPTORES
Genus—OTUS

Family—STRIGIDÆ
Species—ASIO

National Association of Audubon Societies

all the birds, are the most efficient exterminators of this formidable pest, and should, on this account, receive protection. The farmers here are large growers of tobacco, and the damage done by the cutworm to the young plants, and the labor of resetting forced upon the growers, is almost incalculable. I believe that if our native owls were as plenty as some other species of birds, the ravages of this destructive worm would be much less than at present."

Dr. A. K. Fisher, in his report on Screech Owls to the Department of Agriculture, declares that their economic relations are of the greatest importance, "particularly on account of the abundance of the species in many of the farming districts; and whoever destroys them through ignorance or prejudice

**Economic
Importance**



A FLORIDA SCREECH OWL ON ITS NEST

should be severely condemned." In his summary of the examination of the stomachs of 255 Screech Owls, he gives these notable facts: One contained poultry; 38 other birds—however, many of these were English Sparrows; 91 had been eating mice; 11, other mammals; 100, insects; 32, an assorted diet of lizards, fish, spiders, crawfish, scorpions, etc.; and 43 stomachs were empty.

This brief outline of the life-history and economic value of the Screech Owls is presented to the farmers, fruit-growers and school-children of the country, with the hope that it will create in them a desire to study and protect this very valuable and interesting bird, and even to encourage it to nest on their premises.

T. Gilbert Pearson, Secretary of the National Association, has described the nesting-habits of this little owl as follows:

The Screech Owl can hardly be taken as a model housekeeper. Most wild birds in our country are exceedingly cleanly about their nests, but such is not always the case with this common little owl. This fact is not noticeable in every instance, as there exists much individual variation, just as there does among human housekeepers, but I have frequently examined nests that were filthy in the extreme. All owls lay white eggs, as, in fact, do woodpeckers, swifts, and many other birds, the eggs of which are hidden in dark places where there is no need for concealing coloration to render them inconspicuous when prowling egg-eaters are abroad. Nature here seems to show a marked evidence of economy by not wasting any of her coloring matter. Three to five eggs are laid rather early in the spring, and are jealously guarded by their owners.

Screech Owls gather no nesting-materials whatever. When the time arrives to deposit her eggs, the female simply goes to some hole she has found in a dead tree or stub, and takes possession of it just as she finds it. A nesting-excavation dug in a dead tree by a Flicker suits her purposes admirably. Natural cavities in shade-trees or old apple-trees also afford tempting nesting-sites. After the eggs are deposited one or the other of the birds is pretty sure to be at home at any hour of the day which you may choose to call. The bird will sit close, and, as a rule, no amount of pounding on the tree will cause it to fly out, or even give you the satisfaction of seeing its face at the entrance-hole.

Nesting Place

Should the intruder be so rude as to climb the tree and attempt to extract the bird from its nest, I warn him to be on his guard. At the first indication of real danger the owl is very likely to turn on its back, presenting its beak and eight exceedingly sharp claws, which it has no hesitancy in sinking deep into one's fingers as they reach downward.

The home of a family of Screech Owls may often be discovered by the pellets of indigestible parts of the food (bones, feathers and the like) disgorged after each meal. Such deposits have often been examined, and they yield the same sort of testimony of the utility of the bird as a mouser and insect-eater as do the contents of the stomachs.

Classification and Distribution

The Screech Owl belongs to the Order *Raptores*, the Suborder *Striges*, and the Family *Strigidae*. The scientific name of the common eastern form is *Otus asio asio*. In its various climatic forms (nine subspecies) the Screech Owl occurs over much of temperate North America, extending from southern British Columbia to northern Mexico.

THE SHORT-EARED OWL

By PHILIP B. PHILIPP

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 12

To the bird-lover who has been fortunate enough to journey in the Northland this Owl is a familiar sight in summer. Unfortunately most of us have not been able to extend our travels to where this Owl is really common, for in the United States, or at least in the East, the bird as a breeder is rare. Some years ago, however, with a friend as interested as myself, I made a bird-study trip to the Magdalen Islands, a small



NEST AND EGGS OF SHORT-EARED OWL

Photographed in the Magdalen Islands, by P. B. Philipp

group well out in the Gulf of St. Lawrence, situated, in fact, only seventy miles south of the coast of Labrador. Extending out into the wild waters of the gulf from the northernmost of these islands is a vast tract of marsh and moor, miles from the nearest human habitation—an utterly lonely place, the silence of which is broken only by the pounding of the surf or the cry of a Gull or Tern. Scattered about over the waste are many small ponds, with tiny islets giving a footing for a low growth of alders, gooseberry-bushes and rank grasses. Here it was I first made the acquaintance of the Short-eared Owl in its summer home, and this home is characteristic of the places to which it goes to spend the warm months.

This Owl might well be called the Marsh Owl, or even the Ground Owl. Differing from nearly all the family, it is never to be looked for in

a forest or in wooded districts. It is preeminently a bird of the flat, open country, frequenting the marshes and grassy meadows of the temperate zone and the tundra of the North, or residing and hunting along the inside of the beaches of the coast where the growth is low.

Always keeping on or close to the earth, it chooses a nesting-place in some open spot in a meadow or marsh. While breeding most commonly north of the United States, it nests locally in small numbers within

**Nesting
Place**

our borders, having been recorded as near New York as Montauk Point, at the eastern end of Long Island. The nesting-period varies with the locality, from the latter part of March and April through May in the more southern part of its range to well into June in the more northern part.

The situation is usually on the ground in a swampy place, and generally close to the water, the nest placed in a bunch of thick grass or under the shelter of a low bush in some elevated spot. Some nests have, however, been found in coarse grass and bushes, or on knolls in a wet, boggy place; among the thick sedges growing along the edge of a prairie-pond; rarely raised a little from the ground in a clump of low bushes; and, more rarely still, in a shallow burrow in a bank, the latter situation being recorded from Alaska. I have found a nest in the Magdalen Islands which was placed in a tuft of coarse grass growing on a tiny islet in one of the innumerable ponds of the vast East Point marshes, and sheltered by a low growth of gooseberry-bushes.

The nest itself is a rough structure, hardly worthy of the name. A few rank grasses, loosely coiled together, or a depression made in a tuft of dead grass or under a bush, with sometimes a few sticks and feathers, and occasionally with a scanty lining of fine dead grasses, suffice to form a resting-place for the eggs and a home for the young.

The eggs vary in number from four to nine, are white, with occasionally a creamy tinge, and are nearly spherical in shape. The deposition of the eggs is rather irregular, and incubation seems to begin with

**Eggs and
Young**

the laying of the first one. Young and eggs in various stages of incubation may therefore be looked for in the same nest. One nest noted held two eggs on which the bird was sitting, and eight days later contained but one additional egg. The birds are very close sitters, and will never flush from the nest until almost walked upon. The females seem to perform all the duties of incubation. The period of incubation is stated to be about three weeks, and the young stay in or near the nest till well grown. Like other owlets they are, when newly hatched, clothed in a thick coat of white or whitish down. One brood in a season is usually all raised by a single pair, and frequently the family party remains together till late in the fall.

Like others of the family, the Short-eared Owl is secretive in its habits except when hunting, and in spite of the open country in which it



SHORT-EARED OWL

Order—RAPTORES
Genus—ASIO

Family—STRIGIDÆ
Species—FLAMMEUS

National Association of Audubon Societies

lives manages to conceal itself effectively in the grass and bushes of his chosen marsh. Unlike other Owls, the Short-eared is quite diurnal, hunting in the daytime, especially on dark, cloudy days. The flight is usually close to the ground, is very easy and graceful, and absolutely without noise. Coursing along the tops of the grass and bushes, this Owl reminds one greatly of the Marsh Hawk, though the wing-beats are more rapid. Once the prey is sighted or heard, a drop of incredible quickness is made, the victim is seized with scarcely a cessation of onward movement, and devoured at some favorite perch.

**Manner
of Flight**

As one would expect from the desolate places in which it makes its home, the Short-eared Owl has an almost untamable nature. William Dutcher had one captive for some time, and writes of it as follows:

"It was confined in a large box with a wire front, at first in the open air and, subsequently, in a lighted cellar. Every effort was made to tame its wildness by handling it with the greatest gentleness and never approaching it abruptly. No measure of success attended the effort; on the contrary, the Owl seemed to grow wilder and more excitable when approached. A visitor was always saluted with a series of violent hisses, accompanied by a ruffling of the feathers over the whole body. The hisses were often followed by a violent snapping of the mandibles, which was continued for some time, especially if food was not given. Once the process of disgorging a pellet was observed. The Owl was about to be fed, when it commenced a series of contortions which seemed to involve the whole body. Three of these movements or contortions took place, then a pellet was thrown from the Owl's mouth. It was nearly two inches long, and about three-quarters of an inch in diameter."

**Behavior in
Captivity**

The habit of disgorging the skin, bones and hair of the animals on which it feeds is characteristic of the Owl-tribe, and affords the student the best means of identifying the food. When one finds an Owl-roost, many interesting facts as to the habits of the birds may be deduced from the debris thus cast off.

The Short-eared is an exception to the Owl family in another respect. Most Owls are resident where found, but this species is decidedly migratory in its habits, wandering in the winter as far south as Cuba and Guatemala. Frequently large flocks will gather at that season where food is plentiful, as many as fifty individuals having been found wintering together.

Migration

In appearance this Owl is a handsome bird. Its common name is very misleading, however, for the ear-tufts are quite inconspicuous. Both birds are tawny brown, marked conspicuously with stripes of varying shades of brown on the breast, the back and wings having a mottled appearance. The usual radial mask about the eyes is present in both

sexes, but the female is somewhat darker than the male. Owing to its long wings the bird looks, when flying, much larger than it actually is.

Most Owls feed more or less on small birds, and some, as the Great Horned, are so destructive in this way as almost to warrant their killing. The Short-eared is in this respect the best of the family, and all the evidence that is available points conclusively to its very high economic value, since, from all the data available, this Owl has about the cleanest record of any of the *Raptores*. Its food consists almost exclusively of mice, shrews, gophers, and other small rodents, with an occasional insect. From material gathered by the Biological Survey it appears that of one hundred and one stomachs examined seventy-seven contained mice, seven others mammals, seven insects, and only eleven contained traces of small birds. The examination of other stomachs showed that all contained

**A Good
Mouser**

the remains of mice or insects, and no remains of birds. This Owl being a great destroyer of small mammals, which are such a costly nuisance to the agriculturist, is deserving of the greatest protection, and should be especially included in all bird-protective measures.

Classification and Distribution

The Short-eared Owl belongs to the Order *Raptores*, Suborder *Striges* and Family *Strigidae*; its scientific name is *Asio flammeus*. It is nearly cosmopolitan, an almost identical species being found in the Old World. In America its range is given as breeding irregularly from the Arctic Coasts south to California, Colorado, southern Kansas, northern Indiana and Massachusetts; wintering from California, Wyoming, Ohio and Massachusetts south to Cuba and Guatemala.

THE PURPLE MARTIN

By WILLIAM DUTCHER

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 13

The Purple Martin and its Pacific Coast relative, the Western Martin, do not need a detailed description. The adult male is a lustrous blue-



MARTINS NESTING IN GOURDS

Photographed by Francis Harper



MARTINS NESTING IN HOUSE

Manufactured by J. Warner Jacobs

black, slightly duller on wings and tail. The adult female and the young of both sexes are grayish brown, glossed with steel-blue on the upper parts, but the under surface is dark gray, lightening into whitish on the belly. The Martin is about seven and one-half inches in length, but the great spread of its wings, from fifteen to sixteen inches, makes the bird look very much larger than it really is.

During summer the Martin has a very wide distribution in temperate North America; in autumn it migrates to the Tropics, where it spends the winter. There are eight species of this genus of the swallow family, all of them confined to America. Before the white man discovered and settled the western world, generations of Martins had made their annual journeys from their tropical winter homes to the temperate

parts of both continents. Their nests were then made in hollow trees or in caves, but these rude retreats have now been entirely abandoned, except among remote mountains. The red man, a true lover of nature, invited the cheerful Martin to remain about his lodge by erecting a pole on which he hung a hollowed gourd as an attractive nesting-place.

The Indian's Way

In the South it is still the practice to follow the Indian's example of putting up poles, from the tops of which are suspended by cross-bars a cluster of gourds, each pierced with an entrance-hole. Sometimes colonies of eight or ten pairs are collected for the season in this way.

The birds are considered of value to the raiser of poultry, in addition to the enjoyment of their cheerful chattering and short, snatchy songs, because of their readiness to attack any hawk or crow that comes to the neighborhood. Elsewhere, and throughout the North, houses, sometimes very ornate in design, are erected for the same purpose.

Does anything in the bird-world represent home-life and community of interest as well as a colony of Martins? Contentment, happiness, prosperity are there, and the cheerful social twitter of the Martins, and their industrious habits, are a continual sermon from the air to their

Social Joys

brothers of the earth. The only note of discord in one of these happy colony-houses is from the pugnacious English Sparrow, that covets the comfortable homes of the Martins, and tries to evict the rightful owners, and to substitute his harsh, disagreeable chatter for their pleasant voices.

The value of the Martin to the human race is very great. The birds are so preëminently aerial that their food necessarily consists of flying insects. Among these may be some of the dreaded species of mosquito that convey malarial and yellow fevers. Every mosquito, therefore, that is destroyed by a Martin, or, in fact, by any bird, lessens by so much the chance of the spread of fever-plagues. Human lives are sacrificed every year; vast sums of money are expended for investigation and prevention of yellow fever, yet in some localities where this scourge is found the Martin is not understood and appreciated as a preventive agency, as it should be. If one human life is saved each year through the

Destroys Mosquitos

destruction of fever-bearing mosquitos by the Martins, or by any other of the many mosquito-eating birds, it is a sufficient reason why the lives of these valuable birds should be sacred.

The Martin is known to feed on other injurious insects. Dr. Alpheus Packard found one of the compartments of a Martin-box "literally packed with the dried remains of a little yellow and black squash-beetle"; and "ten Nebraska specimens examined by Professor Aughey, had eaten 265 locusts and 161 other insects."

In portions of the northern range of the Martin it is undoubtedly decreasing in numbers, and the houses that once were animated by its welcome presence are now deserted.



PURPLE MARTIN

Order—PASSERES
Genus—PROGNE

Family—HIRUNDINIDAE
Species—SUBIS SUBIS

National Association of Audubon Societies

While their absence may partly be accounted for by the persecutions of the English Sparrow, and to mortality among the young birds occasioned by cold weather or prolonged storms during the nesting season, it is now known that their disappearance is in no small measure owing to their destruction in the South during their migration.

In an issue of the Charleston, South Carolina, *Post*, some time ago, the following item appeared: "The sport of shooting Bats [Nighthawks] and Martins is practiced every year all over the State, and thousands of these insect-destroyers are annually slain." The editor says: "The officers in many counties are looking out for violators of the bird-law and intend to stop the evil practice."

The Martins begin to prepare for their migration as the close of the summer approaches, and the young become strong of wing. They gather in restless flocks about steeples and tall trees, fluttering and twittering as if anxious to be off. Audubon has described their flight:

It is during these migrations, reader, that the power of flight possessed by these birds can be best ascertained, and more especially when they encounter a violent storm of wind. They meet the gust, and appear to slide along the edges of it, as if determined not to lose one inch of what they have gained. The foremost front the storm with pertinacity, ascending or plunging along the skirts of the opposing currents, and entering their undulating recesses, as if determined to force their way through, while the rest follow close behind, all huddled together into such compact masses as to appear like a black spot. Not a twitter is then to be heard from them by the spectator below, but the instant the farther edge of the current is doubled, they relax their efforts, to refresh themselves, and twitter in united accord, as if congratulating each other on the successful issue of the contest.

**Migratory
Flight**

The usual flight of this bird . . . although graceful and easy, cannot be compared in swiftness with that of the Barn Swallow. Yet the Martin is fully able to distance any bird not of its own genus. They are very expert at bathing and drinking while on the wing, when over a large lake or river, giving a sudden motion to the hind part of the body, as it comes into contact with the water, thus dipping themselves in it, and then rising and shaking their body, like a water spaniel, to throw off the water.

T. Gilbert Pearson, the Secretary of this Association, contributes the following story about Martins in North Carolina, and adds:

This is one of the wild creatures which increased rapidly with the advance of civilization in the United States until recent years, and its present decrease must in a large measure be owing to the persecution it is receiving to-day in many localities in the Southern States.

Martins are accustomed to gather in large flocks during the latter part of summer for the purpose of roosting in some favored grove. As

they journey southward, apparently, these flocks increase in size, and the writer has on several occasions watched the birds coming to their roosts in the evening in astonishing numbers, estimated at 100,000. They seem to prefer a grove, near a human habitation, for their nightly rendezvous. They create no little comment in the neighborhood because of their numbers, and by their noisy chatter and fluttering, particularly during the early part of the night. There is usually little prejudice against them, but not infrequently the people in the neighborhood make excuse that the birds are a nuisance, and shoot into the flocks when they come to roost.

At Wrightsville Beach, North Carolina, a great number of these migrating birds gathered, in the summer of 1905, and chose as their nightly roosting-place the grove of a summer hotel. The proprietor, wishing to rid himself of them, invited a number of his neighbors, who, lying in wait for the birds, fired into the trees and continued to shoot until the ground was literally covered with the dead and dying birds, and for days afterward wounded Martins could be found fluttering about the neighboring lawns and roadside. Estimates of the number of birds killed vary from 8,000 to 15,000.

On hearing of this tragic violation of the law the North Carolina Audubon Society sent out a warden to prosecute the offending parties, twelve of whom were convicted and fined in the local court. The warden, to prevent any further slaughter, arranged a number of tar-barrels to the windward of the grove and fired them in the evening, thus creating a dense smoke, which, drifting over the grove, drove the birds away, and they were not seen again. A citizen of the place said it had been very noticeable that since the appearance of Martins there had been less mosquitos than for many years previous, and he thought that the community would never again allow these valuable birds to be slaughtered in that locality.

With comparatively little effort, many persons could induce the Martins to spend the summer with them by providing suitable nesting accommodations for the little wanderers when in spring they come flying northward, and eagerly scan from the sky the yards and fields in the hope of finding some inviting place to tarry and build their nests.

Classification and Distribution

The Purple Martin belongs to the Order *Passeres*, the Suborder *Oscines*, and the Family *Hirundinidae*. Its scientific name is *Progne subis subis*. It is found in North and South America except on the Pacific Coast. It breeds from New Brunswick south to the Gulf Coast. It passes the winter principally in Brazil.

A subspecies, the Western Martin, *P. s. hesperia*, breeds from British Columbia to Cape San Lucas; its winter range is unknown.

THE BARN OWL

By WILLIAM L. FINLEY

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES
Educational Leaflet No. 14

Years ago, at the edge of a certain strip of wood, stood an old house, the chimney of which was so far gone that it was crumbling. The ivy that covered the side of the house spread its arms about the bricks as if to keep them from falling away. The children who lived in a cottage across the field had to pass this tumbled-down house on the way to and from school; and if they chanced to pass late in the afternoon they sometimes heard strange noises. Occasionally, as night came on, they saw shadows that moved like ghosts in and about the old house.



YOUNG BARN OWLS

Photographed by Finley and Bohlman

So, for many years, they were afraid of the old place, especially after night, for they thought that surely it was haunted. But the shadows that flitted in and out the old building were nothing but a pair of Barn Owls, and the weird screams that arose on the night-air were but the love-calls of these birds. The hissing, choking noises that sometimes issued from the rotting doorway were the hungry cries of downy owlets.

It is little wonder that a child shudders at the night call of an owl. It is a weird sound, like the wail of something lost, or the haunting cry of the night hunting its way back to day. Yet to one who understands the language of the owl, it is not at all uncanny. The musical whistle of the Screech Owl, the hoot of the Great Horned Owl, the scream of the Barn Owl, are all night-sounds that I love to hear. We live so much in the glare of the daylight that we are blind to many of the bird and animal folk that live in the dark.

For ages the owl has been regarded with superstition—an ill-omened bird of prey. Perhaps it is not unnatural, too, that we should dislike a fellow who is up all night and sleeping during the day. There is always a suspicion against a night-prowler, whether he be bird, beast, or man. Yet as long as we have a great army of ground-folk that ravage our gardens and orchards at night, we must have night-watchmen or policemen to keep these robbers in check. If the moles, gophers, mice, rats, and squirrels were given free rein, they and their children would take almost everything—in fact, would nearly eat us out of house and home.

To prevent such a calamity nature has put the owls on the night-shift, and splendidly has nature planned and equipped this bird for its life-work. The eyes and ears of the Barn Owl are not in the side of the head like those of a sparrow, but in front, like the eyes of a man. They are in the center of two circles of filmy feathers, with a hooked nose between, creating an expression unbirdlike yet not quite human, so that the Barn Owl is often said to be “monkey-faced.” The eyes are fitted as if with telescopic glasses to penetrate the darkness of the night. This vision is so sharp as to detect the slightest movement of a mouse. The ear-opening is large, and the hearing keen enough to catch the passing footsteps of tiny creatures. It is very likely an owl can hear a mouse even farther than it can see it.

The clothing of an owl is loose and fluffy, making the bird appear larger than it really is. The feathers are soft and fringed, so as to make flight noiseless. The claws are pointed like needles, and resemble the strength of a steel trap. They pierce the small ground-animals with little effort, and the hooked beak tears their flesh with ease. When an owl pounces upon a squirrel or rabbit the animal appears to be terror-stricken, and does not show fight. The owl strikes for the head and neck, as a general rule, and eats the head first.

Several years ago I had a capital chance to make an intimate study of a family of Barn Owls, which made their home in the gable of a neighbor's barn. A hole had been sawed just under the eaves and a box nailed on the inside for a pair of pigeons. The house did not suit the pigeons, so they moved, and the Barn Owls occupied the box the following year.

The old barn had no loft, but we secured a long ladder and climbed

Dread of Owls

The Owl's Equipment

The Owls in the Barn



BARN OWL

Order—RAPTORES
Genus—ALUCO

Family—ALUCONIDÆ
Species—PRATINCOLA

National Association of Audubon Societies

to the cross-timbers and there nailed two boards for a platform. Then we took the back out of the nest-box and fixed it so it would drop down and show the inside and afterward could be fastened up again. In this way we were able to get a picture of the four white eggs the nest contained.

We did not want to disturb the owls unduly so waited for a month before our next visit there, and then, when I had climbed into the gable, I found three of the funniest, fuzziest, "monkey-faced" little creatures that I had ever set eyes on. They blinked, snapped their bills and hissed like a box full of snakes. They bobbed and screwed around in more funny attitudes in a minute than any contortionist you ever saw. They were graded in size and height like the steps of a staircase.

**Comical
Owlets**

We crept out one night and hid in a brush-heap by the barn. Before long the scratching and soft hissing of the young owls told us that their breakfast-time had come. The curtain of the night had fallen. The day-creatures were at rest. Suddenly a shadow passed across the dimly lit sky. The young owls in some way knew of the approach of food, for there was a sudden outcry in the nest-box like the whistle of escaping steam. Again and again the shadow came and went. Then I crept into the barn and felt my way up to the box. As soon as food was brought I struck a match, and saw one of the half-grown young tearing the head from the body of a young gopher.

**Ravenous
Nature**

Owls are always hungry. They will eat their own weight in food every night, and more if they can get it. One half-grown owl was given all the mice it could eat. It swallowed eight one after another, and the ninth followed all but the tail, which for a time hung out of the bird's mouth. In a few hours this same bird was ready for a second meal, and swallowed four more mice.

To supply children as ravenous as that the parents ransack gardens, fields and orchards industriously, and catch as many mice, gophers and other ground-creatures as a dozen cats. For this reason it would be difficult to find birds that are more useful about any farming community. Yet many persons kill these owls because of ignorance of their value, or from idle curiosity.

The Barn Owl is not particular when he eats; he puts his feet on his game to hold it, then tears it to pieces with his hooked beak, swallowing the entire animal, meat, bones, fur, and all. The nutritious parts are absorbed in the stomach and the indigestible matter is formed into round pellets and disgorged. About any owl's roost or near its home one may often find these pellets in great numbers, and a scientist, by examining them, can tell exactly what the bird has been eating, and make an estimate of the size and number of that owl's meals.

**Evidence
from Pellets**

The best known record of this kind concerning food of the Barn Owl is that which was made from a pair that occupied one of the towers in the Smithsonian Institution at Washington. Dr. A. K. Fisher, who

is our greatest authority on the food of hawks and owls, collected and examined 675 pellets. This is what had composed the bill of fare of this owl family:

1,119 Meadow Mice	2 Sora Rails
4 Pine Mice	4 Bobolinks
452 House Mice	3 Red-winged Blackbirds
134 Common Rats	1 Vesper Sparrow
1 White-footed Mouse	10 Song Sparrows
20 Jumping Mice	4 Swamp Sparrows
1 Rabbit	1 Swallow
33 Short-tailed Shrews	1 Warbler
21 Small Short-tailed Shrews	6 Marsh Wrens
1 Star-nosed Mole	2 Spring Frogs
1 Brown Bat	

I have found the Barn Owl nesting in a variety of places. In well-settled parts of the country the home is often made in an old tower or belfry. I know of one pair that has lived for years in the tower of a court-house.

The town clock just below the nest must have been a nuisance at first during their day-sleep; but it was probably taken as something that could not be helped, much as we regard the clang and rumble of the street-cars under our windows at night.

Throughout the western part of the United States, in places where there are few habitations of man, the Barn Owl as a rule seeks a cave in some cliff or among the rocks, or lives in a hollow stump. Four to six eggs are laid, as a rule, but sometimes as many as nine or ten are found in a single nest. They are white, globular, and about the size of the eggs of a bantam hen.

Classification and Distribution

The Barn Owl belongs to the Order *Raptores*, the Suborder *Striges*, and the Family *Aluconidae*. Its scientific name is *Aluco pratincola*. It is found locally throughout the greater portion of the United States; only rarely, however, in the extreme northern and southeastern parts. It also ranges throughout Mexico. It is not migratory.

YELLOW-BILLED CUCKOO*

By T. GILBERT PEARSON

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES
Educational Leaflet No. 15

One cloudy autumn afternoon, while strolling along a woodland path, I heard a weird, mournful voice plaintively calling for many minutes. The sound seemed to come from a cluster of trees on the farther side of a glen. After a little time I went near to the sorrowing creature, and found it seated on a drooping bough of an old, gnarled oak. It was a Yellow-billed Cuckoo.



NEST AND EGGS OF CUCKOO
Photographed by B. S. Bowdish, at Demarest, N. J.

Some of our birds had already departed for their winter visit to the tropics, but the Cuckoo still tarried in its summer home. It seemed to feel the solitude of the autumn forest, and although its voice is seldom heard at this time of year, it was now chanting its plaintive cry as if its heart was breaking at the thought that summer was over. It was sitting crosswise on the limb, and was motionless except for a slight upward impulse of the body every time it called.

*From Stories of Bird Life. Reprinted by permission of the publishers, The B. F. Johnson Publishing Company, Richmond, Virginia.

As the bird did not see me at first, I had a good opportunity to notice its appearance. It was about the size of a Robin, but was more slender; its long tail measured more than half the entire length of the bird. Its legs were short, and its small feet grasped the limb on which it sat, with two toes extending outward in front, and two behind, instead of the ordinary arrangement among perching-birds of three toes in front and one behind. The bird's back and wings were olive-brown, and its underparts were dull whitish. The outer tail-feathers were black, with white tips. Its bill, which appeared to be nearly an inch long, was black above and yellow beneath.

Plumage

Soon the bird detected the presence of an intruder. For a few moments it eyed me, as the Cuckoo often will do, in a dazed kind of way, all the time slowly raising and lowering its long tail; then it flew swiftly away and vanished through the foliage. It could not have gone very far, for, as I continued along the path, there came to my ears from the distance the faint, murmuring *cow, cow, cow* of the sad, mysterious bird.

The Cuckoo always leads a secluded and seemingly mournful life. If we chance to see it at any time while it is with us, from May to October, it will most probably be observed silently slipping from the cover of one tree or thicket to that of another, usually alone, and frequently uttering the harsh guttural note from which it long ago acquired the name Rain Crow. I never have understood why it should be called a Crow, however. Certainly, it does not resemble the Crows in our country, either in voice, appearance, or manner of life.

The Cuckoo is often heard calling on cloudy days, or just before rain, and for this reason it is usually credited with the power for foretelling a coming shower. It cannot sing; but it has some notes peculiarly its own, which, once heard, are not easily forgotten. *Tut-tut, tut-tut*, it seems to say; *cl-uck—cl-uck, cow, cow, cow*.

In Europe and western Asia there is another kind of Cuckoo. It is larger than our bird of that name, and, besides, is a very pretty singer. It is not shy, so that a great many people are acquainted with its habits. It was well known when the Bible was written, and you can find its name in the list of animals which the Children of Israel were forbidden to eat. Shakespeare, in one of his plays, tells us about the Cuckoo's young, and other English poets speak of its singing. The earliest English lyric poem begins in this way:

Europe's Cuckoo

Summer is i-cummen (coming) in,
Lhude (loud) sings cuccu;
Groweth sed (seed)
And bloweth med (mead)
And springeth the wde (wood) nu (now)
Sing cuccu.

Of all the tales told of European birds, the one relating to the nesting-habits of the Cuckoo must reflect the least credit on the accused. In the spring, when the nesting-time for birds arrives, it does not build

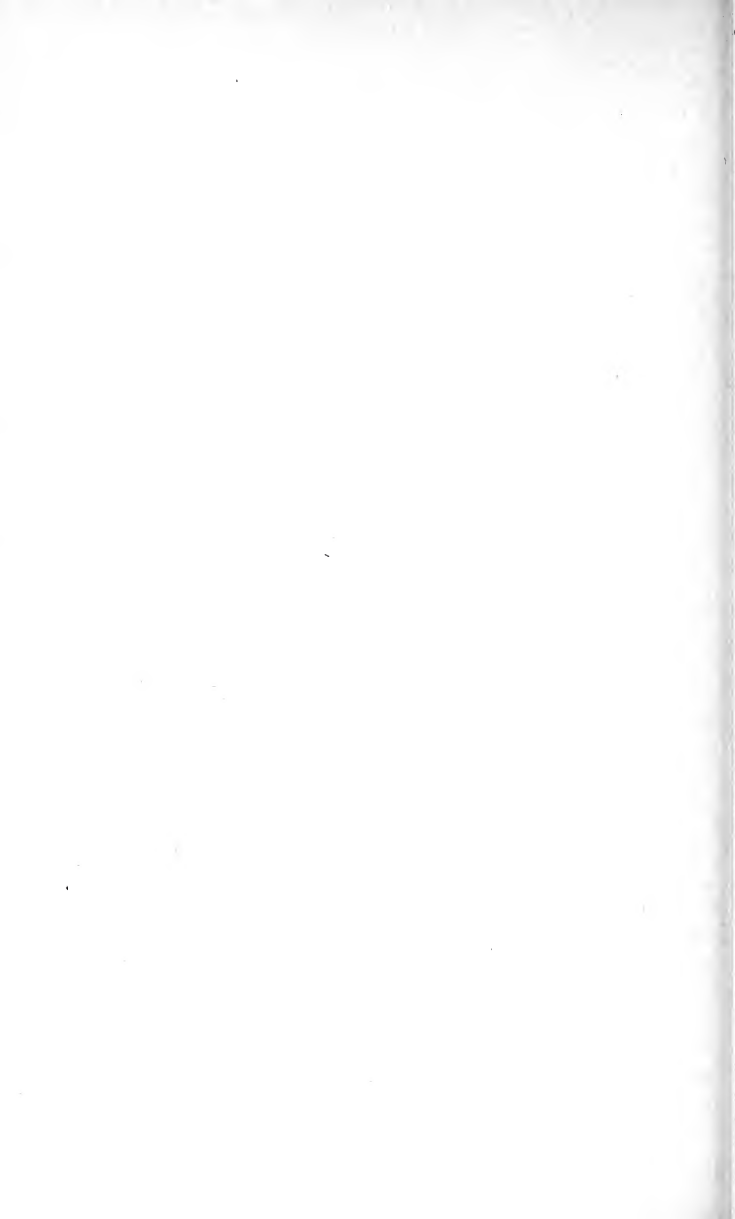


YELLOW-BILLED CUCKOO

Order—COCYGES
Genus—COCYZUS

Family—CUCULIDÆ
Species—AMERICANUS

National Association of Audubon Societies



a nest for itself, but quietly steals away and deposits its eggs secretly, one at a time, in the nests of other birds. There the eggs are incubated and the young are reared by foster parents. While the Cuckoo thus saves itself the labor of building a nest, and the anxiety of caring for its young, it suffers from an unpleasant notoriety possessed by few other birds. In this country the black Cowbird has the same parasitic habit.

Our Yellow-billed Cuckoo has learned the art of nest-building but poorly, the cradle in which the young are reared being little more than a mere platform of twigs. Indeed, so thin and frail a structure is it that often the eggs may be counted through the nest from beneath. It is usually placed on the sheltered limb of a tree or among thick vines in hedge-rows growing along streams, and in orchards or groves. The eggs are nearly an inch and a quarter long, and about three-fourths as wide.

Nest and Eggs

They number from two to four, and in color are greenish-blue. Many birds lay their eggs, one each day, with great regularity, until the full number has been reached. The Cuckoo, however, often allows a few days to pass after she begins sitting on some of the eggs before the others are deposited. Thus a young bird, an incubated egg, and a freshly laid egg are sometimes found in the same nest.

Among the branches of our fruit-trees we may sometimes see large webs which have been made by tent-caterpillars. An invading host appears to have come and pitched its tents among the boughs on all sides. These caterpillars are destructive to trees, and the Cuckoos do us a great service by coming often to raid the encampment. They pull the little hairy intruders out of their tents by hundreds and eat them. So many are eaten by these birds that often their stomachs are found to be thickly coated with a layer of caterpillar-hairs. Cuckoos also eat grasshoppers and various kinds of flies.

The Biological Survey of the United States Department of Agriculture has, for many years, been studying the feeding-habits of wild birds, with the object of determining their relationship to mankind. Dr. F. E. L. Beal, of this Bureau, in his paper on the relation of Cuckoos to agriculture, says:

Great Utility

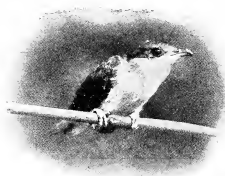
"The insect-food of Cuckoos consists of beetles, grasshoppers, cicadas, bugs, ants, wasps, flies, caterpillars, and spiders, of which grasshoppers and caterpillars constitute more than three-fourths. In 129 stomachs examined, 2,771 caterpillars were found, or an average of 21 in each. In May and June, when tent-caterpillars are defoliating fruit-trees, these insects constitute half of the Cuckoo's food. One stomach was so full that the bird had evidently devoured the whole tent-colony, as there were several hundred in the stomach. This diet of hairy caterpillars has a curious effect on the bird's stomach, the lining of which is often pierced by so many hairs as to be completely furred, the membrane itself being almost entirely concealed. It seems hardly possible to overestimate the value of the Cuckoo's work. All caterpillars are harmful, many of them

are pests, and any of them is likely to become so. The common tent-caterpillar formerly fed on the wild cherry, but has now turned its attention principally to apple-trees, sometimes completely defoliating them."

In some parts of the United States, especially in the South, the surface of the country is fairly level and the soil is of sand. Large tracts of pine-woodland, sometimes with no other kinds of trees growing near, occupy much of the sparsely settled land. In these pine-forests the Cuckoos are seldom seen; and in such regions, if we wish to find them, we must search by the lakes and along the streams where other kinds of trees are growing, or else among the shade-trees of a town.

Classification and Distribution

The Yellow-billed Cuckoo belongs to the Order *Coccyges*, the Suborder *Cuculi*, the Family *Cuculidæ*, the Subfamily *Coccyzinae* and the Genus *Coccyzus*. Its scientific name is *Coccyzus americanus americanus*. The bird occurs in summer throughout the eastern and central United States from southern Canada to northern Florida and Louisiana. It passes the winter in South America. There is a subspecies, the California Cuckoo (*C. a. occidentalis*), which is a little larger than the eastern form, but otherwise very similar; it is found in summer in the Rocky Mountains, and on the Pacific Coast from British Columbia southward to the Mexican plateau.



A YOUNG YELLOW-BILLED CUCKOO

Photographed by Edward Van Altena

THE TREE SPARROW

By F. E. L. BEAL

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 16

Few persons are aware what hosts of birds spend the winter in the northern and colder States of the Union. The writer's list of winter birds in Iowa included more than 40 species, and these were estimated to be fully as numerous in individuals as in summer. The reason for this is found in the wonderful supply of food that nature has provided and stored, and which is available in the winter, when insect-life is at an end, or is hidden from all birds except a few favored species that know just where to find it. Persons unacquainted with the fertility of the Missis-



A TREE SPARROW AS A WINTER GUEST

Photographed at Rutherford, New Jersey, by Clarence D. Brown

sippi Valley can hardly conceive of the immense growth of weeds there every year, wherever they are undisturbed by cultivation or other hindering causes. By the roadside, at the margin of the woods, along fences and in corners where the plow does not reach, and especially on uncultivated fields, the growth of this, Nature's grain, is remarkable. Large as is the grain-crop of some of the Northwestern States, it is probable that the yearly unharvested crop of weed-seeds holds a close second. Moreover, these seeds are richer in fat-producing elements than are grains, being more oily and less starchy, particularly the seeds of the ragweed, one of the most abundant and troublesome of the list.

A little before the first of October the guests for whom this banquet

has been prepared begin to arrive from the north. They include many species, and one of the most numerous is the Tree Sparrow. The name of this bird seems to the writer to be a mistake, for this sparrow is more often seen in weed-patches and bushes than in trees, and it builds its nest on or near the ground. In Iowa, which may be considered as its center of abundance when in the United States, I have seldom seen one on a tree.

This little, inconspicuous, gray-brown bird is much like a Chipping Sparrow, but a trifle larger, and distinguished easily by the dusky spot in the center of its otherwise unspotted, ashy breast. It has done its nesting in the far north and now, with wife and children, cousins and aunts, has come south, not in search of a milder climate, but to find food to sustain life over the winter, where the taller weeds will not be covered by snow, and their seeds may easily be obtained. The Tree Sparrow and Snowbirds (*Junco*) swarm into the waste fields and patches I have mentioned, and take up their abode for the winter, where they may be found throughout the season unless the situation be too much exposed to the wind.

I recall one instance where a rather extensive piece of the prairie was covered with a dense growth of weeds. The situation was rather exposed, but the land sloped down to a creek, along which was an abundant growth of trees and bushes. Here were almost ideal conditions for a winter residence for the Tree Sparrow and its allies. The prairie afforded food during the day, and the trees and bushes gave shelter at night. On several occasions I visited the place just before sundown of a winter day, and watched the birds as they came in from their day's foraging. For an hour or more there was a continuous flight from the high prairie to the wooded bottom-land by the creek.

Often on a winter's morning, after a blizzard, when the thermometer was showing from 25 to 30 degrees below zero, I have visited the weedy hedges along the fences to see how it fared with the sparrows, and have found the whole patch alive with birds, all twittering and apparently as happy and comfortable as they would be in a hedge of roses on a morning in June. On such occasions the newly fallen snow would be covered with chaff and seed-hulls that the birds had scattered about in getting their breakfast from ragweed and foxtail.

If one of these birds be killed and skinned the searcher will find no poor, half-starved specimen, but a perfect ball of fat. Between the skin and the flesh of the body will be found a layer of fat constituting a set of under-flannels from an eighth to a fourth of an inch in thickness all over the bird's body. It is evident that it is this layer of fat which protects the bird from the terrific cold that it is called upon to endure. When one has had experience of the cold of some of the dry Northwestern States, has faced the wind that sometimes blows there in winter, and realizes how difficult it is to keep up his circulation and so sustain bodily

**Food in
Waste Places**

**Fat and
Happy**



R. BRUCE HORSFALL
1913-

TREE SPARROW

Order—PASSERES
Genus—SPIZELLA

Family—FRINGILLIDÆ
Species—MONTICOLA

National Association of Audubon Societies

heat, he will be lost in wonder at the fact that these minute creatures not only stay alive but apparently, keep comfortable and do not suffer in any way.

With the object of getting some reliable facts as to the food of this sparrow in winter I once killed several and examined the contents of their stomachs. In the first lot taken the entire food consisted of weed-seeds, ragweed (*Ambrosia*) and foxtail (*Chætochloa*). A short time later another collection gave the same result; still later a third lot was taken, and still their stomachs contained nothing but weed-seed, and it was soon evident that to continue killing them would be a wanton waste of life, as the food in the stomachs was substantially the same in all.

**A Diet of
Seeds**

Probably the bird itself eats insects, as well as feeds them to its young, during the nesting-season; but no stomachs have been taken at that time, and, as the bird breeds mostly, if not entirely, north of the United States, we have no notes of its food at that season.

Where a bird subsists so extensively upon a single article of diet it is evident that it must make serious inroads upon the total amount of that particular food. In this case it is a drain from a definite, though unknown supply, not one that is constantly increasing as fast as drawn upon, like insects in summer. In order to gain some definite notion as to the actual amount of weed-seed eaten, notes were taken on the probable amount eaten every day by one bird, the number of birds of this species in the State, and the number of days of their stay. In this case the State of Iowa was the one under consideration.

It is my opinion that Iowa contained areas of considerable size where the Tree Sparrows were distributed at the rate of 1,000 to the square mile, but probably not all of the State was populated at that rate. To be well within safe limits, an average of ten birds to the square mile was allowed. Observation indicated that each sparrow would eat not less than one-fourth of an ounce of seed daily, and that the birds spent an average of about 200 days in the State.

**A Vast Total
Eaten**

from their arrival in October till their departure for their northern home in April. Putting this data together, it appears that this one kind of bird must be credited with the yearly destruction, in Iowa alone, of 1,750,000 pounds, or 875 tons, of weed-seed. If this were loaded upon freight-cars at the ordinary load of 12 tons to a car it would make a train of 72 cars and leave a little over.

These figures seem remarkable, but in my opinion they could be multiplied by four with perfect safety.

The Tree Sparrow, however, is not confined to the western interior for its winter home, but is found all along the northern United States from ocean to ocean. It is true that the eastern and more wooded States do not afford so rich a supply of food as do those of the Mississippi Valley, but weeds enough are left by farmers everywhere, together with those by roadsides and waste places, to supply a good many birds; and

every year sees winter birds in the East as happy and contented as though among summer fruits and flowers instead of snow and ice. In the eastern part of the country, however, the Tree Sparrow is found in bushes on the edge of woodland, or along the fence-lines and by the roadside, as the extensive weed-patches of the West are rarely found in the East.

In considering this bird's food-habits one is apt to wonder where it gets its water. On the western prairies the thermometer stands far below the freezing-point for many weeks at a time, and in Iowa, at least, the ground is often bare of snow for most of the winter, so that the bird is not able to procure this as a substitute, even if one can imagine any creature relieving its thirst by eating ice or snow when the temperature is 25 degrees below zero.

The heavy snows of the East often bury the food of the seed-eating birds out of their reach, and then they are sadly put to it for means of subsistence. At such times they will come about houses and gardens where some unusually tall weeds project above the snow and give them a dinner; or they will visit the stock-yard where hay has been fed to cattle, and in the scattered chaff they will find a banquet quite to their taste.

At my New England home I used to place a bed of chaff upon the snow, in full view from some favorite window, into which corn or other grain was strewn to attract the Blue Jays, whose bright plumage and sprightly, saucy manner did much to enliven an otherwise rather monotonous landscape. The Tree Sparrows were not slow to take advantage of these food-supplies, and often watched the place till the Jays left, and then took possession of the bed, from which they gathered seeds of hay and weeds, scratching industriously with their feet till the looked-for seed was found.

It is difficult to conceive of a more harmless bird than the Tree Sparrow. It eats no grain and does not prey upon fruit—in fact it is not in the region when grain and fruits are available for food. Perhaps, therefore, it is not necessary to recommend this bird to protection, for nobody seems to have any desire to harm it. Long may it enjoy this immunity!

Classification and Distribution

The Tree Sparrow is classified as belonging to the Order *Passeres*, the Sub-order *Oscines*, and the Family *Fringillida*. Its scientific name is *Spizella monticola monticola*. It breeds in the central Canadian Provinces, and winters from southern Minnesota and the Maritime Provinces south to eastern Oklahoma and South Carolina; but those of the Rocky Mountains and the Pacific Slope are regarded as a variety called Western Tree Sparrow (*s. m. ochracea*).

THE GOLDFINCH

By WILLIAM DUTCHER

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 17

The Goldfinch, known also as the Yellowbird, Wild Canary, Lettuce Bird, and Thistle Bird, is one of the most striking species of our common birds. The English name Goldfinch is well chosen, as the bright yellow



NEST AND EGGS OF THE AMERICAN GOLDFINCH
Photographed from nature by C. William Beebe

of the male, when in breeding-plumage, is like burnished gold. The female Goldfinch is more modestly dressed than her mate.

Goldfinches are wee birds, about four and one-half inches in length, but what they lack in size they make up in admirable qualities, one of the chief of which is their sociable method of life. Except during the short season devoted to domestic duties they associate in flocks, and

live a happy, nomadic existence. Their undulating mode of flight expresses joy and exultation, and their singing seems the voice of contentment and happiness. Even in winter, when the fields are brown and the trees are bare, a flock of Goldfinches adds the charm of life to an otherwise dead outlook.

The Goldfinch migrates, but not to the extent that the truly migratory species do. Most Warblers, for instance, desert their summer homes, and, making long journeys, spend the winter beyond the United States; Goldfinches move southward from the snowy North only, so that in winter they may be found in most of the States south of the Great Lakes and Connecticut. Their breeding-range embraces all the United States north of about the 35th parallel of latitude, as far west as the Rocky Mountains, and northward throughout the civilized regions of Canada. Several closely related races or subspecies of the Goldfinch dwell in the West, and on the Mexican border, but they are so much like the eastern one that it may be said Goldfinches are found in a large part of North America.

Goldfinches are very cleanly in their habits, indulging frequently in baths. The border of a shallow pool is therefore an excellent place to study this species. During the breeding-season, indeed, each pair seems to have a well-defined route from the nest to a common watering-place.

An evergreen or a deciduous bush or tree may be chosen as a residence, and the nest may be near the ground, or at a considerable height, lodged safely within forking twigs. The nest itself is an exquisite piece of bird-architecture, compactly built of dried grasses, leaves, and strips of bark, and especially of shredded hempen materials. The inside of the nest is lined with the softest plant-down. The structure is sometimes so solidly built that it will hold water like a cup. The mother-bird is the builder of this tasteful home, her handsome consort, during the nest-building time, devoting most of his time and strength to singing, which, doubtless, cheers his industrious mate. After the four to six bluish-white eggs have been laid the singing partner has more work to do, for he has to feed his brooding wife. His frequent visits are always announced with a sweet conversational song, which he seems able to give even when his bill is filled with seeds.

These leaflets are published to induce the boys and girls of the country to keep their eyes wide open and see things out of doors. One of the things we want to know is why Goldfinches nest so late in the season, after most birds are done with domestic duties. July and August are the months most of them choose for this purpose. Surely, it seems a strange season for nest-building and the care of young! Do they select this time because, before that date, nature has not provided food suited to the needs of their nestlings?

The Goldfinch is extremely fond of the seeds of thistles—a most

Partial Migration

Nest and Eggs

Why so Late?



GOLDFINCH

Order—PASSERES
Genus—ASTRAGALINUS

Family—FRINGILLIDÆ
Species—TRISTIS

National Association of Audubon Societies

noxious weed. His singing continues from early spring until late in August. Does he postpone housekeeping until thistle-seeds are ripe enough to eat?

The seasonal changes in plumage of the male are very interesting, and, to the novice, somewhat puzzling. Until the student becomes acquainted with this bird, he may wonder why he sees no males during the winter. The truth is that at this season the flocks of Goldfinches are really composed of both sexes, the male bird having assumed, when he molted his summer dress in October, a plumage so closely resembling that of the female that in winter both sexes and all ages look very much alike.

**Winter
Plumage**

The male retains this inconspicuous dress until late in February, when one may notice a gradual change taking place in some of the birds. This is owing to the molt, or renewal of feathers, which is continued through March and April, until, by the first of May, our resplendent bird is with us again. The change from yellow to brownish, and back again to yellow may be noted by the student in the field, by the aid of his field-glass, and he will find that the gradations in coloring between the two extremes are very numerous.

The agriculturist should be interested in this bird. Every thistle along the highway is a prolific source of future trouble; but, when you see it ornamented with an animated bit of gold and black, you may know that nature is interposing one of her potent checks to the too-rapid increase of weed-pests. Every Goldfinch saves the farmer much hard work by destroying weed-seeds, which form the bulk of the bird's food-supply; and during the breeding-season it also gives its young considerable animal food, consisting of insects of various kinds, many of them highly injurious to crops and fruit.

In spring, if dandelions are permitted to go to seed on the lawn, or in the garden near the house, it is probable that you will be rewarded by seeing some of these brilliant yellow-and-black birds come bounding by your home to gather these seeds. Alighting near its food, or even bending down the dandelion's stem by its own weight, every Goldfinch will enjoy its repast.

**Persistent
Seed-eaters**

If the sight of these birds affords you pleasure you can have the joy of seeing them again later in the summer. Allow some of the lettuce plants in your garden to blossom and bear seed, and the birds will pay you another visit. They also enjoy the seed of the sunflower, coreopsis, zinnia, and other plants, which, with slight encouragement, will grow in any odd corner of your grounds. One of the best ways to attract any wild bird about the house is to provide it with food; and everyone should think well of the Goldfinch, and ever stand ready to protect it should its life be threatened by a cat or a thoughtless person.

While the Goldfinch is essentially a weed-eating bird, its value to man is not alone dependent on its destruction of these noxious plants. The food of the young consists largely of plant-lice, caterpillars, grasshoppers and beetles, nearly all of which are extremely harmful insects.

In spring, the birds often visit the orchards and destroy canker-worms. In grain-fields they devour the Hessian fly, and, in winter, they eat thousands of eggs of plant-lice; one observer found 2,200 eggs of the white-birch aphid in a single stomach. Another noted a flock of forty Goldfinches systematically examining larch-trees, working from the top to the lower branches in search of the eggs of a plant-louse that frequents larches.

**Hunting
Insects**

Classification and Distribution

The Goldfinch belongs to the Order *Passeres* and the Family *Fringillidae*—the Finches. Its scientific name is *Astragalinus tristis*. It ranges through eastern North America, breeding from southern Manitoba, central Quebec, and Newfoundland southward to eastern Colorado, southern Oklahoma, and northern Georgia, and wintering from southern Ontario southward to the Gulf Coast. The subspecies are *A. t. pallidus*, of the Rocky Mountain plateau, and *A. t. salicamans*, of the Pacific Coast.



GOLDFINCHES IN THE MAKING

THE CARDINAL

By WILLIAM DUTCHER

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES
Educational Leaflet No. 18

The Cardinal is one of that group of large finches called Grosbeaks, that is, "great beaks"; and it is among the most brilliant of American birds. The name refers to its color, which is that deep red, somewhat less vivid than scarlet, that distinguishes the cassock of a cardinal—an ecclesiastic of high rank in the Roman Church. More generally, however, the bird is called Redbird, or in some places Winter Redbird; and



NEST AND EGGS OF THE CARDINAL

Photographed in Central Park, New York City, by B. S. Bowdish

it is known in Europe, and among dealers in cage-birds, as the Virginia Nightingale. James Lane Allen, by the title of his novel, "The Kentucky Cardinal," has spread this grosbeak's fame all over the English-reading world.

The accompanying plate shows the Cardinal's most prominent features—a very large, strong bill, a conspicuous crest, which may be erected or depressed at will, short, rounded wings, and a long tail. The female, while not so conspicuous as her mate, is clad in rich brown, with just enough red to light it up well. They are, indeed, a handsome pair. The plumage remains much the same at all seasons of the year.

Cardinals are not migratory, but remain all the year round wherever they are found; and this means all over the southern half of the United States. The northern limit of the range of the species is approximately the fortieth parallel of latitude as far west as the dry plains, where the limit turns south through Texas to northern Mexico.

Habitat In the remote Southwest, and thence through Mexico to Honduras, the species is represented by several subspecies showing a greater intensity of color than even our birds may boast.

Here and there, however, Cardinals have made their home north of the line described, as for example, in the parks of New York City, encouraged by protection and plentiful food; and they have occasionally been noted as far north as Nova Scotia and southern Ontario. Some of these far wanderers were probably escaped cage-birds. Alexander Wilson says in his "American Ornithology," which was published in 1828: "This is one of our most common cage-birds, and is very generally known, not only in North America, but even in Europe; numbers of them having been carried over to France and England, in which last country they are usually called Virginia Nightingales."

It is true that in former times, and until recently, large numbers of Cardinals were caught in traps, or were taken from the nest when young, and sold to bird-dealers to be sent to foreign countries as cage-birds; but this traffic has now been stopped, owing to the generous efforts of the National Association of Audubon Societies. The Audubon Law, which is now in force in all the States where the Cardinal is found, prohibits all traffic in these birds, and forbids their being shipped from any State.

**Once a
Cage-Bird**

The Cardinal is too beautiful and valuable a bird to be confined within the narrow limits of a cage, where its splendid spirit is soon broken by its unavailing attempts to escape. Mrs. Olive Thorne Miller, in one of her popular sketches of bird-life, says of a captive Cardinal: "He is a cynic, morose and crusty." Such a character cannot be attributed to the Cardinal when it is at liberty. Its wild, free song, its restless activity and its boldness, are the antitheses of a depressed cage-captive. Even when it receives the best care from its human jailer, it is still a prisoner confined in a space so small that it never has an opportunity to stretch its wings in flight, nor can it ever bathe in the bright sunshine or view the blue skies above it. The whispering of the winds through the sylvan shades is lost to the captive forever. Is it strange that the nature of this wild, free spirit changes?

**A General
Favorite**

In the South, where the Cardinal is one of the most abundant birds, it is a special favorite, rivaling the Mockingbird in the affections of the people. It is commonly found in towns as well as in rural districts.

The female bird builds the nest, which is loosely constructed of leaves, bark, twigs, and shreds of grape-vine, and is lined with dry



CARDINAL

Order—PASSERES

Family—FRINGILLIDÆ

Genus—CARDINALIS

Species—CARDINALIS

National Association of Audubon Societies

grasses. The nest is placed in leafy bushes or vines, usually from eight to ten feet from the ground. Three or four white eggs, speckled with brown, are laid, and it is probable that in the South two broods of young are raised each season by most pairs. The home life of Cardinals is a pattern of domestic felicity, so true are the sexes to each other; even in winter they seem to be paired, for a male and a female are always seen together. During the season of incubation the tender solicitude of the male for his mate is strikingly shown. His anxiety that the home and its inmates should not be discovered excites him so much that sometimes he actually leads the visitor to the nest in an attempt to mislead him.

Domestic Habits

When the bird finds that his nest is in imminent danger of being molested he may become very bold in its defence.

The song of the male Cardinal is strong and clear, with a melodious ring—*What cheer! What cheer!*—winding up with a peculiar, long-drawn-out *e-e-e*. Contrary to the usual custom in bird-families, the female Cardinal is an excellent singer, although her notes are in an entirely different key from those of her gifted mate—lower, and to some ears more sweet and musical.

John James Audubon's book, "American Ornithological Biography," is found at the present day only in the largest libraries, and consequently is so inaccessible to many readers that Audubon's description of the song of the Cardinal may well be quoted in full:

Its song is at first loud and clear, resembling the finest sounds produced by the flageolet, and gradually descends into more marked and continued cadences, until it dies away in the air around. During the love-season the song is emitted with increased emphasis by this proud musician, who, as if aware of his powers, swells his throat, spreads his rosy tail, droops his wings, and leans alternately to the right and left, as if on the eve of expiring with delight at the delicious sounds of his own voice. Again and again are those melodies repeated, the bird resting only at intervals to breathe. They may be heard from long before the sun gilds the eastern horizon to the period when the blazing orb pours down its noonday floods of heat and light, driving the birds to the coverts to seek repose for a while. Nature again invigorated, the musician recommences his song, when, as if he had never strained his throat before, he makes the whole neighborhood resound, nor ceases until the shades of evening close around him.

Audubon's joy in the Song

Day after day the song of the Redbird beguiles the weariness of his mate as she assiduously warms her eggs; and at times she also assists with the modesty of her gentler sex. Few individuals of our own race refuse their homage and admiration to the sweet songster. How pleasing is it, when, by a clouded sky, the woods are rendered so dark that, were it not for an occasional glimpse of clearer light falling between the trees, you might imagine night at hand, while you are yet far distant from your home, how pleasing to have your ear suddenly saluted by the

well-known notes of this favorite bird, assuring you of peace around, and of the full hour that still remains for you to pursue your walk in security! How often have I enjoyed this pleasure, and how often, in due humbleness of hope, do I trust that I may enjoy it again!

This song is heard all winter in the more southerly States; and at that season the Cardinals often collect in flocks which roam together through the swamps and thickets, or, when the weather is severe, come into a village or about a farm-house in search of the food then hard to obtain in snowy woods.

This is one of the comparatively few native birds that may be induced to come to an artificial feeding-place near a house. Many persons attach shelves to their window-sills, where birds may be fed; and the Cardinal may be taught that it is safe to come and get his share of the good things spread by the kindly hands of these bird-lovers. In the Central and Southern States this device is quite worth while, not only as a kindness to the birds, but as a means of acquaintance with them, as the birds may thus be brought so close that observers within the house have ample opportunities to see and study them at short range.

Friendly Ways

Frank A. Brown describes in *Bird-Lore* for May-June, 1909, an instance of a Cardinal remaining at Ipswich, Massachusetts, through the winter. As the days became warmer the bird began to sing a little and make trips, lasting a day or two, away from the clump of spruce-trees which had been its winter headquarters; and a dish of food set out for it was regularly visited by the Cardinal three or four times a day. Visitors came from a distance of thirty or forty miles to see this bird.

In addition to the great esthetic value of its song and plumage, the Cardinal has another important character which should endear it to the husbandman. Its natural food is varied, consisting of wild fruits, such as grapes, mulberries, cedar-berries, and the seeds of grasses and of many species of weeds; but beetles, grasshoppers, crickets, flies, ants and their larvæ, and other insects, mostly of injurious sorts, are eaten or are fed to its young. It is especially fond of rose-bugs.

The Cardinal is, therefore, a bird of great interest and value from every point of view, and any person who makes its intimate acquaintance will form a life-long friendship.

Classification and Distribution

The Cardinal belongs to the Order *Passeres*, Suborder *Oscines*, and Family *Fringillidæ*. Its scientific name is *Cardinalis cardinalis cardinalis*. It ranges normally east of the plains from southeastern South Dakota, northern Indiana, and the southern part of the Hudson Valley south to the Gulf States. The subspecies are the Arizona Cardinal (*C. c. superbus*) of southern Arizona and adjoining parts of Mexico; the San Lucas Cardinal (*C. c. igneus*) of Lower California; the Gray-tailed Cardinal (*C. c. canicaudus*) of central and southwestern Texas; the Florida Cardinal (*C. c. floridanus*) of Florida; and others dwelling in Mexico and Central America.

This and other Educational Leaflets are for sale, at 5 cents each, by the National Association of Audubon Societies, 1974 Broadway, New York City. Lists given on request.

THE BELTED KINGFISHER

By WILLIAM DUTCHER

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 19

The Kingfishers are as large, attractive, and curious a family of birds as are their relatives, the Cuckoos. They are distributed over the greater part of the globe, but are most numerous in the tropics. All are characterized by beauty of plumage, and by interesting and varied habits.

The common Kingfisher of Europe, with its blue-green upperparts and its rich chestnut breast, is an example of the striking plumage of this family.

Among the many legends connected with the European Kingfisher, one relates that originally it was somberly clothed; but that a Kingfisher was liberated from Noah's ark and flew toward the setting sun, whereupon the sky was reflected from its back, while its breast was scorched by the rays of the sun, and ever afterwards its plumage showed the colors of the evening sky.

**Classic
Legends**

Another beautiful old fable is that Alcyone, daughter of Æolus, grieved so deeply for her husband, who had been shipwrecked, that she threw herself into the sea, and was immediately changed into a Kingfisher, called *Halcyon* by the ancient Latin-speaking people.

Pliny says: "Halcyons lay and sit about midwinter when daies be shortest; and the time whiles they are broodie is called the halcyon daies; for during that season the sea is calm and navigable." Even now the adjective "halcyon" represents calm and peaceful days devoted to pleasant outings in woods or fields or along ocean-beaches, or to paddling up some quiet river, all the while learning to know the trees and wild flowers, and the songs and forms of birds.

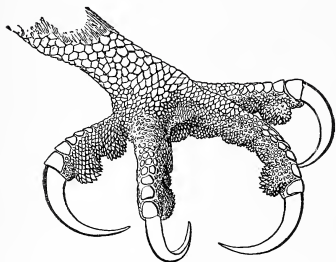
Such are the restful days when school and work are thrown aside, and the tired brain and body drink in great draughts of life and vigor. It is then that we see our own Belted Kingfisher perched on some twig overhanging the water. It sits as motionless as though carved from stone until its watchful eye sees a fish in the water below it, when it dives for its prey and disappears entirely beneath the surface. It rarely misses its aim, and when it reappears a wriggling fish is seen held in the bird's powerful beak.

**A Watchful
Pose**

The fisherman then flies back to its perch, and, after beating its captive on the limb until it is dead, swallows it head first. Sometimes the fish darts out of reach before the bird reaches even the surface of the water; and in that case the Kingfisher skilfully changes its course, and

with an upward sweep resumes its former position. Or, during a flight over a stream, the keen eye of the Kingfisher may discover a fish, when it will stop suddenly in its course and hover with extended wings over the spot for a few seconds, then dive with the same ease and accuracy as it did from a perch. The Kingfisher also plunges into the margin of the sea to catch salt-water fishes.

The only implement the Kingfisher needs in procuring its food is



FOOT OF OSPREY



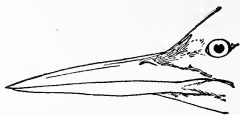
FOOT OF KINGFISHER

its large, powerful, and sharp-edged bill. With this it seizes its prey, whether it is a slippery fish beneath the surface of the water or an insect on the land. Its feet are so small and weak that they are of no service in grasping or holding active prey.

Contrast the implements of the Kingfisher with those of that other great fisher, the Fish Hawk, or Osprey. Were the Osprey to plunge head first into the water for its prey, as the Kingfisher does, it would never succeed, for its hooked bill is not adapted to catching a fish. The Osprey, however, has special implements in its powerful feet; when



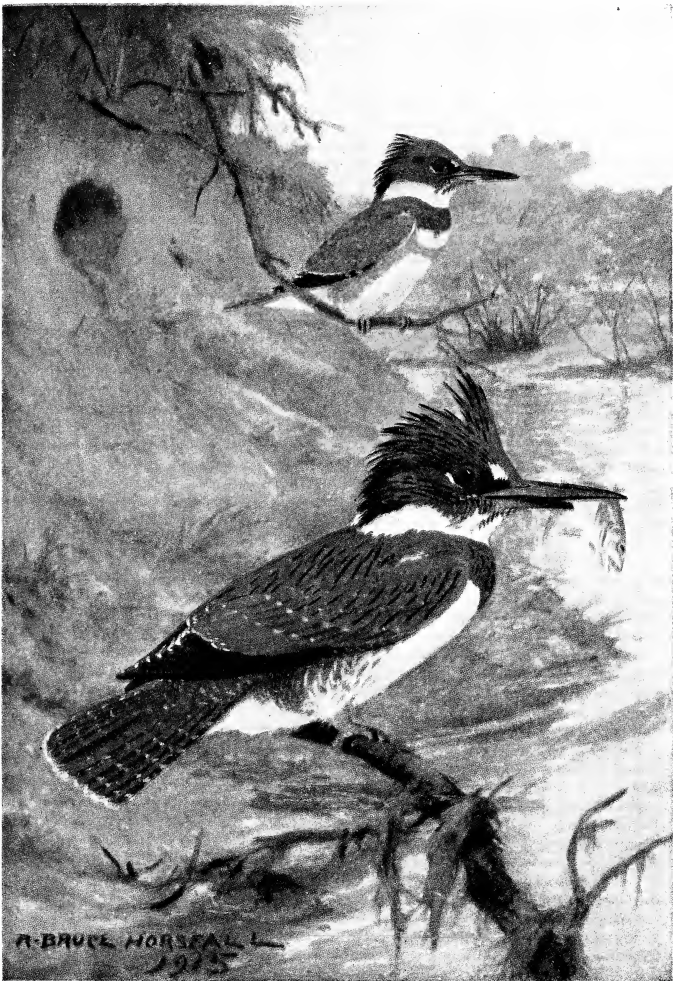
BILL OF OSPREY



BILL OF KINGFISHER

it plunges for a fish, its feet, with their long, sharp claws, are thrown downward, and the fish is securely grasped by the talons. It is then carried to a perch, where it can be held firmly underfoot and torn to pieces by the hooked beak, or it may be carried away to be fed to the young.

Kingfishers are not sociable with their own kind, nor with the human race. A pair will preempt a small district, and allow no other

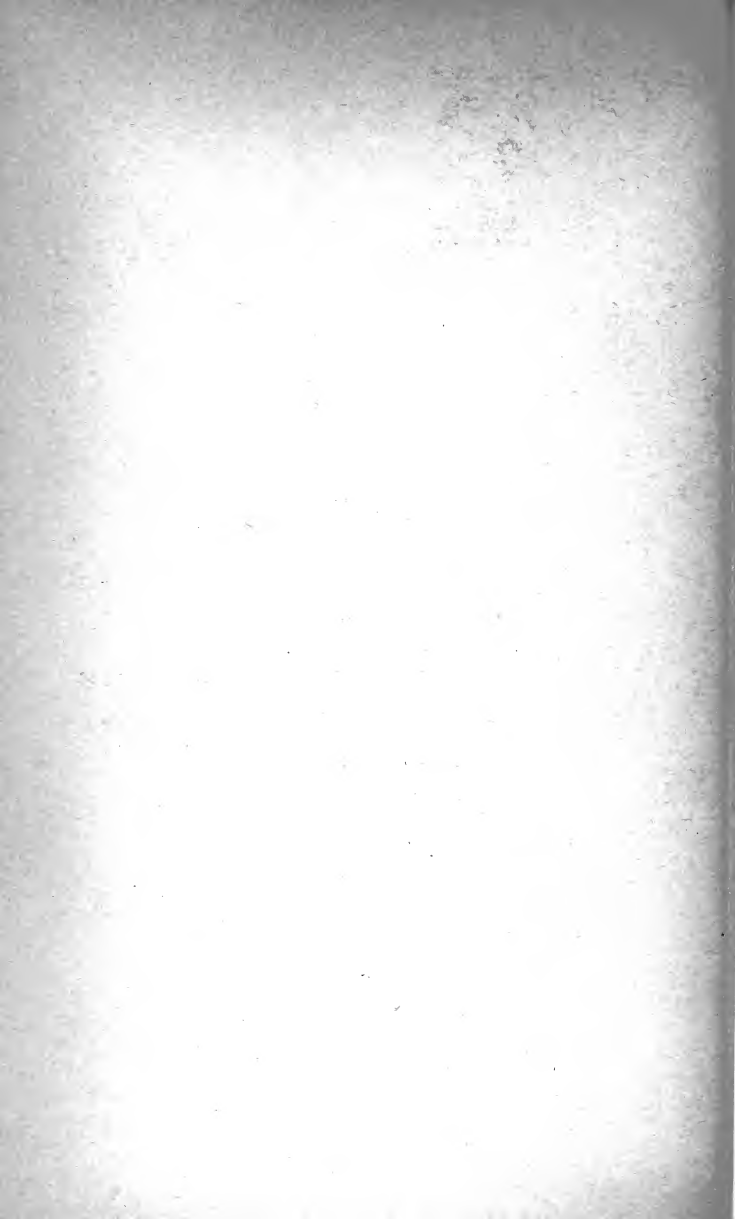


BELTED KINGFISHER

Order—COCYGES
Genus—CERYLE

Family—ALCEDINIDÆ
Species—ALCYON

National Association of Audubon Societies



Kingfishers to occupy the same territory. If we seek to approach this king of fishermen he permits us to get within a certain distance, usually a long gun-shot off, when his alarm, or what seems distaste for human companionship, becomes so great that he leaves his post of observation with a loud and unmistakable rattling cry, flies a few hundred yards up the stream and alights. Again we try to approach, but the bird is more suspicious than before, and soon takes another flight.

This will be repeated until the Kingfisher thinks he is getting too far away from his home, when, sweeping wide, he will circle past us, and, with repeated rattling cries, as if in derision at our futile attempts to catch him, will return to his favorite outlook.

**Unsocial
Disposition**

The Belted Kingfisher is found throughout North America, but is nowhere very common. The explanation of its apparent churlishness is probably to be found in the nature of the Kingfisher's food and its manner of getting it. The fishing along most streams is limited, or seems so, one may suppose, to the bird, and it becomes jealous of intruders because every one is, or may be, a rival. Therefore it seeks to find an unoccupied piece of water and then to keep exclusive possession of it as a means of food-supply for itself, its mate and their family. Were not this struggle and competition made necessary by the nature and relative scarcity of their food, Belted Kingfishers would doubtless be not only as numerous but as sociable as sparrows and blackbirds, whose fare is so plentiful in every marsh, meadow, and thicket that no bird fears it will not get its share.

One of the singular features of this peculiar bird is its method of home-making. It does not build a nest in a tree nor on the ground, but excavates a hole in an earthen bank, usually, but not always, near some stream or body of water.

Major Bendire says, in his "Life Histories of North American Birds": "In southern Arizona, where streams are few, I have found Kingfishers breeding in localities where fish formed a very small percentage of their daily fare; I have more than once seen one of these birds perched on some twig overhanging a dry, sandy river-bed, where no water was to be found within several miles."

The situation of the burrow is probably determined largely by the character of the soil, the favorite kind being compact sand, or mixed gravel and loam. The male and female birds join in the labor of digging, which is done by means of their large and powerful bills, and then the loosened soil is thrown backward and scraped out by their feet.

**Nesting
Burrow**

The tunnel is round, about four inches in diameter, and extends inward to a depth varying with circumstances from four to twenty feet. The bore may be perfectly straight in soft soil, free from stones or tree-roots; but often the tunnel winds about to avoid such obstructions. It ends interiorly in a "living-room" large enough to accommodate comfortably its occupant—a bird twelve inches long.

Here five to eight eggs are laid, early in May, and the young hatch ordinarily about June 1. The eggs are pure white, as is the rule for eggs laid in dark cavities; and as the nestlings will be protected from cold, heat, and storms, little or no bedding is needed or provided. In old burrows fish-bones and scales may be found, but these are merely the remains of feasts. If the birds are not disturbed, a burrow may be used for several successive seasons.

The young are naked and helpless when hatched, for their eyes have not yet opened. They grow very slowly.

Kingfishers subsist themselves and feed their young principally on small fish, not over three inches in length, which are of little or no value; therefore they do no harm except occasionally to fish cultivated in ponds, as young trout or bass, where sometimes Kingfishers are troublesome to the fish-culturists; but the birds may usually be driven away. They also eat crustaceans, grasshoppers, beetles, crickets, frogs, and the like, and have been known to catch field-mice.

The Kingfisher is migratory in the northern part of the country, that is, wherever the freezing of rivers and ponds may interrupt its fishing. Audubon refers to this in his biography of the species in the following words:

**Flight and
Migration**

“The flight of this bird,” he remarks, “is rapid, and is prolonged according to its necessities, extending at times to considerable distances, in which case it is performed high in the air. When, for instance, the whole course of one of our northern rivers becomes frozen, the Kingfisher, instead of skimming closely over the surface that no longer allows it to supply itself with food, passes high above the tallest trees, and takes advantage of every short cut which the situation of the river affords. By this means it soon reaches a milder climate. This is also frequently the case when it seems tired of the kind of fish that occurs in a lake, and removes to another in a direct line, passing over the forest, not unfrequently by a course of twenty or thirty miles towards the interior of the country. Its motions when on wing consist of a series of flaps, about five or six in number, followed by a direct glide, without any apparent undulation. It moves in the same way when flying closely over the water.”

Classification and Distribution

The Belted Kingfisher belongs to the Order *Coccyges*, Suborder *Alcyones*, and Family *Alcedinidæ*. Its scientific name is *Ceryle alcyon*. It breeds in North America from Alaska, northern Quebec, and Newfoundland, to the southern border of the United States; and it winters from the central part of the Union to northern South America.

THE ROSE-BREASTED GROSBEAK

By WILLIAM DUTCHER

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 20

After a long period of winter, with its bare and brown or snow-covered fields, its frozen streams and its leafless trees, how the lover of out-of-doors watches for the first indication of the coming of spring! The vitality that has been dormant, but is beginning to awaken with the lengthening of the days and the increasing power of the sun, is watched with growing interest. Every new shade of green that the grassy carpet



NEST AND EGGS OF THE ROSE-BREASTED GROSBEAK

of the earth assumes is a delight, the first dandelion-blossom that shows itself on the lawn is a thing of beauty, the opening of the arbutus and of the modest violet increases our joy, the arrival of the advance guard of winged hosts that we know will soon follow thrills us with pleasure and a desire for the culmination, when every tree in orchard or forest will burst forth with blossom and leaf, and every place be vocal with music. Then some morning early in May we are greeted with a glory of song and the flashing beauty of the Rose-breasted Grosbeak.

During the winter months it has lived in the West Indies, Mexico, Central America, and northern South America; but with spring comes a longing for home, and it journeys by night through the trackless sky to its birthplace. This may be anywhere in the eastern United States and the more southern Canadian Provinces, from the Atlantic coast to the border of the plains.

This Grosbeak seems to be rather more common in the Mississippi Valley than east of the Alleghenies. Its migration is performed at night; and it is among the later arrivals from the South in spring, most of the flocks going north of central Ohio to spend the summer, although a few pairs may breed in the mountains south of that latitude.

The males are in their richest dress by the second week of May, and in most constant and brilliant song. As Dr. Chapman says: "There is no mistaking his black, white, and rose costume; but the identity of his more modestly attired mate may long remain an open question. So little does she resemble him that she may pass for an overgrown Sparrow with a rather conspicuous whitish stripe over the eye."

"I have nowhere found this beautiful bird more abundant," writes Dr. Elliott Coues, "than along the Red River of the North, and there may be no locality where its nidification and breeding habits can be studied to greater advantage. On entering the belt of noble timber that borders the river, in June, we are almost sure to be saluted with the rich, rolling song of the rose-breasted male, and as we penetrate into the deeper recesses, pressing through the stubborn luxuriance of vegetation into the little shady glades that the bird loves so well, we may catch a glimpse of the shy and retiring female, darting into concealment, disturbed by our approach. She is almost sure to be followed the next moment by her ardent spouse, solicitous for her safety, bent on reassuring her by his presence and caresses. Sometimes during this month, as we enter a grove of saplings, and glance carefully overhead, we may see the nest, placed but a few feet from the ground, in the fork of a limb."

The Rose-breasted Grosbeak most frequently selects as its home second-growths of oaks on the borders of large timber, but does not confine itself exclusively to such localities. It builds a rather bulky nest of weed-stalks, twigs, rootlets, etc., in bushes or trees from five to twenty feet from the ground. The eggs are usually four, pale green in color, and profusely speckled with brown.

**Nest and
Eggs**

The song of this bird is the theme of every nature-writer, and all unite in pronouncing it of the highest type. In some respects it resembles that of the Robin, but it is thought to have a more refined and musical quality. The description of the song of the Rose-breasted Grosbeak by Audubon is so delightful an exhibition of the character of the man, showing so perfectly his childlike faith in a Creator, and his absolute absorption in the beauties of nature, that the passage is given in full:

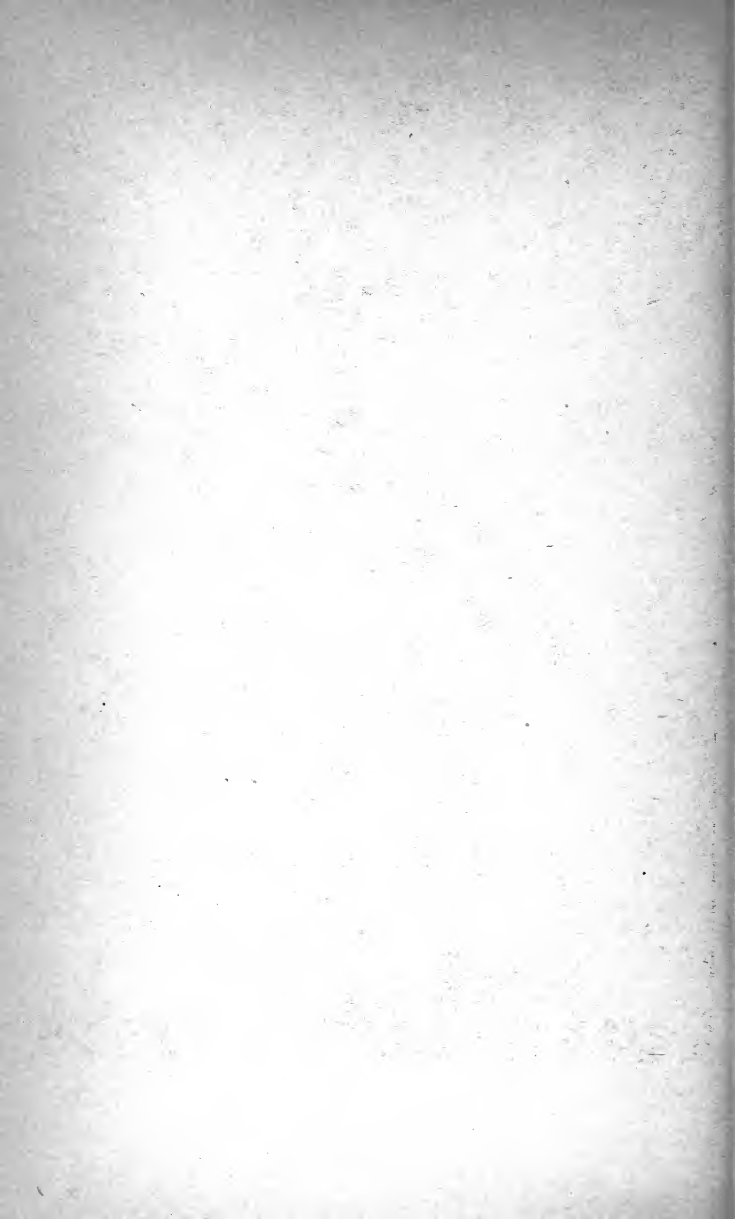


ROSE BREASTED GROSBEAK
(UPPER FIGURE, FEMALE; LOWER FIGURE, MALE)

Order—PASSERES
Genus—ZAMELODIA

Family—FRINGILLIDÆ
Species—LUDOVICIANA

National Association of Audubon Societies



"One year, in the month of August, I was trudging along the shores of the Mohawk River, when night overtook me. Being little acquainted with that part of the country, I resolved to camp where I was. The evening was calm and beautiful, the sky sparkled with stars, which were reflected by the smooth waters, and the deep shade of the rocks and trees of the opposite shore fell on the bosom of the stream, while gently from afar came on the ear the muttering of the cataract. My little fire was soon lighted under a rock, and, spreading out my scanty stock of provisions, I reclined on my grassy couch. . . . I closed my eyes, and was passing away into the world of dreaming existence, when suddenly there burst on my soul the serenade of the rose-breasted bird, so rich, so mellow, so loud in the stillness of the night, that sleep fled from my eyelids.

Audubon's
Appreciation

"Never did I enjoy music more; it thrilled through my heart, and surrounded me with an atmosphere of bliss. One might easily have imagined that even the owl, charmed by such delightful music, remained reverently silent. Long after the sounds ceased did I enjoy them, and when all had again become still, I stretched out my wearied limbs, and gave myself up to the luxury of repose."

The brilliant singing of this Grosbeak has been the theme of all ornithological writers, most of whom speak of it as "warbling;" but it is too energetic and *staccato* to be described by that term. Schuyler Matthews devotes several pages of his "Field Book of Wild Birds and Their Music" to an analysis of the song, and gives notations of it, illustrating the difference between it and the songs of the Robin and the Scarlet Tanager, to both of which it has a certain resemblance. Mr. Matthews regards the Rosebreast's singing as "truly an inspired piece of bird-carolling, to be valued less for its melody than for its incomparable dancing *tempo* and its inimitable tenderness." He thinks that Frank Chapman has come nearest to expressing its manner and its sentiment in the following paragraph:

"There is an exquisite purity in the joyous carol of the Grosbeak; his song tells of all the gladness of a May morning: I have heard few happier strains of bird-music. With those who are deaf to its message of good cheer I can only sympathize, pitying the man whose heart does not leap with enthusiasm at the sight of rival males dashing through the woods like winged meteors, leaving in their wake a train of sparkling notes."

The food of the Rose-breasted Grosbeak is extraordinarily varied, and has been studied with unusual care by W. L. McAtee, one of the experts of the Biological Survey, whose "Bulletin 32" is a mine of information on the subject. He summarizes his voluminous data in the statement that this

Varied
Food

bird's fare is composed of about equal parts of vegetable and animal matter, the former including a little grain, about one and one-half parts in a hundred of garden-peas (a sin greatly exaggerated by some per-

sons), and considerable wild fruit. "Wild fruit is greatly relished but cultivated fruit is not damaged, and although budding is practiced to a certain degree practically no harm results." As to insect-fare Mr. McAtee sums up the evidence as follows:

"The Rosebreast preys to some extent upon such beneficial insects as parasitic Hymenoptera, ground-beetles, ladybirds, and fireflies. Only a tenth of the animal food is of this character, however, while among the remaining nine-tenths, which consists almost exclusively of injurious insects, is included a large number of formidable pests. Among these are the cucumber-beetles, the hickory-borer, plum-curculio, Colorado potato-beetle, Rocky Mountain locust, spring and fall cankerworms, orchard and forest tent-caterpillars, tussock-moth, army-worm, gipsy-and brown-tailed moths, and the chinch-bug. Few birds have so good record both as to the large number of important pests attacked and the slight amount of damage done."

A few particulars may be added. The Rosebreast is very fond of beetles, and especially of the weevils, among which are several of the most persistent and pernicious enemies of crops and garden plants and fruits; and the dreaded plum-curculio is found in almost every stomach examined. The coleoptera most eaten, however, are leaf-beetles (*Chrysomelidæ*), among which are included the cucumber-beetle, the locust-leaf-miner and many other pests. Of one of the worst of these, the Colorado potato-beetle, the Rose-breasted Grosbeak is especially fond, eating its larvæ so voraciously that cases are on record of a potato-patch being cleared by these birds alone. This habit alone ought to make the preservation of this bird the care of every gardener.

**Service
to Man**

To the fruit-raiser the bird's services are extremely valuable, not only by devouring a great variety of caterpillars and borers injurious to fruit-trees and shade-trees, but because it feeds extensively on scale-insects and plant-lice. "These little pests can not have too many enemies for the good of mankind, and every bird that preys on them should be welcomed and protected."

Classification and Distribution

The Rose-breasted Grosbeak belongs to the Order *Passeres*, Suborder *Oscines*, and Family *Fringillidæ*. It is found in summer, and breeds, from the central United States, east of the Rocky Mountains, to the Athabaska River in the Northwest, and to the St. Lawrence River in the East; and it winters in Central America and northern South America.

THE SCARLET TANAGER

By WILLIAM DUTCHER

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 21

"A little child was strolling through an orchard one bright morning in June, filled with mute wonder at the beauties felt, but neither questioned nor understood. A shout from an older companion, 'There goes a scarlet tanager!' and the child was straining eager, wistful eyes, after something that had flashed upon his senses for a moment as if from another world, it seemed so bright, so beautiful, so strange."—*Elliott Coues*.

The Tanagers are a large family (*Tangaridæ*), of distinctively American birds, not known in the Old World. They are closely allied to the finches and also to the weaver-birds. Unlike these families, in which few of the species are gaudily dressed, the males, at least, of most of the tanagers are adorned with splendid colors in striking contrasts of red, black, golden yellow, bright green, orange, and other brilliant tints. As



NEST AND EGGS OF THE SCARLET TANAGER

Photographed by B. S. Bowdish

a consequence these birds have suffered extensive persecution to furnish ornaments for milliners' use, as formerly they contributed to the personal ornamentation of the savage races of Central and South America, whose barbaric taste has been adopted by too many civilized women.

Tanagers are birds of forests and wooded places, where they usually travel about in small and restless parties. "The song, frequently heard in chorus," says Evans, speaking of the family generally, "is mellow and pleasing, accompanied by chattering, whistling and chirping notes; the diet consists of insects and fruit, even the latter being occasionally snatched

upon the wing; while worms, larvæ, and mollusks are eaten, and some species scratch for food among fallen leaves. The nests are usually shallow fabrics . . . sometimes placed in forks of trees or bushes, if not at the ends of branches, sometimes in masses of creepers, or even upon the ground."

Of this brilliant and interesting tropical family four species enter the United States in summer, and one extends its migration to southern Canada. This is the Scarlet Tanager, the male of which is probably the most conspicuous bird in North America in his summer suit of vivid scarlet and jet black. He flies through the foliage like a glowing meteor; and one wonders for an instant that dry twigs do not flame up in his path.

**Scarlet
and Black**

The Scarlet Tanager loves the deep woods, but is also seen in orchards and clearings, and often makes its nest and rears its brood near a farmhouse or on a village street. The nest is a very frail affair, and is usually saddled on a limb at no great height above the ground. It is composed of fine twigs and dried grasses, with a lining of rootlets. The clutch of eggs varies from three to five; they are greenish, much spotted with browns and purple.

"Tanagers and apple-orchards," remarks Dr. Charles C. Abbott, in one of his delightful out-door books, "are as much associated as bees and flowers. That they are found in scores of other places is, of course, true; but, when elsewhere, they seem quite out of place. Where they

**Favorite
Haunts**

tarried in Indian times we can only conjecture, but probably in the wild fruit- and nut-trees that were often planted extensively near village-sites. Indeed, the walnut seems to be a favorite tree with this bird, and I have knowledge of one being occupied for several summers by a pair of Scarlet Tanagers, the nest being always on the same branch. They regularly built a new nest, and removed every trace of the one they had occupied during the previous summer."

During the height of the spring migration a good observer in Michigan, according to Barrows, may find from twenty to fifty of these birds in a forenoon's walk, and they are hardly less numerous east of the Alleghanies, despite the brilliant hue of the male, which would seem to expose him to enemies beyond the risks endured by plainer species. But, as Mr. Barrows further remarks: "The male is far from conspicuous, and it is no uncommon thing for one to sing for several moments, in full sight and at close range, without being located. Red and green being complementary colors, the eye often fails to note the spot of deep red in the midst of the green."

**An Invisible
Songster**

It must be remembered, also, that the female sitting on her nest is protected by a perfectly neutral tint.

Alexander Wilson, one of the earliest and most worthy of American ornithologists, says of the song of the Scarlet Tanager: "Among the thick foliage of the tallest trees his simple and almost monotonous notes, *chip-churr*, repeated at short intervals, in a pensive tone, may be occasion-



SCARLET TANAGER

Male, in mature plumage, perching, female on nest

Order—PASSERES

Family—TANAGRIDÆ

Genus—PIRANGA

Species—ERYTHROMELAS

National Association of Audubon Societies



ally heard; which appear to proceed from a considerable distance, though the bird be immediately above you, a faculty bestowed on him by the beneficent author of nature, no doubt for his protection, to compensate in a degree for the danger to which his glowing color would often expose him. If he has little of melody in his notes to charm us, he has nothing in them to disgust." Audubon's comment on this passage is that he considered the notes lively rather than pensive; and that when uttering them "the bird often inflates his throat, stands erect, and vibrates his body as if in perfect ecstasy." The Scarlet Tanager is, in truth, one of our best singers, his music resembling that of the Rose-breasted Grosbeak, but lacking its fulness and finish. On this point Schuyler Matthews discourses as follows in his *"Field Book of Wild Birds and their Music"*:

**Musical
Criticism**

"The song of the Scarlet Tanager, like that of the Rose-breasted Grosbeak, has been frequently compared to the Robin. . . . To be sure, there is a certain wild-wood likeness between all bird-songs, . . . but it must be remembered that such similarities are wholly superficial, and that an ordinarily discriminating ear would have no difficulty in recognizing the fact.

"The most pronounced feature of the Scarlet Tanager's voice is its quality of tone; every note is strongly double-toned or burred. Mr. Bradford Torrey has been quick to recognize this fact, for he remarks, in 'Footing it in Franconia,' that the Scarlet Tanager is still singing hoarsely! That exactly expresses a tone-quality not only nearly absent in the Robin's voice, but in a matter of degree decidedly unique in the Tanager's voice. A very few of the Robin's notes are burred (sometimes not one); many of those of the Rose-breasted Grosbeak are *slightly* burred (sometimes nearly all); but the abiding characteristic of *all* the Tanager's notes is a double tone which can only be imitated by *strongly humming* and whistling at the same time. There is a lazy, drowsy, dozy buzz to this beautiful bird's voice which one can only liken to a giant musical bumble-bee, or an old-time hurdy-gurdy; the unobtrusive music speaks of summer's peace and rest, soft zephyrs blowing over sighing pine-trees, and tinkling shallows of woodlands brooks. From a point of view confined to pure sentiment there is not the slightest similarity between this serene, crooning melody and the rollicking carol of the Robin."

**The Song
Interpreted**

In addition to exhibiting fascinating qualities of color and song the Scarlet Tanager is of great economic importance to us, as it is a diligent hunter of noxious insects, especially those found among the tree-tops.

Edward H. Forbush speaks of the Scarlet Tanager as the appointed guardian of the oaks, and says that we are much indebted to it for the preservation of these noble and valuable trees. It is not particularly active, but, like the vireos, it is remarkably observant, continually finding and persistently destroying those concealed insects which so well escape all but the sharpest eyes. Mr. Forbush continues:

"As a caterpillar-hunter the bird has few superiors. It is often very destructive to the gipsy-moth, taking all stages but the eggs, and undoubtedly will prove equally useful against the brown-tail moth. Leaf-rolling caterpillars it skillfully takes from the rolled leaves, and it also digs out the larvæ of gall-insects from their hiding-places. Many other injurious larvæ are taken. Wood-boring beetles, bark-boring beetles, and weevils, form a considerable portion of its food during the months when these insects can be found. Click-beetles, leaf-eating beetles, and crane-flies are greedily eaten. These beneficial habits are not only of service in woodlands, but they are exercised in orchards, which are often frequented by tanagers. Nor is this bird confined to trees, for during the cooler weather of early spring it goes to the ground, and on plowed lands follows the plow like the Blackbird or Robin, picking up earthworms, grubs, ants, and ground-beetles."

An Insect-Hunter

Among the most interesting and important branches of bird-study is that of plumage and molt; in fact, without some knowledge of this subject the student will make little progress in his acquaintance with birds. The Scarlet Tanager affords a striking example of the sexual differences and serial changes observable in the plumage of many kinds of birds.

The Tanager's scarlet-and-black uniform is worn only by the fully matured male bird, and his mate and their young are more soberly clad, as is represented on the plate accompanying this leaflet. These costumes vary much, also, according to age and the seasons of the year.

When the nestling gets its first feathers its coat is greenish yellow, with brown, stubby wings and tail, and brownish stripes from the throat down to the legs. If the nestling is a female it gradually becomes much greener on the upper parts, while the striping disappears from the breast, which becomes a clear lemon-yellow, as, also, do the edges of the wing-quills and the tail-feathers; and this remains her costume as long as she lives.

Changes in Plumage

But if the nestling is a male his costume-changes will be more complicated. By the time he has got his full growth, he has obtained a dress very similar to that of his mother, except that the feathers of the wings and tail are blacker, although edged with greenish yellow. This is his costume throughout his winter sojourn in the tropics. When spring comes, however, the male molts its dress, and gets that new coat of vermilion-scarlet, with fully black wings and tail, which everyone so much admires.

Classification and Distribution

The Scarlet Tanager belongs to the Order *Passeres*, the Sub-order *Oscines*, and the Family *Tangarida*. Its scientific name is *Piranga erythromelas*. Its range in summer extends northward to the southern border of Canada, and over all the United States east of the Rocky Mountains and north of the southern Alleghany Mountains. It winters in northwestern South America.

THE BLUE JAY

By ERNEST INGERSOLL

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 22

Some gloomy November day you are tempted to stroll down the lane. The last red leaf has fallen from the maples, the long briers, goldenrod, and grass in the fence-corners, are tangled and matted ungracefully, and the skies are "sombre and drear." A few crows, flapping wearily along the edge of the next field, and a silent sparrow loitering disconsolately about a thicket of young oaks, whose tenacious brown leaves rustle harshly, are the only signs of animal life, when suddenly from—well, one cannot be sure from where—come the notes of a most melodious whistling, rising and falling with the harmonious cadence of a sweet-toned bell rung a long way off, and full of the sadness and regret which the decay of summer impresses on this season of late autumn.

**Pleasant
Traits**

Stopping and tracing the sound I soon espy the singer; and what do you suppose he is? A Blue Jay! That arrant, meddlesome, loud-voiced braggart, whom you think of only in terms of mischief! Is it true that he, too, can show a soft heart, and, away by himself in the somber autumnal fields, can attune his voice to sentimental lays?

Now he catches sight of me, and dashes away with that defiant scream which is all his own, as if ashamed of having been detected in anything like a gentle mood.

But really he is not so bold and bad as he wishes to appear. I know that he bullies weaker birds, plagues the owls and crows, fights the squirrels for their hard-earned nuts, or chivies them round and round the tree-trunks just for fun—even assails the great American eagle himself, if he feels like it; but he seems to do it all out of high spirits rather than viciousness, and I like him.

Few birds have so handsome an appearance, so debonair a manner; and he takes so good care of his own that he must command the admiration bravery and force will always elicit. When in the cool November days I hear his challenging shout ringing through the silent and leafless woods, I am cheered by the thought that one creature, at least, cares naught for the fall of the year, nor fears the onslaught of winter. The Blue Jay has a heart for any fate, and in this, at least, teaches me a good lesson.

**A Brave
Style**

This jay is one of the most widely distributed and familiar of North American birds, and originally was spread numerously over all the eastern United States and Canada, as far west as the Rocky Mountains. Everywhere, except, perhaps, in the extreme north, it is resident with more or less regularity throughout the year.

In size and form this species is much like the European jay, but its dress is very different. The body is soft grayish blue, with a purplish tinge on the mantle in some lights, and fading to nearly white on the thighs and abdomen. Wings and tail are bright blue, strikingly barred with black, and the wings have two conspicuous patches of white, while the banded tail, whose length is almost half that of the whole bird, is edged toward the end with white, visible when the quills are fanned out.

**A Handsome
Costume**

The head, with its strong bill and dark eyes, is set off by an azure crest that may be stiffly erected; and from behind it a necklace of black falls gracefully across the breast, enclosing throat and cheeks of silvery white. Truly a handsome bird, which carries itself, erect and firmly balanced, as if it knew perfectly well the princely elegance of its presence. Even its steady, straightforward flight expresses this, and the way it swings to its perch is a model of showy self-assurance. The sexes are indistinguishable in plumage or in behavior.

Wilson, indeed, styles the bird a beau among the feathered tenants of our woods; and remarks that "like most other coxcombs," he makes himself still more conspicuous by his loquacity.

"In the charming season of spring," Wilson writes, "when every thicket pours forth harmony, the part performed by the Jay always catches the ear. He appears to be, among his fellow-musicians, what the trumpeter is in a band, some of his notes having no distant resemblance to the tones of that instrument. These he has the faculty of changing through a great variety of modulations, according to the particular humor he happens to be in. When disposed for ridicule, there is scarce a bird whose peculiarities of song he cannot tune his notes to. When engaged in the blandishments of love they resemble the soft chatterings of a duck; and, while he nestles among the thick branches of the cedar, are scarce heard at a few paces distance; but no sooner does he discover your approach than he sets up a sudden and vehement outcry, flying off, and screaming with all his might, as if he called the whole feathered tribes of the neighborhood to witness some outrageous usage he had received."

Thus gayly the Blue Jay ushers in the season of mating and nest-building, but presently he is less noticed along the highway and about the farm-house, for he soon ceases his noisy chatter, and with his mate seeks the seclusion of woodlands or of remote orchards.

Nest

He shows a partiality toward evergreens, especially the juniper or red cedar, whose close and bristling twigs protect his nest from both observation and sudden raids, as by night-flying owls. The situation is usually not far from the ground.

The structure itself is a rough but strongly woven mass of twigs lined with finer, more flexible materials, mostly rootlets. The four to six rather roundish eggs, which are laid at a relatively late date in the season, as a rule, are greenish or brownish buff, rather sparsely spotted with olive-brown; they measure about 1.10 by .80 of an inch.

I have at hand a minute study of the brooding of the Blue Jay, made



BLUE JAY

Order—PASSERES
Genus—CYANOCITTA

Family—CORVIDÆ
Species—CRISTATA

National Association of Audubon Societies

by Miss Ellen E. Webster, who devoted her time one season to careful observation of a nesting family, easily gaining the confidence of the sitting mother.

"She sat very closely," Miss Webster notes, "never being absent over three or four minutes. She noticed things about, preened her feathers often, stood up on the nest, looked at the eggs, moved about, and went through motions that I suppose were made in turning the beloved eggs. About once an hour the male provided his mate with food, brought in his mouth. He always alighted near the bottom of the tree and hopped to her presence branch by branch; and almost invariably fed her from the same side of the nest? Everything was enacted very quietly, but if he showed any inclination to linger near the home, the female would hiss and even peck at him to hurry him away about his business."

**Family
Life**

On the morning of June 15 Miss Webster saw three scrawny fledglings in the nest, and began to watch affairs with renewed interest:

"That forenoon, when the male brought food, the female took it from him and fed the babies. In the afternoon Father Jay was allowed to feed them, in which task he became so proficient that he soon not only had the providing, but nearly always the feeding to do also, giving a mouthful to one, two, or all three at one visit. . . . I witnessed the feeding of the young ninety-nine times, and feel sure that the female did not bring food to the babies half a dozen times. The only distinguishing marks of the parents were their habits. When one brooded I was sure it was the female, and I am positive that she returned again and again and covered the young without feeding them, and scarcely ever did the children even open their mouths to ask food of her. She never went far away, and the slightest disturbance in the home pine would bring her back in an instant. As soon as breakfast was served gymnastics were required; and these daily exercises were droll. The youngsters stood up in the nest, stretched themselves as high as possible, then dropped down again, lifted their wings high over their backs and flapped them energetically; extended their necks, and, in fact, probably exercised the whole body. Often they visited the rim of the nest, but made no attempt to fly."

It is at this season of domestic responsibilities that the Blue Jay has made for himself an evil reputation as of a thief and marauder in fine clothes—a sort of Raffles in the woodland community. Blue Jays have been accused of crime ever since they became known.

Audubon figures them on his folio plate with broken eggs on their bills and in their claws, and moralizes extensively on so much malice attired "in a garb so resplendent."

**A Bad
Reputation**

A biographer is hard to find who has not seen, or been told of, cases of Blue Jays feeding on the eggs or fledglings of their neighbors, or wantonly throwing them out of the cradle. It is a dreadful record; yet most writers fail to specify—neglect to relate details of the atrocities charged, and I, for one, have a feeling that the wickedness has been exaggerated. Indeed, F. E. L. Beal, of the U. S. Biological Survey, who

has made it his specialty to study the food of our birds in relation to agriculture, declares that these alleged nest-robbing propensities are not so general as has been supposed.

"If it were true," he remarks, "that eggs and young of smaller birds constitute the chief food of the Blue Jay during the breeding season, the small birds of any section where jays are fairly abundant would be in danger of extermination. Insects are eaten in every month in the year. The great bulk consists of beetles, grasshoppers and caterpillars. . . . Three-fourths of the Blue Jay's food consists of vegetable matter, 42 per cent. of which consists of 'mast,' under which are grouped large seeds of

Food trees and shrubs, such as acorns, chestnuts, beechnuts, chinquapins, and some others. Blue Jays prefer mast to corn, or indeed any other vegetable food, for they eat the greatest amount at a time when fruit, grain and other things are most abundant."

Mr. Beal examined the contents of 292 stomachs, collected in every month in the year from twenty-two States and from Canada, and found remains of birds, or of their eggs, in only three.

How shall we reconcile these contradictions? Is it simply an illustration of living down a bad reputation, even when innocently acquired? Yes, and no. Probably the truth is that the Blue Jay does not often rob nests, or kill small birds, as food for himself, but that he does seize them as food for his nestlings. On that theory the observers of such depredations will be sustained, and the absence of evidence in stomachs, as shown by Beal, will be accounted for. This, however, is an extenuation rather than an excuse.

It is true that individual Blue Jays are to be seen everywhere during the winter, even in Canada; but it is also true that, as a species, the bird is migratory in an irregular sort of way. In autumn flocks wander about the country seeking favorable feeding-grounds; but

Migration there is also a general movement toward the south, where the winter is spent along the coast of the Gulf of Mexico, and in Florida and Georgia.

In the winter these birds often have a hard time. They keep their native caution, however, and the good-natured feeder of winter birds, who easily attracts Snow-birds, Chickadees and the small woodpeckers to his door-yard luncheon, is not easily able to persuade the proud and wary Blue Jay to partake of this out-door relief; yet if he will persist in offering corn, cracked nuts and the like, his reward will be great, for none of the winter-birds is more beautiful and interesting a winter visitor than this.

Classification and Distribution

The Blue Jay belongs to the Order *Passeres*, the Family *Corvidæ*, and the Subfamily *Garrulina*. The scientific name is *Cyanocitta cristata cristata*. The range is eastern North America, breeding from central Alberta, southern Keewatin, Quebec, New Brunswick, Nova Scotia and Newfoundland south to the Gulf States, except Florida, and west to western Nebraska, eastern Colorado and central Texas. The Florida Blue Jay (*C. c. florincola*) is a subspecies confined to Florida.

This and other Educational Leaflets are for sale, at 5 cents each, by the National Association of Audubon Societies, 1974 Broadway, New York City. Lists given on request.

THE KILLDEER

By WILLIAM DUTCHER

NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 23

This Plover, which derives its name from its oft-repeated note of *kildee, kildee, dee, dee, dee*, should be a familiar bird to all those who wisely seek their health and pleasure out-of-doors with wide-open eyes. It wanders over the whole of temperate North America and it breeds throughout its entire range. In the winter months it is found from the latitude of the Gulf States to northern South America and in the West Indies, yet the writer has seen it on Long Island, New York, in every month of the year but January.

It is impossible to overlook the Killdeer by reason of its beauty of coloring, its trim appearance, its stately walk when undisturbed, its rapid and graceful flight when startled. Every bird has its characteristic motion in the air, and the student who is a close observer soon learns to know many birds from their appearance in flight even when their color is indistinguishable and their notes but faintly heard.

**Graceful
Manners**

The writer has many bird-pictures impressed upon his mind that never can be effaced while time lasts for him, and standing out among them in refreshing relief is a memory of a smoothly-flowing river gently winding its way from the hills through grassy meadows toward the sea, in which it would soon be lost. It was in early autumn, when nature exhibits her choicest colors and the birds are flocking for their leisurely journey to the distant southland, that a company of Killdeers were running about in one of the brown fields beside this river, seeking a fare of succulent grasshoppers or crickets, all the while chatting with each other in colloquial tones.

A human intruder appeared, and the startled birds arose from the ground in flight but were reluctant to leave so rich a foraging ground. They massed in solid ranks and whirled through the air, now high in graceful evolutions, then downward with lightning rapidity, sweeping across the field; breaking ranks and flying like leaves before a gale, only to mass again for some new and intricate movement, which, if possible, was more perfect than the first.

**Flocking
Tactics**

Let us change the picture to the vernal season, and observe the Killdeer after it has returned to its breeding-home, a field which man may use for growing sugar, cotton, rice, corn, or any of the other products so necessary for his happiness and even for his very existence. Then

we see the birds happily mated and employed in selecting a suitable depression in the ground in which to place their four pyriform eggs of a delicate, creamy-white tint, thickly spotted or lined with chocolate-brown. Like the eggs of all plovers, their size is surprisingly large in proportion to the size of the bird.

The Killdeer does not waste any time in building a nest, and only in rare instances does it take the trouble to line the shallow cavity on the ground in some upland meadow or cornfield in which it deposits its eggs. Alexander Wilson, however, records an interesting nest that he found "paved with fragments of clam and oyster shells, and very neatly surrounded with a mound or border of the same, placed in a very close and curious manner."

**Nest
and Eggs**

The young Killdeers have little use for a nest after they are born, for the large size of the eggs (1.50 by 1.10 inches) permits the development before hatching of large, strong legs and feet, so the young are really never nestlings in the ordinary sense of the word, for they are prepared from birth to follow their parents abroad, not by flight but by running. They differ in this respect from the altricial birds, which do not leave their home until their wings are strong enough to support them in flight. The solicitude of the parents for their young is very marked. Wilson says: "Nothing can exceed the alarm and anxiety of these birds during the breeding season. Their cries as they winnow the

**On the
Defensive**

air overhead, dive and course about you, or run along the ground counterfeiting lameness, are shrill and incessant. The moment they see a person approach, they fly or run to attack him with their harassing clamor, continuing it over so wide an extent of ground that they puzzle the pursuer as to the particular spot where the nest or young are concealed."

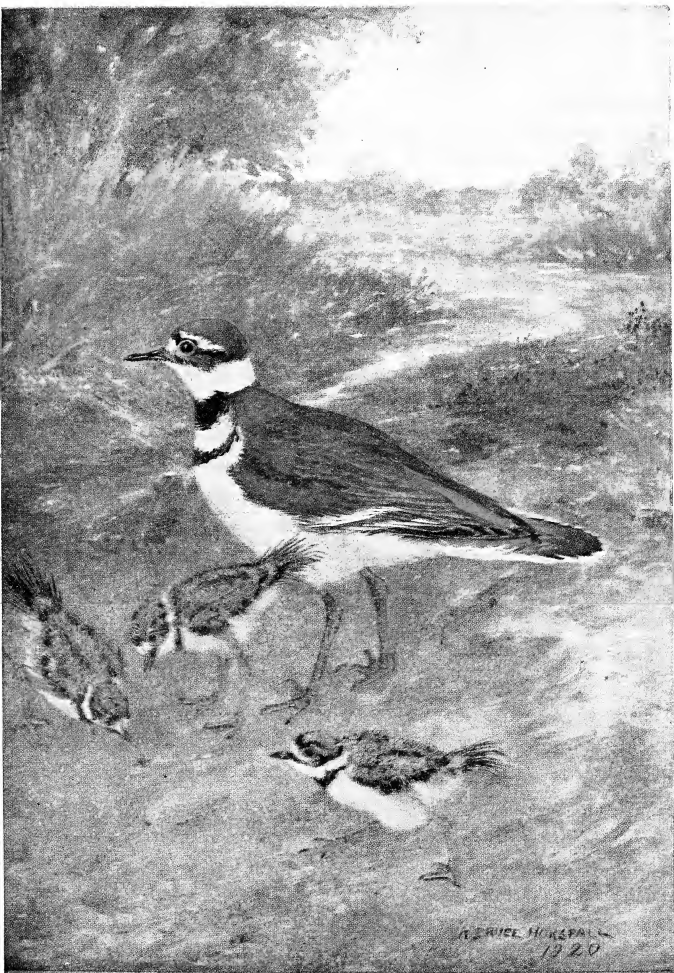
Audubon's description of the Killdeer's habits at this time is so quaint that it will be interesting to quote it also:

"At this period, or during incubation, the parents, who sit alternately on the eggs, never leaving them to the heat of the sun, are extremely clamorous at sight of an enemy. The female droops her wings, emits her plaintive notes, and endeavors by every means she can devise to draw you from the nest or young. The male dashes over you in the air in the manner of the European Lapwing, and vociferates all the remonstrances of an angry parent whose family is endangered. If you

**Audubon
Quoted**

cannot find pity for the poor birds at such a time, you may take up their eggs and see their distress; but if you be at all so tender-hearted as I would wish you to be, it will be quite unnecessary for me to recommend mercy."

If you should discover a nest of the Killdeer carefully note the exact where spot it is situated. If it contains only three eggs, that fact will indicate that the clutch is not yet complete, and a very brief visit, after an interval of a day or two, should be made. If four eggs are then found, it will show that incubation has begun. Visits at infrequent intervals

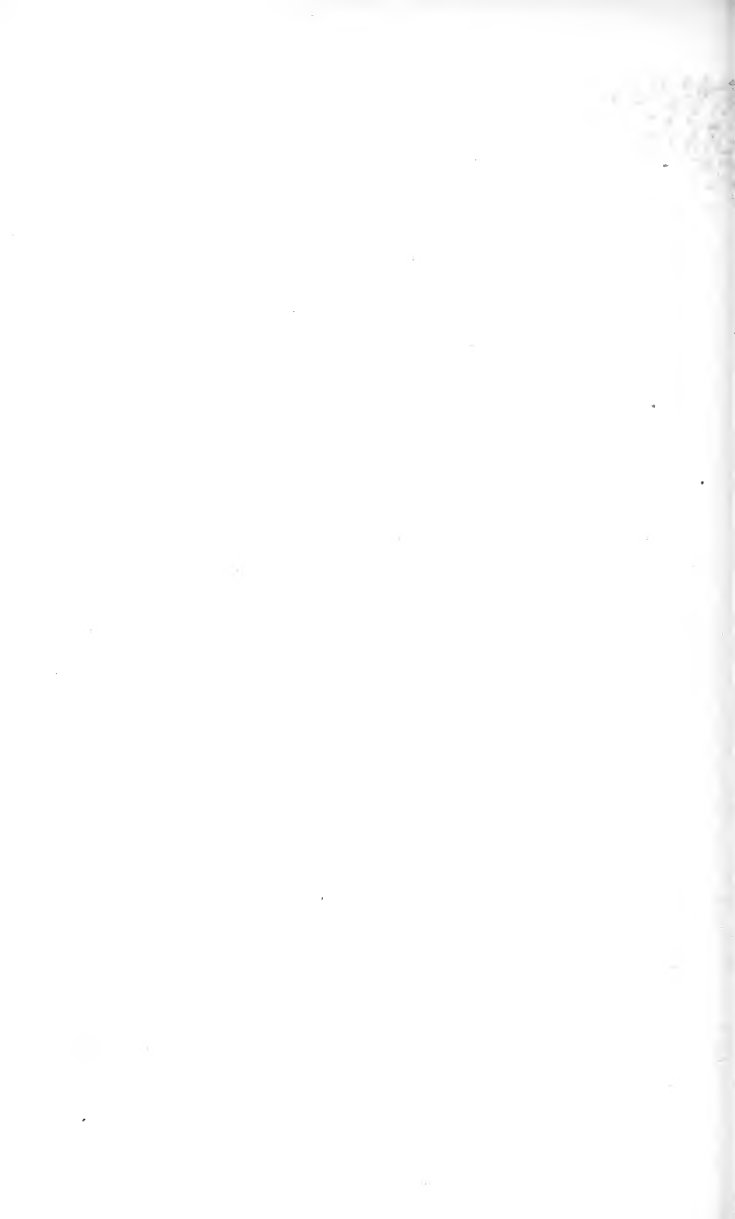


KILLDEER

Order—LIMICOLÆ
Genus—ÆGIALITIS

Family—CHARADRIIDÆ
Species—VOCIFERA

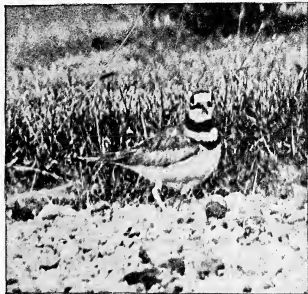
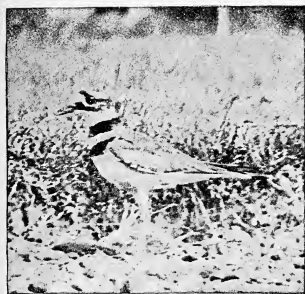
National Association of Audubon Societies



should then be made to ascertain the time that elapses before the young birds are hatched. By simply walking past the eggs, without stopping, the desired information may be had. After the young birds are hatched it will be extremely difficult to find them, by reason of their habit of squatting and remaining perfectly still, and also because they simulate their surroundings so perfectly. The student, by such field-studies, may accumulate many interesting and valuable notes, and, if care is taken, without in the least harming either the old or the young birds.

The extreme watchfulness of the Killdeer at other seasons is portrayed by Audubon in one of his delightful descriptions of his own wanderings:

"Reader, suppose yourself wandering over some extensive prairie, far beyond the western shores of the Mississippi. While your wearied limbs and drooping spirits remind you of the necessity of repose and



food, you see the moon's silver rays glittering on the dews that have already clothed the tall grass around you. Your footsteps, be they ever so light, strike the ear of the watchful Killdeer, who, with a velocity scarcely surpassed by that of any other bird, comes up, and is now passing and repassing swiftly around you. His clear notes indicate his alarm, and seem to demand why you are there. To see him now is impossible, for a cloud has shrouded the moon; but on your left and right, before and behind, his continued vociferations intimate how glad he would be to see you depart from his beloved hunting-grounds."

Having become acquainted with the Killdeer and its homelife, let us for a moment consider the relations of this bird to mankind. Unfortunately it belongs to the class known as game-birds, but it is only so in name, for owing to the small size of its body it is worthless for food. The appearance of the bird while in flight is very deceptive, its long wings making it appear much larger than it really is. Its home is on the ground and all of its food is obtained there, and consists very largely of insects

that are extremely destructive, such as grasshoppers, crickets, and beetles.

Mr. E. H. Forbush, the learned State Ornithologist of Massachusetts, has made an excellent summary of the Killdeer's good offices, in one of his recent books:

"As soon as the ice breaks up in the rivers and lakes the Killdeer's cry is heard—the harbinger of spring. It makes its home on low-lying farms. It frequents meadows and cultivated lands, where it feeds on destructive insects and worms. If fully protected and left unmolested in its occupancy of the fields it becomes as common a feature of the country home as is the Lapwing in England. So far as its food-habits are now known it seems to be utterly harmless and very beneficial—a beautiful and desirable bird to protect and cultivate. . . .

**Friendly
Disposition**

"Prof. Samuel Aughey examined the stomach-contents of nine of these birds taken from May to September in Nebraska, and found 258 locusts and 190 other insects. Only one had taken grain, and of that only a few waste kernels. Nash states that (in Ontario) its food consists of earth-worms and insects, of which small beetles form the greater part, and that a brood of these birds and their parents will relieve a farm of an enormous number of insects daily. He has known stomachs of this species to be completely filled with weevils taken from orchards. Eaton found it feeding on grasshoppers, beetles, caterpillars and a few water-insects. Throughout the country, wherever the Killdeer is found, it is very destructive to weevils, some species of which cost the farmers of the United States millions of dollars annually. The Killdeer takes weevils from plowed fields as well as from orchards, and it is one of the enemies of the Mexican cotton-boll weevil."

Mr. McAtee enumerates, in a Bulletin of the Biological Survey, a long list of beetles and other injurious insects known to be eaten by the Killdeer, especially those harmful to cotton-culture, and shows that such pests as crane-flies and their larvae, known as leather-jackets, are eaten, as well as horseflies and mosquitoes and their larvae. "One stomach contained hundreds of larvae of the salt-marsh mosquito, which is one of the most troublesome of the biting species."

**Destroys
Insect-pests**

Classification and Distribution

The Killdeer belongs to the Order *Limicola* (shore-birds), and to the Family *Charadriidae*. Its scientific name is *Oxyechus vociferus*. The range of the species includes the most of both North and South America. It is found in summer and breeds throughout southern Canada, all of the United States, and north-central Mexico; and winters from the southwestern United States to Venezuela and Peru.

THE BLUEBIRD

By MABEL OSGOOD WRIGHT

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 24

Who dares to write of the Bluebird, thinking to add a fresher tint to his plumage, a new tone to his melodious voice, or a word of praise to his gentle life? Not I, surely. He is a home-body—a true garden-bird, coming nearer than any other in America to the ideal of England's Robin Red-breast. Indeed, his breast has much the same tint, delightfully contrasting with his azure mantle. "Although the Bluebird did not come over in the *Mayflower*," Florence Merriam once wrote, "it is said that when the Pilgrim Fathers came to New England this bird was one of the first whose gentle warblings attracted their notice, and, from its resemblance to the beloved Robin Redbreast of their native land, they called it the Blue Robin." Thoreau said that he carried the sky on his back; to which John Burroughs added, "and the earth on his breast."

The Blue
Robin

Nevertheless, our Bluebird is an adventurous traveler. Ranging all over the eastern United States, some have their nesting-haunts at the very edge of the Gulf States and others as far north as Manitoba and Nova Scotia.

Before more than the first notes of the spring song have sounded in the distance, Bluebirds are to be seen by twos and threes about the edge of old orchards, or along open roads where the skirting trees have crumbled, or decaying knot-holes have left tempting nooks for the tree-trunk birds, with which the Bluebird may be classed.

There is a curious eluding or ventriloquistic quality about the voice of the Bluebird, which is as fascinating as it is puzzling. "You may hear the notes on a bright March morning," Ernest Ingersoll writes, "but cannot find their pretty author. He denies your eyes the welcome sight of him until at last you give up the search only to discover him close behind you."

Hark! 'Tis the bluebird's venturesome strain
High on the old fringed elm at the gate—
Sweet-voiced, valiant on the swaying bough,
Alert, elate,
Dodging the fitful spits of snow,
New England's poet-laureate
Telling us Spring has come again.

Spring's
Poet-laureate

—T. B. Aldrich.

As with many other species of migrant birds, the male is the first to arrive; and he does not seem to be particularly interested in house-hunting until the arrival of the female, when the courtship begins without delay, and the delicate purling song, with the refrain, "Dear, dear, think

of it, think of it," and the low two-syllabled answer of the female, are heard in every orchard.

He takes kindly to settling in a bird-box, or a hole in a fence-post, telegraph-pole, or outbuilding; but a tree-hole must have been his first home, and he has a strong feeling in its favor. The building of the nest

The Home in a Hole

is not a difficult operation—merely the gathering of a few wisps of straw, with some chance feathers for lining.

The labor of preparing the home seems to be shared by both parents, as are the duties of hatching and feeding the young. The number of eggs varies, six being the maximum, and they are usually pale blue; now and then, however, a nest is found containing pure white eggs. Two broods are usually raised each year, and three are said to be not uncommon; for Bluebirds are active during a long season, and, though the first nest is made before the middle of April, one year a brood left the box over my rose-arbor on September 12.

The young Bluebirds are spotted thickly on throat and back, after the manner of the young of their cousin, the Robin; but in this case the feathers of the back are spotted, the breast-feathers having dusky edges, giving a speckled effect.

As parents, the Bluebirds are tireless, both in supplying the young with insect-food and in attending to the sanitation of the nest, the waste being taken away and dropped at a distance. This is done at almost

Care of Nestlings

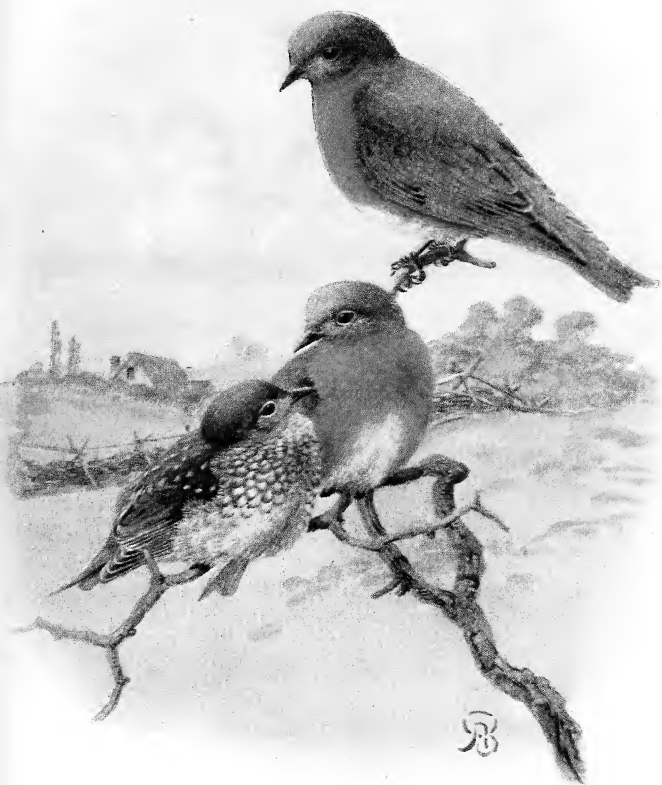
incredibly short intervals, displaying the wonderful rapidity of digestion, and the immense amount of labor required to supply with grist the mill inside every little speckled throat.

The food of the nestlings consists of insects, among them many, such as canker-worms, which men are very glad to get rid of. The fully grown birds capture insects also, but vary their diet at all seasons by eating berries and small fruits. In autumn and early winter cedar and honeysuckle berries, the grapelike clusters of fruit of the poison-ivy, that of the bittersweet, and cat-brier berries, are all consumed according to their needs.

When the breeding-season is over, the birds travel sometimes in family groups and sometimes in larger flocks, moving southward little by little, according to season and food-supply, some journeying as far as Mexico, others lingering in the Middle and Southern States. It is very unlikely that the Bluebirds that live in our orchards in summer are those that we saw in the same place in winter days. Next to the breeding-impulse, the instinct for migration seems to be the strongest factor in bird-life. When the life of the home is over Nature whispers, "To wing, up and on!" So a few of the Bluebirds that have nested in Massa-

Lingering Migration

chusetts may be those that linger in New Jersey, while those whose breeding-haunts were in Nova Scotia drift downward to fill the places of the departed Massachusetts birds. But the great mass even of those we call winter residents go to the more southern parts of their range every winter.



BLUEBIRD

Order—PASSERES
Genus—SIALIA

Family—TURDIDÆ
Species—SIALIS

National Association of Audubon Societies

Professor Beal, of the Department of Agriculture, writes, after a prolonged study, that 76 per cent. of the Bluebird's food "consists of insects and their allies, while the other 24 per cent. is made up of various vegetable substances, found mostly in stomachs taken in winter. Beetles constitute 28 per cent. of the whole food, grasshoppers 22, caterpillars 11, and various insects, including a large number of spiders, comprise the remainder of the insect-diet. All these are more or less harmful, except a few predaceous beetles, which amount to 8 per cent.; but, in view of the large consumption of grasshoppers and caterpillars, we can at least condone this offense, if so it may be called. The destruction of grasshoppers is very noticeable in the months of August and September, when these insects form more than 60 per cent. of the diet."

**Insects
Eaten**

It is perfectly clear that Bluebirds should receive our most hearty good will and protection, for they are birds of most decided economic value.

It is not easy to tempt Bluebirds to an artificial feeding-place; though in winter they will eat dried currants, and make their own selection from mill-sweepings if scattered about the trees of their haunts. For, above all things, the Bluebird, though friendly and seeking the borderland between the wild and the tame, never becomes familiar, and never loses the half-remote individuality that is one of his great charms. Though he lives with us, and gives no sign of pride of birth or race, he is not of us, as is the Song Sparrow, Chippy, or even the easily alarmed Robin. The poet's mantle envelops him even as the apple-blossoms throw a rosy mist about his doorway—and it is best.

Writing of the Bluebird in *The Craftsman* for May, 1913, Mr. T. Gilbert Pearson says: "One spring a pair of Bluebirds came into our yard, and to the accompaniment of much cheerful bird conversation in the form of whistles, twitters, chirps and snatches of song, began hunting eagerly for some place to construct a nest. Out in the woodshed I found a box, perhaps five inches square and ten inches long. Having cut a small entrance-hole on one side near the top, I fastened the box on a young tree, seven or eight feet above the ground. The newcomers immediately took possession and began carrying dry grass into their adopted sanctuary. Several days elapsed, and then, one morning, while standing on the back of a garden-settee and peeping into the hole, I discovered that a pale blue egg had been laid. When the nest contained four of these little beauties incubation began, a task that would last about a fortnight."

**The Nest in
the Box**

"One rainy night, while the mother-bird was on duty, she must have heard the scratching of claws on the box outside. A moment later two yellow eyes blazed at the entrance, and a long arm reached into the nest. The next morning, on the grass beneath the window I found her wing-tips and many fragments of her plumage. All that day the distressed mate flew about the lawn and called continually. He seemed to gather but little food, and the evidences of his suffering were pitiful.

In fact, we closed the windows to shut out the sounds of his sorrowing notes.

"Upon looking out next morning, the first note we heard was that of the Bluebird, and his voice seemed to have lost some of its sorrow. Walking around the corner of the house I found him sitting on a tree-limb near the box. About two feet from him sat another Bluebird—a female. At eleven o'clock I saw her alight at the hole of the box and look inquiringly within. I knew what this meant; incidentally I knew, too, that like a true woman she would have no use for the nest and eggs which had been placed there by another, so I cleaned out the box.

"We were anxious that the cat should have no chance to destroy our little friend's second wife, so I suspended the box from a limb by a wire two feet in length. Five eggs were laid and the mother-bird began sitting. Then one night the cat prowled about. **A Terrible Cat** How he ever succeeded in his undertaking, I know not. He must have climbed the tree and walked out on the limb. I have never seen a cat slide down a wire; nevertheless, the next morning the box was tenantless, and the feathers of the second female were scattered over the lawn.

"This time the Bluebird's heart seemed really broken, and his cries filled the grove. Eleven days passed before a third soul-mate came to share his fortunes. We could afford to take no more risks. On a sunny hillside in the garden the cat was buried, and a few weeks later four little Bluebirds left the lawn on their own wings."

Classification and Distribution

The Bluebird belongs to the Order *Passeres*, Suborder *Oscines*, and the Family *Turdidæ*—the Thrushes. Its scientific name is *Sialia sialis sialis*. The range includes the eastern United States and it breeds throughout this area. A subspecies is the Azure Bluebird, *S. s. fulva*, of southern Arizona and Mexico.

RED-WINGED BLACKBIRD

By T. GILBERT PEARSON

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 25

What boy is there who has not seen a Blackbird? If such there be it must be because he has never been in the country in the summer. Of all the dozen kinds of Blackbirds in North America, there is none more handsome, nor more widely distributed, than the so-called "Red-wing." In spring or early summer the plumage of the male is a beautiful, glossy black, except that on the shoulders, there are found two parallel streaks, one yellowish buff and the other a brilliant scarlet. "Officer Bird," it is called sometimes, because of its shoulder straps.

It is difficult to state the exact size of a Red-wing, for some are larger than others, being like people in this regard. Ordinarily the males measure from about $8\frac{1}{2}$ inches to $9\frac{3}{4}$ inches in length. When the wings are spread to the fullest extent they measure from tip to tip from about $13\frac{1}{2}$ to $15\frac{1}{2}$ inches. The length of an English Sparrow is $6\frac{2}{3}$ inches and a full grown Robin is 10 inches long, so one may safely say the Red-winged Blackbird in size is about two-thirds the way between an English Sparrow and a Robin.

The Red-wing's mate is shorter by at least an inch, and her black and brown dress is much broken by lines and rosettes of white and buff. Altogether she is less handsome and far less striking in appearance, which is quite an advantage when the time of year comes for her to sit hidden on her nest.

In the North we first see the Red-wings late in March or early in April. They appear along with the first Song Sparrows and Robins. The males come in flocks by themselves and may be seen about the ponds or marshes where last year their little ones were raised. Here on the dead marsh grass or cat-tails they will sit, and call and sing, although there is as yet no lady Blackbird in all the land to hear their voices. For a week or two weeks, perhaps, we may find them haunting the marshes which are just beginning to show the slightest green under the influences of the warming spring days. Then some morning the females appear and there are great times around the marshes. Much chattering and singing and chasing and

**The Males
Arrive First**

flying about takes place. Do not look for a nest just now, however. The marsh must grow a little while longer and the new leaves of the rushes get strong and tall enough to support the nest before the cradle can be built.

Near the upper boundary of New York City lies Van Cortlandt Park. Here is a pond of perhaps five acres on which many boats pass to and fro on pleasant afternoons. One day last spring two small boys wanted to show me how they could row a boat, and so took me to ride about this pond. Near the upper end is a little

**Nesting in
New York City** marsh with flags and rushes covering an area not over a hundred feet across. When near this I noticed a Red-winged Blackbird sitting on a bush growing near shore. Thinking that a male Red-wing at that season certainly meant that a female was near, and if there was a female present there must be a nest close by, we pushed the boat in among the rushes a short distance and waited. In about five minutes the lady Red-wing appeared. She came rapidly flying from the fields and quickly lighted among the rushes not thirty feet from us. In a little while she flew away. The boys of course were anxious to search further. With much labor the boat was pushed deep into the marsh and there, supported by upright stalks of the rushes, we found the Red-wing's nest. With great care we came close and peeped into it. Four little naked Blackbirds, with heads lifted on stringy necks, waved unsteadily as with wide-open mouths they begged pitifully for worms. Heretofore when they had detected a sound or movement at the nest it had been a parent with food, and they were now unable to distinguish between the disturbance we produced in parting the rushes and the sounds that the mother made when she fluttered near.

The nest in which these remarkably unattractive babies lay was very deep, and a moment's thought will show that the parent birds were very wise in building it this way. Sometimes the wind blows strongly, and when it does the rushes bend away over to one side. If the nest was not deep the baby birds surely would tumble out, which would mean more sorrow in the marsh.

The eggs from which the little Blackbirds come are about an inch in length and colored in a most peculiar manner. They have streaks and spots and blotches scratched about over them and look

**Life in the
Nest** much as if the mother had brought ink home on her feet and then tried to turn the eggs over without first washing her toes. Usually it takes only about twelve days for the eggs to hatch after the mother begins to sit on them. Her body is very warm. In fact while she sits



RED-WINGED BLACKBIRD

(UPPER FIGURE, MALE; LOWER FIGURE, FEMALE)

Order—PASSERES

Family—ICTERIDÆ

Genus—AGELAIUS

Species—PHŒNICEUS

National Association of Audubon Societies

there if you were to put a doctor's thermometer in her mouth and have her hold it a little while, you would find it registered 110 degrees. Should a doctor find a boy as hot as that his mother would indeed be worried. For the bird, however, this is nothing unusual, and remember, too, the little Blackbird's heart beats more than twice as fast as the human heart.

Although the Red-wings like to stay about the marshes, they also make their nests in bushes or trees along the river banks, and sometimes on the ground in meadows among the Bobolinks. At times only one Red-wing's nest will be found in a neighborhood, and again if food is abundant as many as six or a dozen pairs may be found, and in some large marshes they will be scattered all over hundreds or thousands of acres.

Wherever the Red-wing occurs in spring he is a jealous guardian of his eggs or young, and if a Hawk or Crow comes near he does not hesitate to rise in the air with all the appearance of doing battle to the great intruder of his solitude. Usually a boy can tell if he has come near a Red-wing's nest, for one of the birds is sure to come out to meet him, scolding loudly as he approaches. This chatter of resentment is continued as long as the unwelcome visitor remains in the neighborhood.

**A Bold
Bird**

After the nesting season when the young are able to fly with their parents the Red-wings collect in flocks and wander about the country in search of food. As cold weather approaches the birds from the prairies and marsh-lands throughout the northern states and southern Canada begin to move southward. At this time they may be seen in flocks numbering tens of thousands, and they present a marvelous spectacle as they fly with all the precision of perfectly trained soldiers. I have seen fully thirty thousand of them while in full flight suddenly turn to the right or the left or at the same instance swoop downward as if they were all driven by common impulse. They perform many wonderful feats of flight when on the wing. Sometimes a long billow of moving birds will pass across the fields, the ends of the flying regiment alternately sinking and rising, or even appearing to tumble about like a sheet of paper in a high wind. In the southern states these great flocks may be seen at almost any time during the winter months.

In feeding on the ground they progress slowly across the country in a given direction. The birds at the back rise in a continuous cloud, and flying over their feeding friends, alight in the van of the army. Thus, like a vast wide black hoop, they roll across the peanut or millet fields, until reaching a thicket or wood, they all take wing

with a rush, and pass on to the next open field to continue the remarkable performance.

Blackbirds do not have many friends among the farmers. There is a widespread feeling that they do a great deal of damage, and at times this is true, for they will peck the heads of growing grain, such as rice and oats, and thresh it out to get the kernels. However, there have been very careful studies made of the feeding habits of the Red-wing. One of the best has been made by Edward H. Forbush, the well know bird-man of Massachusetts, and here is what he has to say:

**Not Many
Friends**

"They forage about the fields and meadows when they first come north in spring. Later they follow the plow, picking up grubs, worms, and caterpillars; and should there be an outbreak of cankerworms in the orchard, the Blackbirds will fly at least half a mile to get cankerworms for their young. Wilson estimated that the Red-wings of the United States would in four months destroy sixteen thousand, two hundred million larvae.

"They eat the caterpillars of the gipsy moth, the forest tent caterpillar, and other hairy larvae. They are among the most destructive birds to weevils, click beetles, and wire worms. Grasshoppers, ants, bugs, and flies form a portion of the Red-wing's food. They eat comparatively little grain in Massachusetts, although they get some from newly sown fields in spring, as well as from the autumn harvest; but they feed very largely on the seeds of weeds and wild rice in the fall. In the South they join with the Bobolink in devastating the rice fields, and in the west they are often so numerous as to destroy the grain in the fields; but here the good they do far outweighs the injury, and for this reason they are protected by law."

**Food of the
Red-wing**

Classification and Distribution

The Red-winged Blackbird belongs to the Order *Passeres*, Suborder *Oscines* and Family *Icteridae*. Its scientific name is *Agelaius phoeniceus phoeniceus*. Its range is North America east of the Great Plains, including the Gulf Coast and Florida, breeding over most of this area, and wintering south of the Ohio and Delaware valleys. Seven subspecies are recognized in classification, four in the West Indian and Mexican region, two in the region west of the Great Plains, and one, the Thick-billed Redwing, in the region of the Plains.

THE BALTIMORE ORIOLE

By MABEL OSGOOD WRIGHT

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 26

"Hush! 'tis he!
My Oriole, my glance of summer fire
Is come at last."—*Lowell*.

We who punctuate our reading of Nature's calendar with bird and flower, rather than by the artificial figures of the almanac, give to March the Bluebird and Song-sparrow, the Redwing and the return of the Swallow to April, and to May and June the Wood-thrush, Catbird, and Oriole.

In one reading of the matter the Baltimore Oriole should be first mentioned, for his voice is that of the bugler that heralds actual spring, the long-expected, long-delayed mellow period which, when it comes to us of the north country, is quickly absorbed by the ardor of Summer herself. Also is this Oriole the gloriously illuminated initial letter, wrought in ruddy gold and black pigments, heading the chapter that records the season; and when we see him high in a tree against a light tracery of fresh foliage, we know, in very truth, that not only is winter over, that the treacherous snow-squalls of April are past, but that May is working day and night to complete the task allotted.

Spring's
Herald

As the Indian waited for the blooming of the dogwood before planting his maize, so does the prudent gardener wait for the first call of the Oriole before she trusts her cellar-wintered geraniums and lemon-balsms once more to the care of Mother Earth.

It is no wonder that so gaudy and well-known a bird should have several names, all of them, as Hang-nest, Fire-bird, and Golden Robin, more or less appropriate. "Oriole" is from a Latin word, *aureolus*, meaning golden, or gilded. It was given first to the European Oriole, which is more golden in hue than ours, but of a different and more thrush-like family.

History of the
Name

When, about 200 years ago, Cecil Calvert, second Baron of Baltimore, led a company of English colonists to settle in Maryland, the central town took his name and became the city of Baltimore. Among the curiosities sent home by the colonists were skins of this beautiful bird, which they called an Oriole, not minding the fact—if they knew it—that it was a member of a different family. When therefore, Linnaeus, the great naturalist of the eighteenth century, published, in 1766, a scientific description of the new bird, and noticed that its colors were the orange and black of Lord Baltimore's family, he named it after the baron;

and that is why it is called the Baltimore Oriole. It represents a large family—the Hang-nests, *Icteridæ*—that is typically American, and includes the Orchard Oriole, Bobolink, Redwinged Blackbird, Meadowlark, various Grackles and the vagrant Cowbird.

One of the many welcome facts concerning the Oriole is the ease with which he is identified; I say he, for his more industrious mate, who is the expert weaver of the pair, is much more somberly dressed. In early May, or even later in backward seasons, you will hear a half-militant, half-complaining note from the high tree-branches. As you look about to find its origin, it will be repeated, and then a flash of flame-and-black will shoot across the range of vision toward another tree, and the bird, chiding ever, will begin a search along the twigs for insects.

Orange and Black

This is our grand singer, the Baltimore Oriole, as he first appears in full spring array—his head, throat, top of back, and wings black, the outer margins of the greater coverts and quills white-edged. The breast and under parts, lower part of the back, and lesser wing-coverts, are orange-flame, and the tail is partly black and partly orange.

When the female Oriole arrives, usually several days after the male, the latter's complaining call, "Will you? Will you really, truly?" gradually lessens; and, after a few weeks, when nest-building begins, it ceases altogether, or, rather, is appropriated by the female, who while she weaves the nest, is encouraged by the more clarion-like notes of her mate's song of rejoicing. The plumage of the female is brown and gray, blended with orange above, the head, back, and throat being mottled with black, while the under parts are a dull orange, with little of the flaming tints of her mate.

Though the Oriole exposes himself more freely to view than most of our highly colored birds, and, in fact, seems to regard his gift of beauty anyhow but seriously, he takes no chances in locating his nest, which is frequently a considerable distance above the ground, and always suspended from a forked branch, which is tough enough to carry it yet so slender that no marauding cat would dare venture on it. This pensile nest is diligently woven of grasses, twine, vegetable fibers, horsehair, bits of worsted, or anything manageable, and varies much in size and shape, as if individual taste entered somewhat into the matter.

Weaving the Nest

I am disposed to believe that situation is a large factor in determining its shape, and that nests in wild regions, where the birds of prey and other enemies abound, are smaller at the top and have a more decided neck than those found in trees of lawns and orchards. Of the many nests that I have found and handled, or have observed closely with a glass, the majority have been quite open at the top, like the one pictured; and the only one with a narrow and funnel-like opening came from an elm on the edge of a dense wood.

The female seems to be weaver-in-chief, using both claw and bill, but I have seen the male carry materials to her. It is asserted that Orioles



BALTIMORE ORIOLE

(UPPER FIGURE, MALE; LOWER FIGURE, FEMALE)

Order—PASSERES
Genus—ICTERUS

Family—ICTERIDÆ
Species—CATHARTES

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will weave gayly colored worsteds into their nests. This I very much doubt; or, if they do, I believe it is for lack of something more suitable. I have repeatedly hung varicolored bunches of soft twine, carpet-thread, flosses, and the like, on the bark of trees frequented by Orioles and, with one exception, the more somber tints were selected.

In the exceptional case a long thread of scarlet linen-floss was taken and woven into the nest for about half its length, the remainder hanging down; but, resuming my watch the next day, I found the weaver had left the half-finished task and crossed the lawn to another tree. Whether it was owing to the presence of red squirrels close by, or that the red thread had been a subject for domestic criticism and dissension, I do not know.

**Gay Colors
Avoided**

Despite the bright hues of the birds and the hanging shape of the nest, which is rarely concealed by an overhanging branch, as is so often the case with other birds, an Oriole's nest is exceedingly difficult to see unless one has noticed their trips to and fro when the birds were building it; but as soon as the half-dozen darkly etched and spotted eggs it contains hatch out, the vociferous youngsters call one's attention to the spot, and make their whereabouts known. When their parents bring them food, they squeal (yes, that is the only word for it); if they are left alone, they do likewise. Their baby voices can be heard above the wind, and it is only at night, when one would naturally suppose a parent to be upon the nest, that they are silent. The Oriole lives on a mixed diet, and loves honey; but as a parent he becomes a provider of animal food for his home, and to his credit must be placed the destruction of a vast number of injurious tree-top insects that escape the notice of less agile birds.

**Noisy
Fledglings**

Complaints are frequently heard of his propensity for opening pods and eating young peas, piercing with his awl-like beak the throats of trumpet-shaped flowers for the honey, and, in the autumn, before the southward migration, sucking the juice of grapes and plums through this same slender, pointed bill. I have had the entire floral output of an old trumpet-vine riddled, bud and blossom; and I have often stood and scolded these birds from under the boughs of a Spitzenburg apple-tree, amid the blossoms of which they were rummaging (perhaps for insects), and scattering the rosy blossoms right and left. Powell, in *The Independent*, has written feelingly of this trait of the Oriole, thus:

"An Oriole is like a golden shuttle in the foliage, but he is the incarnation of mischief. If there is anything possible to be destroyed, the Oriole likes to tear it up. He wastes a lot of string in building his nest. He is pulling off apple-blossoms now, possibly eating a few petals. By and by he will pick holes in the bushels of grapes, and in the plum season he will let the wasps and hornets into the heart of every Golden Abundance plum on your favorite tree. . . . Yet the saucy scamp is so beautiful that he is tolerated—and he does kill an enormous lot of insects. There is a swinging nest just over there above the blackberry bushes. It is won-

**Mischief to
Fruit**

derfully woven, and is a cradle as well as a house. I should like to have been brought up in such a homestead."

In his book, *Useful Birds and Their Protection*, Edward H. Forbush says:

"Professor Beal finds that 83 per cent. of the Oriole's food consists of animal matter, caterpillars forming 34 per cent. of the whole. Evidently the Oriole is one of the first among the birds known to destroy hairy caterpillars, and, for this alone, it may be ranked as one of the chief friends of the orchardist and forester. The tussock, gipsy, brown-tail, tent, and forest caterpillars, the fall webworm, and even the spiny caterpillar of the mourning-cloak butterfly—all are greedily eaten by the Baltimore Oriole; and it does not usually swallow many, but merely kills them and eats a small portion of the inner parts. It thus destroys many more than would be needed to satisfy its appetite were they swallowed whole, while, at the same time, no recognizable portion of the caterpillar can be found in the bird's stomach."

**Caterpillars
Eaten**

However much the Baltimore Oriole loves his native land, the climate and the exigencies of travel make his stay in it brief; for he does not appear until there is some protection of foliage, and he starts southward toward his winter home in Central and South America often before a single leaf has fallen.

THE BALTIMORE ORIOLE

How falls it, Oriole, thou hast come to fly
In tropic splendor through our northern sky?

At some glad moment was it Nature's choice
To dower a scrap of sunset with a voice?

Or did an orange tulip, flaked with black,
In some forgotten garden, ages back,—

Yearning toward Heaven until its wish was heard,
Desire unspeakably to be a bird?

—Edgar Fawcett

Classification and Distribution

The Baltimore Oriole belongs to the Order *Passeres*, Suborder *Oscines*, and Family *Icteridæ*. Its scientific name is *Icterus galbula*. Its range is eastern North America and northern South America, breeding from central Alberta, New Brunswick, and Nova Scotia, south to northern Texas, central Louisiana, and northern Georgia, and west to the base of the Rocky Mountains; it winters from southern Mexico through Central America to Colombia.

THE INDIGO BUNTING

By MABEL OSGOOD WRIGHT

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 27

Rich color is the chief attribute that sets the Indigo Bunting apart from the other members of the tribe of Sparrows and Finches. Blue that is decided in tone, and not a bluish gray, is one of the rarest hues among the birds of temperature zones; and one may count the really blue birds of the eastern United States upon the fingers of one hand.

This Bunting belongs to the tree-loving and tree-nesting part of his tribe, in company with the Grosbeaks and the brilliant yellow Goldfinch, whose black cap, wings, and tail-feathers only enhance his beauty. The Sparrows, of sober stripes, nest on or near the ground, and their plumage blends with brown grass, twigs, and the general earth-coloring, illustrating very directly the theory of color-protection, while birds of brilliant plumage invariably keep more generally in the trees.

Family

In size, the Indigo Bunting ranks with the smaller Sparrows, coming between the Field and Song Sparrows, and being only slightly larger than the Chippy. The female wears a modification of the Sparrow garb, the upper parts being ashy brown, without stripes, the under parts grayish, very faintly streaked with dull brown; and the wing-quills and the tail-feathers have dark edges and markings.

When it comes to painting the plumage of the male in words the task becomes difficult; for to use simply the term indigo-blue is as inadequate as to say that a bit of water that looks blue in shadow is of the same color when it ripples out into full sunlight and catches a dozen reflections from foliage and sky. A merely technical description would read: Front of head and chin, rich indigo-blue, greener on back and under parts; wings, dusky brown, with blue edges to the coverts; tail-feathers also blue-edged; bill and feet dark; general shape, rounded and Canary-like, resembling the Goldfinch.

Plumage

In the last of May one of these buntings came to a low bush outside my window, and, after resting awhile, for the night before had been stormy, dropped to the closely cut turf to feed upon the crumbs left where the hounds had been munching their biscuits. I have never seen a more beautiful specimen, and the contrast with the vividly green grass seemed to develop the color of malachite that ran along one edge of the feathers, shifting as the bird moved like the sheen of changeable silk.

In vain did I search among contemporary writers for a description

of this phenomenon, which appears only in the plumage of the fully developed male of two or more years of age. Finally, I chanced, in searching Alexander Wilson's "American Ornithology" for a different matter, to find the only adequate pen-picture of this bird that I know. Of its plumage he says: "There is one singularity, that in some lights his plumage appears of a rich sky-blue, and, in others, of vivid verdigris-green; so that the same bird in passing from one place to another before your eyes seems to undergo a total change of color. . . From this, however, must be excepted the color of the head, which is not affected by the change of position."

The nest, in no way typical, is a loose and rather careless structure of grass, twigs, horse-hair, roots, or bits of bark and dead leaves, placed in a low, scrubby tree, or in a bush at no great distance from the ground; and the three or

Nest

four eggs are very pale blue and unspotted.

Miss Lillian Cleveland, in *Bird-Lore*, for May-June, 1903, gives a very interesting account of the nesting of a pair of these birds in a deutzia bush, close to her house, at West Medford, Massachusetts. The building-operation was first discovered on May 26, when the female alighted for a moment on the porch-rail, with material in her bill. On the 30th, the nest appeared to be finished, and the birds were not seen about it for several days, but on June 3 it contained one egg. Another was added on the following day, and a third on the 5th, after which the female began incubation, while the male sang from the tree-tops in a neighboring field, but apparently carefully avoided approaching the vicinity of the nest. The young were hatched on June 17. The food that was carried to the babies appeared to be entirely soft green worms, and grasshoppers about three-quarters of an inch in length. The mother-bird had a busy time hunting grasshoppers, which she did by hovering over the uncut grass in an adjoining field.

Fledglings

On June 26 the little ones began leaving the nest, hopping from twig to twig among the shrubs. They developed very fast, and by the second day could hop along the ground in a lively manner. That evening a small gray ball rolled down the walk, which, upon investigation, proved to be a refractory young bunting. It was picked up and placed in a bed in a strawberry-basket tied in the porch-railing near the nest; and at four o'clock the next morning the little bird was sitting on the edge of the basket calling for breakfast. The father-bird was not seen during the period of caring for the young until June 28, when, after apparently shirking previous work, he came to see the fun that Mrs. Indigo was having with her young. On the next morning the parents coaxed the little family into the higher trees, and that was the last that the observer saw of them.

Although belonging to the insect-eating fraternity of the conical beak, the Indigo Bunting consumes many noxious insects in the nesting-sea-



INDIGO BUNTING

(UPPER FIGURE, MALE; LOWER FIGURE, FEMALE)

Order—PASSERES
Genus—PASSERINA

Family—FRINGILLIDÆ
Species—CYANEA

National Association of Audubon Societies



son, when the rapid growth of the young demands animal food, no matter to what race they belong. Being an inhabitant of the overgrown edges of old pastures, or the brushy fences of clearings and pent-roads, he is in a position where he can do a great deal of good. Edward H. Forbush, in his valuable book on "Useful Birds and Their Protection," credits the Indigo Bunting with being a consumer of the larvæ of the mischievous brown-tailed moth; but whatever good it may do as an insect-destroyer, its service the year through as a consumer of weed-seeds, in common with the rest of its tribe, is beyond dispute.

Food

The voice of the Indigo Bunting is pretty, rather than impressive, and varies much in individuals. It consists of a series of hurried Canary-like notes, repeated constantly, and rising in keys, but, to my mind, never reaching the dignity of being called an impressive song. Yet on this point opinions differ, and Wilson calls it "a vigorous and pretty good songster." He also says: "It mounts to the highest top of a tree, and chants for half an hour at a time." Its song is not one continuous strain, but a repetition of short notes, commencing loud and rapid, and falling by almost imperceptible gradations, for six or eight seconds, until they seem hardly articulate, as if the little minstrel were quite exhausted; and, after

Song

a pause of half a minute or less, commences as before. The Indigo Bird sings with as much animation in the month of July as in the month of May, and not infrequently continues his song until the last of August.

Being a seed-eater, it is undoubtedly this Bunting's love of warmth that gives him so short a season with us; for he does not usually come to the Northern States until the first week in May, and after the August molt, when he dons the sober clothing of his mate, he begins to work southward, the first departing by the middle of September. Those from the most northerly portions of the breeding-range have passed us in Connecticut by the tenth of October.

Nuttall writes that, though usually shy, Indigo Birds during the nesting season are more frequently seen near habitations than in remote thickets: "Their favorite resort is the garden, where from the top-most branch of some tall tree that commands the whole wide landscape, the male regularly pours out his lively chant, and continues it for a considerable length of time. Nor is this song confined to the cool and animating dawn of morning, but it is renewed, and still more vigorous, during the noonday heat of summer. . . I have also heard a Canary, within hearing, repeat and imitate the low, lisping trill of the Indigo Bird, whose warble, indeed, often resembles that of this species."

Midsummer
Music

This combination of musical ability, lovely plumage and seed-eating quality long threatened the Indigo Bunting with extermination, because it has been habitually captured and sold as a cage-bird throughout the South, both for home use and for export. In that region the bird is

called "Blue Pop," a corruption of *Bleu Pape* (pope) of the French. Thomas Nuttall and Alexander Wilson, both writing in the early days of 1800, speak of the Indigo Bunting as one of the most familiar of cage-birds. Not only had this traffic existed since the

Captivity

days of Wilson, but, until a very few years ago, when the Audubon movement began to be a power, this Bunting, together with its cousin, the beautiful Painted Bunting, or Nonpareil, the Cardinal Grosbeak, and the Mockingbird, were sold, as a matter of course, by every bird-dealer in the country. This is no longer permitted.

Oh, the untold misery and waste of this caging and selling of free-born birds! It is only one grade less direct a slaughter than killing them to trim a bonnet. While the sufferings of the bonnet-bird have ended with its life, those of the caged bird have only begun as the door closes behind it.

A few exceptional instances, of birds whose keepers are both able and willing to make their surroundings endurable, count as nothing against the general condemnation of the practice of caging birds born wild. Those of us who have known by experience in caring for wounded

Cruelty of Caging Wild Birds

or sick birds exactly what incessant watchfulness is necessary to keep them alive, realize how impossible it is that this care should be given them by the average purchaser, who in most cases lacks the requisite knowledge.

Birds born and reared in captivity, like the Canary, are the only ones that real humanity should keep behind the bars. There is no worse habit than allowing children to take nestlings of any kind and try to feed and rear them; if disaster overtakes the parents, a responsible adult should be the one to endeavor to succor the brood. Should we make prisoners of the creatures of which Longfellow writes:

"The ballad-singers and the Troubadours,
The street musicians of the heavenly city,
The birds, who make sweet music for us all
In our dark hours, as David did for Saul."

Classification and Distribution

The Indigo Bunting belongs to the Order *Passeres*, Suborder *Oscines*, and the Family *Fringillidæ*. The scientific name is *Passerina cyanea*. Its range is eastern North America, breeding from North Dakota and southern Ontario to southern Louisiana and central Georgia; and it winters in Central America and Cuba.

THE PURPLE FINCH

By MABEL OSGOOD WRIGHT

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES
Educational Leaflet No. 28

The family of Sparrows and Finches, like that of the Warblers, Black-birds and Orioles, offers such an infinite variety of species, and disports so many contradictory fashions in the cut of beak and tinting of plumage, that when we have even a bowing acquaintance with its representatives we feel that we have really entered the realm of bird-knowledge.

The *Fringillidae* are the largest of all bird-families, numbering some five hundred and fifty species, that inhabit all parts of the world except Australia. The one feature that binds them together, so far as the untrained observer may discover, is the **Family** stout bill, conical in shape, with great power for seed-crushing, for, first and last, all of the tribe are seed-eaters. Although in the nesting season much animal food is eaten by adults as well as fed to the young, and tree-buds and fruits are also relished. Finches and Sparrows can live well upon seeds—seeds of weeds, the seeds concealed between the scales of pine-cones, and the pulp-enveloped seeds of wild fruits that are called berries.

This ability to pick a living at any season of year when the seeded weeds of fields and roadsides are uncovered, makes what are called “permanent residents” of many species of Sparrows, and causes them, when they migrate, to keep within a more restricted circle than their insect-eating brethren. Also, alas! this seed-eating quality, coupled with beauty of plumage and voice, has made them favorite cage-birds the world over. Happily, freedom has now come to them in this country, together with all our birds, as far as the law may protect them.

Run over the list of prominent members of the family of Finches and Sparrows. Call them by memory, if you can; if not, take a book, and look them up, for it is quite worth while to know them.

The Sparrows are clad in shades of brown, more or less streaked, and their dull colors protect them amid the grasses in which they feed and lodge. The birds of brighter plumage **Sparrows** are obliged to look out for themselves, as it were, and keep nearer the sky, where their colors, to a considerable extent, are lost in the blaze of light.

First to be remembered are the birds that wear more or less red—the Cardinal, the Rose-breasted Grosbeak, the Redpolls, Crossbills, the Pine Grosbeak and the Purple Finch (who is no more purple than he is blue or yellow, and might better have been named Crimson Finch).

Then come three birds who would seem original and striking in any family—the Indigo Bunting, the southern Blue Grosbeak and the beautiful Painted Bunting, or Nonpareil, gay in blue, gold, red, and green plumes.

Red and blue—then yellow must follow as a natural sequence, to complete the primary colors. It is a fact in the floral kingdom that the three primary colors never exist naturally in one family, but must be produced by artificial hybridization; thus, there are red and yellow roses, but no blue; red and blue verbenas, but no yellow, and so on.

In the Sparrow family, however, we have the three primary colors in all their purity—the Goldfinch, clad in pure gold, and the Dickcissel, of the yellow breast, together with the yellow marks on wings of the Pine Siskin, supplying the third color. The Towhee Bunting stands alone, a blending of brilliant black above, white below, with chestnut sides and red eyes. The Chippy, Song and Field Sparrows are typical of the color-protective family type. The white outer tail-quills are an index to the Vesper Sparrow; the same white quills and a white vest distinguish the Slate-colored Junco. The White-throated Sparrow has his name plainly printed under his beak, and the White-crowned Sparrow writes his in his white head-stripe, while the rusty-brown Fox Sparrow is known both by size and color.

The Purple Finch, which, as I have said, is not purple, but when in full plumage washed with a rich raspberry-red, deepest on breast, crown and rump, is one of the notable members of the family. Its bill is heavy and round, approaching in size those of the Grosbeaks, while its body ranks with that of the Song and House Sparrows. It has a way of bristling the feathers of its crown that sometimes gives it the aggressive mien of the Cardinal; while its clinking call-note, and way of flying in scattered flocks, and the fact that it is with us in winter, cause it to be mistaken sometimes for one of the Crossbills.

One would think that, with its rich coloring, and the fact that it is a winter resident in many parts of its range, this Finch would be a well-known bird; yet many people who have a fair knowledge of our common birds do not seem to know it. Perhaps this is because the females and immature birds, wearing gray and brown stripes, look so very much like their Sparrow kin that the rosy-vested bird which sings in the trees, where his colors cannot be seen unless you are directly under him, escapes unnoticed. The change of the young male Finch from his northern plain garb to the full crimson costume is interesting, as it is deliberate, taking two seasons, the rosy flush not appearing until the end of the second year.

In spite of his unique plumage, it is for his song that this bird has won renown, and it is by his song that he is most readily to be identified. To hear this in its perfection one must listen to it in May and June; for this Finch has not the enduring vocal qualities that endear

**Family
Colors**

**Too Little
Known**



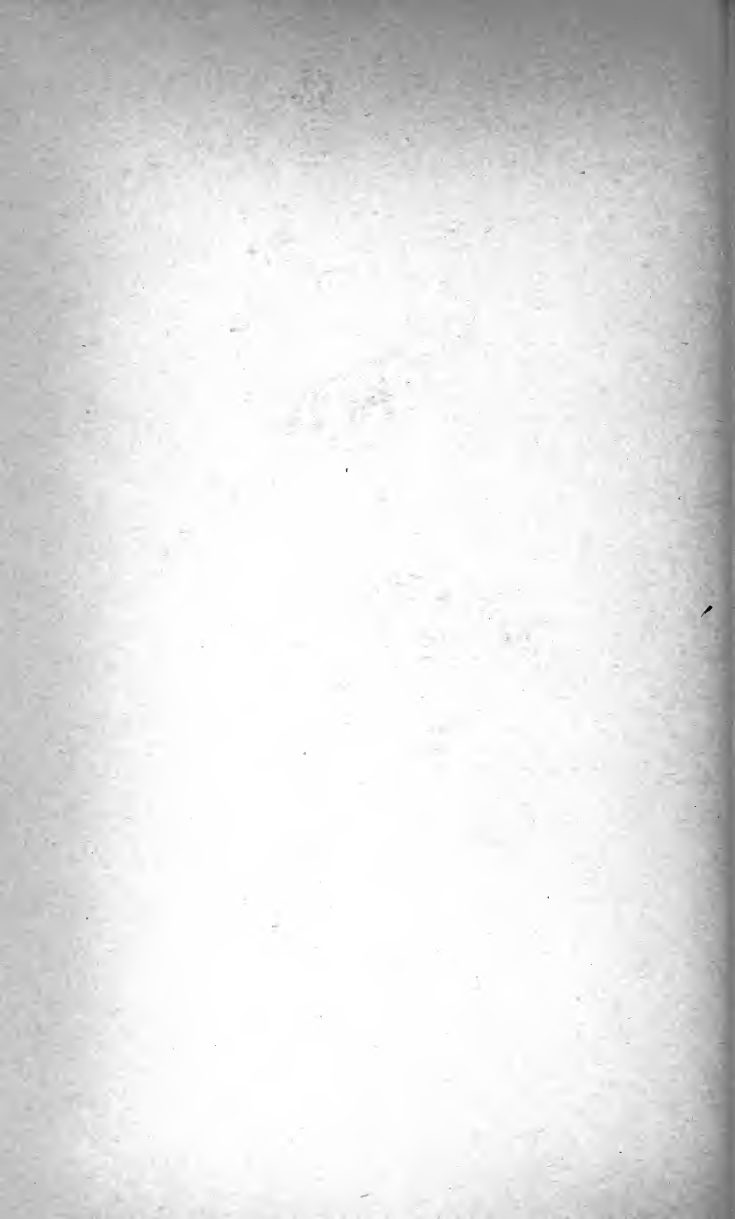
PURPLE FINCH

(UPPER FIGURE, MALE; LOWER FIGURE, FEMALE)

Order—PASSERES
Genus—CARPODACUS

Family—FRINGILLIDÆ
Species—PURPUREA

National Association of Audubon Societies



his cousin, the Song Sparrow, and give us the perpetual hope that we may hear his voice in every month of the year—a hope that is usually fulfilled. Those that have wintered with us in New England begin to warble a little in late March, and the same partial song may be heard in October, after the molt; but the song that suddenly bursts into exuberance, rendering him one of our most conspicuous songsters, and recalling many notes of the English Chaffinch, belongs to the nesting season.

It is almost impossible to render the song of a bird in syllables so that it shall appeal to every sort of person; for, as bird-music is phrased according to the natural, not the artificial key that we associate with annotation. its translation is a matter of mood, temperament, and accord between imagination and ear.

**Joyous
Song**

To me, when the voice of the Crimson Finch bursts forth in sudden joyousness, it cries, "List to me, list to me, hear me, and I'll tell you—you, you!" There must be, however, some similarity between these syllables and the song, because more than once, on endeavoring to name a curiously described bird that I suspected might be this finch, the rapid whispering of these words has completed the clue, by the inquirers exclaiming—"Yes, that is the way the song went."

Yet, do the best we can to suggest the rhythm of the song, the music of it belongs to the woods and fields, the sky and sun, from which we may not separate it. Forbush says of it: "The song of the male is a sudden, joyous burst of melody, vigorous, but clear and pure, to which no mere words can do justice. When, filled with ecstasy, he mounts in air and hangs with fluttering wings above the tree where sits the one who holds his affections, his efforts far transcend his ordinary tones, and a continuous melody flows forth, until, exhausted with his vocal efforts, he sinks to the level of his spouse in the tree-top."

Purple Finches often travel in flocks, and are at all times somewhat gregarious; this trait has made them an easy prey for bird-catchers, and in past years, when the practice of caging our wild birds prevailed, these Finches were trapped in great numbers and sold in the bird-stores, or sent to Europe, as "Red Linnets." Alexander Wilson thought it no harm to cage them. "The Purple Finches," he writes in his "American Ornithology," "possess great boldness and spirit, and, when caught, bite violently and hang by the bill from your hand, striking with great fury; but they are soon

**Unhappy
Prisoners**

reconciled to confinement and in a day or two are quite at home. I kept a pair of these birds upward of nine months, to observe their manners. Both are now as familiar as if brought up by hand from the nest, and seem to prefer hemp-seed and cherry-blossoms to all other food. . . . When these birds are taken in their crimson dress, and kept in a cage until they molt their feathers, they uniformly change their appearance and sometimes never after regain their red color. . . . They are also subject, if well fed, to become so fat as literally to die of corpulency."

The moral of this is that even a hardy Finch, when caged, becomes abnormal, and should be granted the same liberty as is the due of the Cardinal, the Mocking-bird, and all the rest. Wilson says that the pair he caged were reconciled to confinement in a day or two. This I am never prepared to believe about any bird born wild and captured after maturity. Cowed or caged into submission they may be, but *reconciled*, never!

The home of this Finch is much like that of the Chipping Sparrow, but is bigger. It may be placed in an orchard tree, but more usually rests on the branch of an evergreen; and is composed of fine weed-stalks and grasses, and lined with horse-hair. The eggs are greenish blue spotted with dark brown, and so resemble those of the Chippy, but are noticeably larger.

Nest and Eggs

Eugene P. Bicknell has written: "During the nesting season the Purple Finch frequently takes up its abode in private grounds, even becoming a familiar garden-bird, while others of its race find a congenial home in wild mountain forests, far away from the society of man. The rosy plumage of the males make it attractively noticeable as a garden bird; but a serious offense must be charged against it—it has far too ready a taste for the blossoms of fruit-trees, and is, perhaps, the most confirmed bud-eater of all of our birds. It has naturally a roving disposition, and, in the autumn especially, seems ever to be impelled by some restless impulse. At this season it may often be seen descending with airy, sweeping flight into some leafless tree-top, as if from a far aërial journey, its identity made known by its very characteristic utterance, a short, rather dull-sounding note, scarcely metallic—the metal pressed the instant the bell is struck."

Edward H. Forbush, State Ornithologist of Massachusetts, concedes that the Purple Finch does destroy some buds and blossoms, but asserts that the pruning or cutting of buds, blossoms, and seeds of trees is not, ordinarily, excessive. "On the other hand, this bird

Feeding Habits

eats many of the seeds of the most destructive weeds, ragweed being a favorite. The Purple Finch also destroys many orchard and woodland caterpillars. It is particularly destructive to plant-lice and canker-worms. Its quest of weed-seeds is sometimes rewarded by some insects which it finds on the ground, among them ground-beetles and perhaps a few cutworms."

Classification and Distribution

The Purple Finch belongs to the Order *Passeres*, Suborder *Oscines*, and Family *Fringillidae*. The scientific name is *Carpodacus purpureus*. Its range is eastern North America, breeding from British Columbia, Ontario and Newfoundland to North Dakota, northern New Jersey and Long Island, and wintering from the southern portion of its breeding-range to Texas and Florida.

The subspecies, California Purple Finch, *C. p. californicus*, ranges from British Columbia to southern California and Arizona.

THE HERRING GULL

By T. GILBERT PEARSON

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 29

While sitting one afternoon on the veranda of a little hotel at Beaufort, North Carolina, idly watching a Herring Gull slowly beating about the harbor, I was surprised to see it suddenly fly down on a mud-flat, which had been exposed by the falling tide, grasp a clam in its bill, and, after



A HERRING GULL ON ITS NEST

Photographed by William Dutcher

rising aloft about forty feet, let its burden fall. The bird quickly descended, seized its victim, then rose, and dropped it as before. This performance was repeated sixteen times, when the gull, after a final look at the clam, flew away, evidently discouraged. The gull was trying to break the clam's shell, but the soft mud did not offer sufficient resistance

for this purpose, so the bird went elsewhere for its dinner. A few days later, I found gulls practicing this habit with great frequency a hundred miles farther up the coast; and, at one place, near Cape Hatteras, the hard-packed sands were literally strewn with fragments of freshly-broken clam shells.

In its general feeding-habits this bird is, however, mainly a scavenger, and at sea I have often found amusement in standing on the after-deck and watching a dozen or more gulls at a time contending for scraps of food thrown overboard from the cook's galley. Fishes' squids, porpoises, and other marine animals that die and are cast up by the waves, are not allowed long to infest the beaches. The quick eye of some gull soon discovers them, and, like vultures, a flock quickly gathers to the feast.

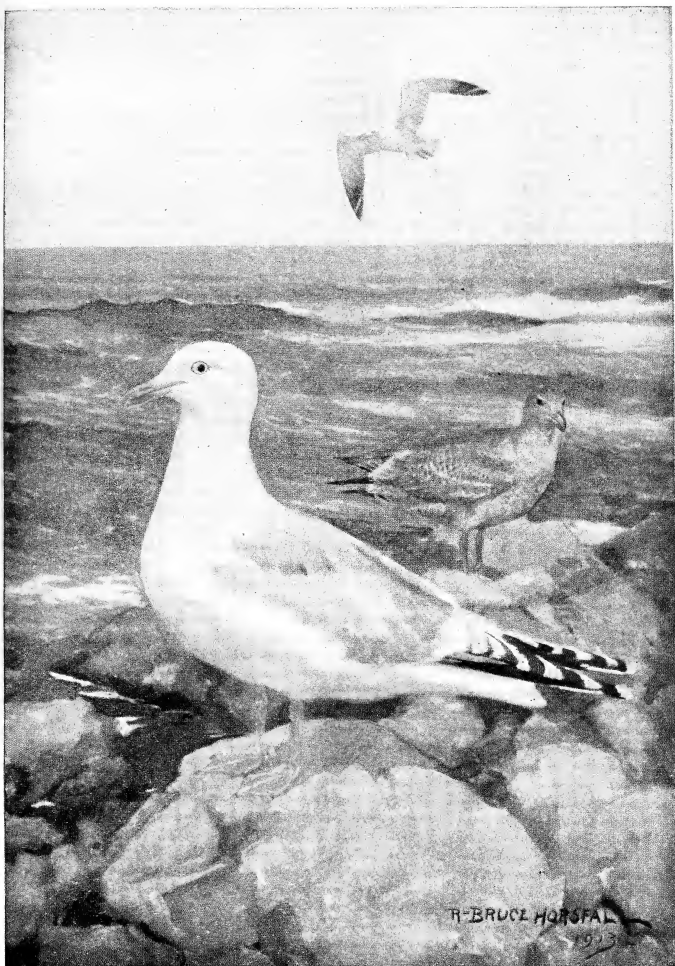
**A Sea-
Scavenger**

Some years ago it was the custom in New York to take the refuse of the city on scows out to the open sea and dump it overboard. In those days it was common to see thousands of Herring Gulls following these garbage-laden vessels. If you go outside of Sandy Hook to-day, when fishing vessels are lying at anchor, you will find hundreds of these gulls hovering about to get the pieces of bait that are thrown away, or the waste fragments of fish cast overboard by the anglers; and the first welcome to this country received by passengers on incoming steamships is likely to be from flocks of these adventurous birds.

There is not a harbor, river-mouth, or sound along the South Atlantic coast that does not have its flocks of Herring Gulls constantly in attendance during many months of the year. They are also to be seen on the coast of the Gulf of Mexico, about the lakes of the interior, and along the larger rivers. They are not shy, like most water-birds, but may be observed in our most populous cities if favorable opportunities exist for their presence. I have seen them in Detroit, Chicago, Milwaukee, St. Louis, and many other large cities. From early autumn until late in spring large numbers of Herring Gulls frequent New York Harbor. If you take a boat and go up the Hudson River to Spuyten Duyvil, then through the Harlem River and down the East River back to the harbor, you will never be out of sight of these birds. They also soar at times over all parts of the city, and now and then gather to rest by thousands on the fresh waters of the Croton Reservoir in Central Park.

**Wide
Distribution**

When spring comes the Herring Gulls retire northward to their summer homes. Some pass into Canada and on as far as Alaska, but many remain within the boundaries of the United States. They breed in great numbers on some of the islands in the Great Lakes. There is also a colony in Lake Champlain, New York; another on an island in Moosehead Lake, Maine. They are most numerous at this season, however, on the rocky islands lying off the Maine coast. The National Association of Audubon Societies annually employs about fourteen wardens to guard the rookeries of that region; and the accompanying illustration is from



HERRING GULL

Order—LONGIPENNES
Genus—LARUS

Family—LARIDÆ
Species—ARGENTATUS

National Association of Audubon Societies

a photograph of a gull-home on one of these peaceful islands, which, unless guarded, would be ravaged in summer by egg-hunters and other disturbers.

The nest of this bird is usually placed on the ground or among rocks. Sometimes it may be discovered in beds of dry seaweed cast up by the sea. Any dry, soft, vegetable matter is collected into a scanty nest—mostly rim. The eggs, usually three, show a beautiful assortment of markings, being spotted and blotched with a wide range of yellow, brown and blackish tints, on a surface-color ranging from grayish-green to olive-brown.

**Nest and
Eggs**

On at least two of the Maine rookeries some of the gulls construct rather bulky nests in evergreen trees. These vary from six to twenty-five feet from the ground, and it is locally reported that the young in such nests never leave the trees until quite able to fly. Those young that are hatched in nests on the ground, however, appear to leave just as soon as their legs are strong enough to support them. In walking through one of these rookeries the young will spring up from their hiding and run before you like so many little dirty sheep, for their immature coats are brownish gray. They are expert in hiding. Almost any place serves them for a temporary shelter. They are well concealed when they crouch under clumps of grass, or by the side of a boulder, or even among the pebbles on the beach. As long as they remain motionless in these situations it requires a very sharp eye to detect them.

**Safety
Tactics**

While visiting No-Man's-Land Island, Maine, in July, 1911, the writer was much pained to witness many unkind acts on the part of the old gulls. When one lighted on the ground one or more young would invariably start toward it, evidently hoping for food and comfort. It is generally believed that gulls confine their attention to their own young, and are not given to supplying food to others. It would seem, too, that the little ones are unable to distinguish their parents from other adults, hence they approach any newcomer with that sublime confidence known only to youth, and it is not uncommon to see the old gulls immediately attack and drive them away. Frequently I saw them pursuing the young, striking at them unmercifully. One half-grown bird I found totally blind, evidently from blows received in this way, and several others were blind in one eye. Many had raw and bleeding heads, and here and there on the island were found the bodies of others that had succumbed to the abuse of old birds. This is probably one of Nature's ways for keeping the race from becoming too numerous, but from the human standpoint it certainly seems a cruel and wanton waste of bird-life.

**Cruel to
the Young**

Herring Gulls seem much attached to the rocky islets that have been their nesting-ground for many generations, and will return year after year to the same spot, regardless of much persecution. They will also linger in the neighborhood of their eggs and young, and often will

alight within a few yards of an intruder, voicing their alarm and resentment by continuous shoutings.

In years gone by the feathers of these birds were greatly in demand to be used for decorating women's hats. Hundreds of thousands of Herring Gulls were killed and their feathers sold in the millinery stores of our large cities. To secure these feathers at the season when they are in their best condition, it was necessary to kill the birds at the time of year when they were on or near their nesting-grounds.

**The Feather
Trade**

Men went to the islands, camped on shore, or lived in their boats, and shot the birds mercilessly day after day. Each morning they killed all they could skin before the coming of darkness, and threw their bodies in heaps, where they festered in the sunshine. The young gulls thus left without parental care, and totally incapable of procuring food for themselves, perished miserably. As a result, the gull population very greatly decreased, and it seemed for a time that this species would be entirely wiped out in North America.

That Herring Gulls still beautify our waters, and serve as scavengers of the sea, is, in a large measure, due to the heroic efforts of Mr. William Dutcher and other Audubon workers, who, by wide campaigns of publicity, at length secured State laws prohibiting the killing of these birds. They did not stop at this, for they knew that the slaughter would still go on to some extent, and the feathers be sold surreptitiously, unless guards were stationed at the breeding-places to protect the rookeries during the season when the birds are there.

**Service of
Wardens**

Gulls' eggs are esteemed as food by many fishermen, and it was necessary to protect the nests also against these destroyers. This was the beginning of the Audubon Society's warden-work, which has since been extended to include large numbers of nesting-colonies of water-birds of various kinds throughout the United States.

Classification and Distribution

The Herring Gull is classified as belonging to the Order *Longipennes*, the Family *Laridæ*, and the Subfamily *Larina*. Its scientific name is *Larus argentatus*. The species occurs at some season over much of North America, and in Europe as far south as the Caspian and Mediterranean Seas.

THE SNOW BUNTING

By MABEL OSGOOD WRIGHT

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 30

No matter what the weather may have been in December and January, February, in New England, is sure to be a month wherein winter brings all the changes from soft days, rain or sleet-storms to deep, trackless, obliterating snows. If the winter has been clement and open at the beginning, the insect-eating, resident birds—Nuthatches, Woodpeckers, Chickadees, etc.,—will be numerous; but if February lives up to its reputation of

“When the days begin to lengthen,
The cold begins to strengthen,”

we must rely upon the seed-eating birds to be our companions until the first courageous spring migrants appear.

All winter we have had with us members of the family of *Fringillidæ*, or Finches and Sparrows, that have come either in lingering flocks or merely as birds of passage; the Goldfinch in sober winter dress, the stocky Purple Finch, the handsome White-throated Sparrow, the sociable Tree Sparrow or “Winter Chippy,” chiefly distinguishable by its larger size from the gentle little summer resident of the hair-lined nest; the Slate-colored Junco, trim of figure, dressed in clear gray, with sleek white vest and identifying light beak. In addition to these have come, perhaps, if cone-bearing trees are near, a mixed flock of American and White-winged Crossbills—those strange birds of varied red plumage, beaks crossed at the tips, and clear metallic calls.

The Finch
Family

In spring we may predict with reasonable accuracy the coming of the birds that are summer residents, and the time of passage of the migrants that nest further north, but the comings and goings of the winter birds are fraught with entire uncertainty. Several days will pass when my lunch-counter in the old apple-tree, with its sloping roof of wood that keeps off rain and snow, will be without a single visitor; then, without rhyme or reason, the birds will swarm about it like bees about buckwheat—birds of all sizes, from the Blue Jay to the merry little Kinglets.

Winter
Wanderers

Five birds of the North there are that I never expect to see during an open winter—the Snowy Owl, the Pine Grosbeak, the Redpoll, the Lapland Longspur that leaves the print of a long hind toe in the snow to tell of its coming, and the Snow Bunting—all but the Owl belonging to the great Finch family. When these appear we may know that even if we have had but a light snowfall there have been great Arctic storms, scattering the birds before their fury.

Of all these birds of the wind the Snow Bunting is the most winning, allowing us to come near him as he feeds, and venturing close to our houses, barnyards and hayricks in search of food, sometimes to the very doorstep itself, where, a few years ago, I saw a small flock of seven feasting upon the waste that had been thrown out from the Canary's cage.

Few birds have more appropriate and descriptive names than this; yet "bunting" is a term that is hardly naturalized in America, so that it is not strange to find "Snowflake" taking its place. Sometimes our visitor is called White Snowbird to distinguish it from the more familiar Blue Snowbird (*Junco*).

After the snowfall has ceased, and we look across the open toward the woods, a slight movement draws the eye toward a protected hollow where bent and broken stalks of mullein, ragweed, and wild sunflowers still hold their heads above the snow.

What is it we see—brown leaves drifting about? Impossible! The only uncovered leaves are those few that cling, dry and rustling, to the young beeches and oaks.

Work your way carefully toward the nearest shelter, field-glass in hand, and you will see a flock of plump, compactly built birds, a little larger than the familiar English Sparrow. At first you will have difficulty in separating them from the snow, for they are all white underneath and have much white on the neck, head, wings, and tail. The Snow Bunting's color is a deep rust-red, but it is so mixed with the white that, at a short distance, the plumage takes on all the dead-leaf hues of fawn and russet, as if the birds were themselves animated leaves frolicking with the blowing snow. This is the Snow Bunting's winter dress; in summer he wears clear black and white.

This Bunting is one of the small group of circumpolar birds whose summer home is within the Arctic Circle, and it nests on the barrens north of the limit of forest-growth, in that desolate region that the Canadian Indians call "the land of little sticks," and on the mossy plains that skirt the Arctic shores of Asia and Europe. Thence in winter it descends into central Europe and to China as it does in America into the northern United States. Its southward migration is always uncertain and irregular on both continents.

The Snow Bunting belongs to the ground-loving portion of its tribe, if such a distinction is allowable. Not only does it nest on the ground, but spends most of its time there. I doubt if it even roosts in trees, for those that I have observed took shelter, after feeding, either in a brush-heap or in the edges of a corn-stack. The Longspur clings to the ground in the same way, and the Horned Lark also; and we can easily see that this trait would be a matter of heredity in species that are natives of countries offering so poor perching accommodations as do the treeless Arctic shores.



SNOW BUNTING

Order—PASSERES
Genus—PASSERINA

Family—FRINGILLIDÆ
Species—NIVALIS

(One-half natural size)

National Association of Audubon Societies



In such circumstances these and other polar birds must have acquired an extraordinary power of resisting cold or they could not survive. What this endurance must be is shown in the following notes by John Woodcock, referring to a winter night in northern Manitoba:

"On cold, frosty nights, with the thermometer away below zero, one wonders how the winter birds are faring. Nearly every winter the Snow Buntings roost in the chinks on the north side of our granary. On fine nights, when it is not too cold, they have a fairly good place, if the wind does not blow directly on them. But on January 14, 1907, the wind blew roughly right on the ledges where the birds roost, and the thermometer registered 36 degrees below zero. Soon after sundown as I looked to see if there were any birds on the granary, I was surprised to see about twenty Snow Buntings in their usual place, fully exposed to the biting wind.

**Resistance
to Cold**

"For the benefit of those who have not experienced such low temperature, I might say that a wind as cold as that will freeze one's unprotected face almost instantly; yet here was a flock of little birds going to sleep, not protected from it in the least, as unconcernedly as though it were a warm summer night."

The nest of the Snow Bunting has been thus described by Dr. Elliott Coues:

"The few nests of the Snow Bunting that I have seen were built with a great quantity of a kind of short, curly grass, which grows in the Arctic regions, mixed with moss, the whole forming a very substantial structure, with walls an inch or more thick, and a small, deep cavity.

**Nest
and Eggs**

"This is warmly lined with a quantity of large feathers from some water-fowl. They are built on the ground, often covered and hidden by tussocks of grass, or even slabs of rock. The eggs are exceedingly variable in color as well as size. The ground is white, or whitish, sometimes flecked all over with neutral tint shell markings, overlaid by deep brown spots."

E. W. Nelson gives a very full and interesting account of the habits of these Buntings in Alaska, although he did not hear them sing; but he quotes Henry W. Elliott, who studied them in summer on the Seal Islands in Bering Sea, as listening to the males singing in June while their mates sat upon their eggs in the heather. "During this period," says Mr. Elliott, "the male is assiduous in bringing food (insects, chiefly ground-beetles); and at frequent intervals sings his simple but sweet song, rising as he begins it, high up in the air, as the Skylark does, and at the end of the strain drops suddenly to the ground again."

**A Flight
Song**

To us, who may see the Snow Bunting only in its wanderings, its chief interest and importance is that its coming brings a bit of novelty to the winter landscape, and that it is one of the great tribe of weed-warriors that, through the very necessity of existence, consume vast numbers of weed-seeds before the growing season quickens them to life.

The careless landowner, for the lack of a few hours spent with a scythe in his pasture and old fields, promotes the growth of weeds that will not only choke his crops, but rob the soil of its fertility. Then comes winter, and while the man withdraws into his house the band of feathered workers that are a great part of nature's scheme of economics, silently appear, and without confusion fall to their allotted tasks: The Crossbills and Pine Grosbeaks, through their feeding, to plant evergreen forests; the Waxwings, to establish the pointed cedars on bare hillsides, drape the byways with bittersweet, and enmesh the thickets with catbriar; the Myrtle Warblers to spread the persistent greenery of the bayberry, together with many other berry-bearing bushes; while the gentle Snowflakes in the hollows, always keeping close to the ground, glean from the broken weed-stalks that have been overlooked by their kinsmen in the earlier season of plenty.

Winter Planting

In addition to this seed-food, the Snow Bunting is known to eat the larvæ of small insects, and the minute shell-fish that attach themselves to the leaves of water-plants and rushes (upon the seeds of which they also feed), so that there is reason in this varied diet for the usual plump appearance of the bird. Upon this plumpness, indeed, depends its life, for it is the layer of fat beneath its skin that enables it to defy the cold.

Surely, if any bird could be expected to receive hospitable treatment at human hands, one would think it would be given to these brave children of frost and snow, the Snowflake and Slate-colored Junco, yet myriads of these have fallen into the snares of the trappers for the sake of the mere mouthful of meat they furnish. In Europe formerly they were systematically caught in traps, when, after being kept and fed upon millet, they became in flesh and flavor the rivals of the famous Ortolan.

A man from our own Yankee hill-country, who was a boy twenty years ago, told me once, as we stood watching the Juncos picking up mill-sweepings from under my feeding-tree, that "at home we always used to catch lots of those Gray Snowbirds every winter, in a box-trap. Good eating they were too—'bout as sweet and tasty as Reed-birds (Bobolinks). T'would be a poor winter we boys didn't get a couple o'hundred on em. Since the blizzard year (1888) they sort o'shied off, and now that the law has set plump down on every sort o'snarin', the country fellers either has to take bad risks or do with pork-meat in winter."

Small Game

Classification and Distribution

The Snow Bunting belongs to the Order *Passeres*, Suborder *Oscines*, and Family *Fringillidae*. Its scientific name is *Plectrophenax nivalis*. In North America it breeds in the Arctic Zone, and in winter visits southern Canada and the Northern States, occasionally appearing as far south as the Ohio River. Two subspecies inhabit the coasts and islands of Bering Sea.

THE SONG SPARROW

By T. GILBERT PEARSON

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 31

One July morning, while walking through a grove on the shores of Lake Champlain, my attention was arrested by the loud and repeated cries of a bird evidently begging for food. A hundred feet away I found the distressed creature standing on a flat rock, and repeatedly voicing his complaint with scarcely a pause. It was a dark, brownish bird, and its color and form indicated that it belonged to the blackbird family. For perhaps three minutes I watched it, and then suddenly a little bird darted through the bushes, in appearance totally unlike the one before me. It went straight to the rock, and, alighting, proceeded at once to feed the big, hungry baby. I had discovered a young Cowbird being fed by a Song Sparrow. While the occurrence was not particularly unusual, such a scene, nevertheless, is likely to attract the close attention of an observer, so I stopped for a time to watch the scene. It always seems so odd to see a dainty little sparrow ministering to the wants of one of these parasites of the bird-world.

**Fostering
a Cowbird**

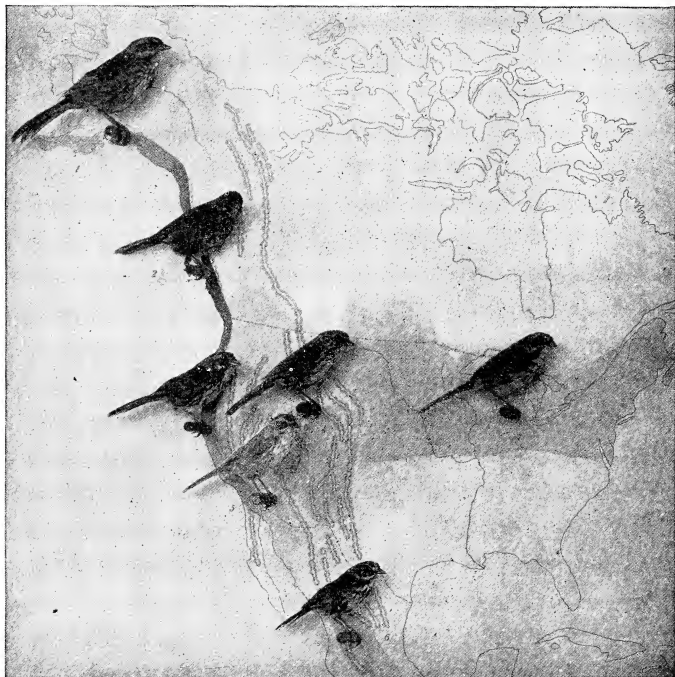
A few weeks before, while the Song Sparrow was away from its nest, a roving Cowbird had slipped in and deposited her egg with those of the rightful owner of the nest. Then, unnatural mother that she was, she went her way and abandoned her treasure to the care of the Song Sparrow, which, while sitting on her own eggs also brooded tenderly over that of the Cowbird, and, in due time, brought forth the young one into the world.

Afterward, from time to time, I watched as best I could the movements of this little sparrow-mother. Although she was seen frequently for several days feeding the great Cowbird's youngling that had been foisted on her, not once was she detected feeding a baby of her own. What had become of the young Song Sparrows, which must have been hatched in the nest at the same time when the young Cowbird appeared? No one knew; but it is quite probable that they were crowded out of the nest by their great, unwelcome bed-fellow, long before they were able to fly. So, down on the ground under the nest, they doubtless lay in baby helplessness, in the cold and the rain, while hunger gnawed at their lives, and death slowly drew its veil across their little eyes.

**A Deadly
Intruder**

A week later another Song Sparrow was found feeding one of her own young, and also two Cowbirds. All over those regions of North

America where both the Song Sparrow and the Cowbird are found in summer, these unnatural happenings are taking place. It is indeed fortunate that Cowbirds' eggs are not deposited in the nest of every Song Sparrow, else we might lose, in a few years, the presence of this, the most charming of all our common native sparrows. How fortu-



GEOGRAPHICAL RACES OF THE SONG SPARROW

Many varieties or subspecies of the Song Sparrow exist west of the great plains, evidently produced by varying climatic conditions. The accompanying illustration, from a photograph of a mounted group in the American Museum of Natural History, in New York City, shows the center of distribution of seven of the most striking of the twenty varieties of Song Sparrows now recognized by naturalists; and displays somewhat the variation in size, and in pattern of coloration. Those indicated are: 1, Aleutian; 2, Sooty; 3, Heermann's; 4, Mountain; 5, Desert; 6, Mexican; 7, Eastern Song Sparrow.

nate it would be if some one understanding the language of the birds would go through the woods each spring and whisper to every Song Sparrow, "Beware the Cowbird's spotted egg; throw it out of your nest!"



SONG SPARROW

Order—PASSERES
Genus—MELOSPIZA

Family—FRINGILLIDÆ
Subspecies—CINEXEA MELODIA

National Association of Audubon Societies

Hunting the Song Sparrow's nest is an interesting experience. The most effective way to find one is to watch the birds during the months of May and June when they are engaged in nest-building. When you discover one holding dry grass-blades or fragments of dead leaves in its bill, drop everything else you may have in mind and keep your eyes on it. If the bird sees that it is observed it may become suspicious, and alight on various perches before going to the spot where the new nest may already be taking shape. It is well, therefore, to remain as quiet as possible, making no unnecessary noises, and, above all, no sudden motions.

**Watchful
Behavior**

After the eggs are hatched, the nest is even more easily found by watching the birds, for then one or the other of the parents ordinarily visits the nest every few minutes, as the young are great eaters and their appetites seem never satisfied. In examining an occupied nest the greatest care should always be taken. It is not well actually to touch a nest, nor to disturb much the leaves or grass that usually covers its hidden retreat. When the young have left it, however, there is no reason why the nest should not be taken if one wishes to do so, for neither the old birds nor the young will return to it.

Inspection will show it to be made of such articles as coarse grasses, small roots, dead leaves, and strips of bark. The lining, where the bodies of the little ones have rested, is usually composed of fine grasses, and sometimes long hairs are used. The nest seems to be so simple a structure that one might almost believe he could himself make a Song Sparrow's nest; but try it and see how you prosper! Take the materials of the old nest you have just pulled to pieces and try to reconstruct it properly. I have a nice present for the boy or girl who can do so successfully.

**Nest
and Eggs**

The nests are very often to be found on the ground in a meadow or wood-lot; frequently they are hidden in bushes. Sometimes they are far from a building of any kind, and, again, they may be very near a human habitation. At a summer resort in the mountains of North Carolina I once found that a pair of Song Sparrows had built their nest in a little cavity on the edge of a small terrace, directly in front of a hotel veranda, where a hundred guests came and went continually.

The Song Sparrow's eggs number four or five, and are usually bluish-white, with many brown markings distributed thickly over the surface.

This beloved bird is, as its name implies, one of the most admirable and delightful of American songsters. Ernest Ingersoll has written pleasantly of this characteristic in his book *Wild Life of Orchard and Field*:

"During the winter," as he says, "the Song Sparrow remains, quiet and busy, along the edges of the woods on warm hillsides, in company with the Spotted Woodpeckers and Snow-birds, or associates with the fowls in the barn-yard for a share of the housewife's bounty. But as the March snow melts, and the sun sends genial warmth to awaken the buds, he mounts the topmost twigs of the brush-pile whose labyrinths

he has spent the winter in exploring, and pours forth a rapturous welcome to the couriers of summer. Then, through all the spring days, whether they be shady or sunny, from early morning till long after sunset, are heard the sweet and cheery cadences of his song, trilled out over and over again, like a Canary's.

Spring Song

“He starts off with a few low, rattling notes, makes a quick leap to a high strain, ascends through many a melodious variation to the key-note, and suddenly stops, leaving his song to sing itself through in your brain. To amplify another's quaint illustration, it is as if he said Press-press-PRESS, BY-TEEEE-RIAN-ian! His clear tenor, the gurgling, bubbling alto of the Blackbirds, the slender purity of the Bluebird's soprano, and the solid bass-profundo of the frogs, with the accompaniment of the April wind piping on the bare reeds of winter, or the drumming of rain-drops, form the naturalist's spring quartette—as pleasing, if not as grand, as the full chorus of early June.”

“Last season,” writes John Burroughs, “the whole summer through, one sang about my grounds like this: *Swee-e-t, swee-e-t, sweet, bitter*. Day after day, from May to September, I heard this strain, which I thought a simple but very profound summing-up of life, and wondered where the little bird had learned it so quickly.”

These birds, in common with most other small species of our feathered neighbors, are very fond of insects and their larvæ, and in the spring and summer Song Sparrows are of great service to mankind by destroying these pests of the garden. They eat berries and small fruit, but to a limited extent only, wild varieties usually being chosen.

Insects and Weed-seeds

After the insects had gone, or even before that time, these sparrows become very busy eating grass and weed-seeds, and in the South, where they spend the winter months, seeds make the principal part of their diet.

“If you wish to have Song Sparrows about the house,” Mabel Osgood Wright warns us, “remember that there is no greater lure for them than water. It may be that constant bathing is one of the secrets of their good health, for certain it is that they are free from many of the epidemics that destroy so many birds.”

When trying to make sure that a sparrow seen is really a Song Sparrow, look for a spotted throat and breast with *one spot in the very center of the breast decidedly larger* than all the others.

Classification and Distribution

The Song Sparrow belongs to the Order *Passeres*, Suborder *Oscines*, and Family *Fringillidæ*. Its scientific name is *Melospiza melodia*, applied properly only to the typical subspecies found everywhere east of the Rocky Mountains. The Song Sparrows of the Pacific Slope have been modified by climatic differences into many local races, as indicated in the illustration on page 122. It is migratory, as a species, only in the northern half of its range.

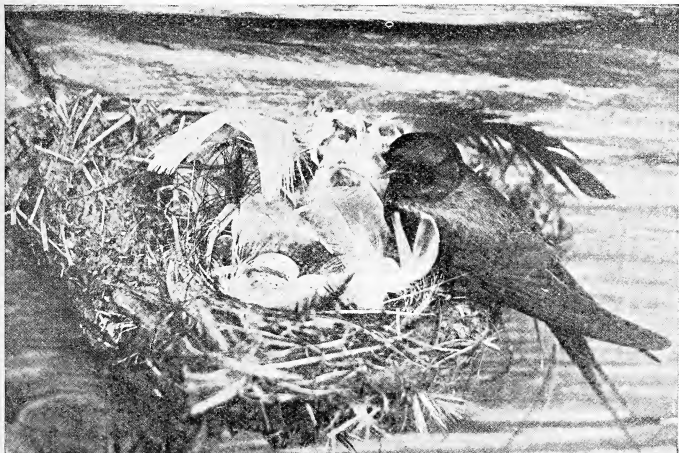
THE BARN SWALLOW

By MABEL OSGOOD WRIGHT

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 32

Once upon a time many country children knew a Barn Swallow as well as they knew the chickens they fed. If they could call only half a dozen birds by name this Swallow was sure to be one of them. Now one may live in a village, or even in the open farming country, without having the Barn Swallow as a neighbor, and meet it only as it perches on a telegraph-wire by the roadside, or flies in a great flock, in company with others of its tribe, to its roost in some marsh-meadow while assembling for the autumnal migration.



BARN SWALLOW AT NEST

Photographed by Finley and Bohlman

Why should this be so when the Barn Swallow is a bird of the air, and feeds upon the wing, and therefore apparently takes fewer risks in getting its living than do the birds of the trees or the ground? Let us spend a few minutes in studying the bird, and the conditions that surround it, and see whether an answer to the question may be found.

The Swallow family includes more than eighty species generally distributed throughout the world, nine of which are to be found at some

time of the year within the borders of the United States. Although there is considerable variety in the plumage of these Swallows, nearly all show more or less metallic luster in the feathers of the back, and all have pleasing voices, which sound more like rippling bird-laughter than an attempt at singing. All are strong and swift on wing but weak of feet; going to prove, as a wise man has expressed it, that their wings have been developed at the expense of their claws. When they wish to rest they choose, therefore, some very slender perch, as a telegraph-wire.

In a family noted as is this one for beauty and grace, our Barn Swallow is well able to hold his own; and his chief mark of identity, the deeply forked, white-spotted tail, is so conspicuous, whether the bird is on the wing or at rest, that there should be no difficulty in recognizing him. Then, again, as shown in the accompanying picture, these birds are almost always on the wing, now following some insect high in the air, now skimming low over the meadows with a motion peculiar to themselves—a flight that resembles swimming or rowing in the air. The long wings are like oars, and the tail acts as a rudder, aiding the bird to make the quick turns its capture of agile insects render necessary.

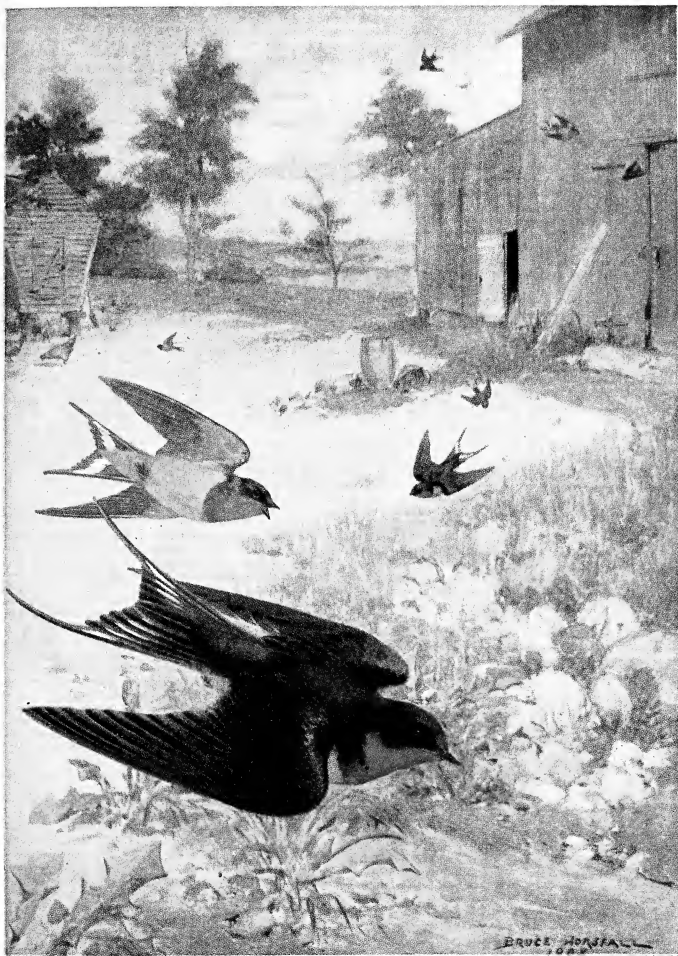
The Barn Swallow in summer lives in all parts of North America, including Alaska and Labrador, but it does not appear to be common in the South Atlantic or the Gulf States. The matter of nesting-site is of great importance when one is trying to account for the cause of any observable decrease in the number of these birds, and is searching for a remedy. What is necessary in order to make this Swallow feel at home?

We associate the Swallow with comfortable old-fashioned barns, which had open rafters, doors that could not be shut tight, and windows with many panes lacking. Within such buildings, almost as easy to get into and out of as were the caves and broken crags to which they resorted before barns were built, the Barn Swallows used to nest, sometimes in large colonies, while their cousins, the Cliff-Swallows, had quarters beneath the outside eaves, in a line of gourd-shaped tenements.

The Genius of Old Barns

In the mountainous West these birds still place their nests in crevices of rocky cliffs by rivers and lakes; but such wild resorts are abandoned for the shelter of buildings as soon as the region begins to be civilized. The style of the cradle for the expected young is little changed by moving from the rock-cave to the barn. It is composed of pellets of mud well mixed with straw; and it may be stuck against the wall or a rafter like a bracket, or set flat on the level surface of a beam. In either case the cup-like interior is made soft and warm by a bed of feathers.

Nowadays, however, in the more thickly settled and prosperous parts of the country, these loosely built old barns have given place to tightly constructed, neatly painted ones; thus, as the new replaces the old in their haunts, many a pair of Swallows drop from their sky-high wooing to find closed doors and tight roofs staring them in the face. So they move on. Whither? Out to the frontiers or into the "back counties." This accounts, in part, for what *seems* to be rather than *is* a



BARN SWALLOW

Order—PASSERES
Genus—HIRUNDO

Family—HIRUNDINIDÆ
Species—ERYTHROGASTRA

National Association of Audubon Societies

decrease; but there is a constant and real loss of Barn Swallows, according to reports from all parts of the country, chargeable to the English Sparrows. These little bandits seem to have a special fondness for despoiling the nests of Swallows of all kinds, tearing them to pieces—perhaps for the sake of the feathers and other good materials for Sparrow-use—and disturbing their owners until the harassed Swallows finally abandon the premises. This is an extensive evil; and it can be prevented only by our taking the trouble to protect our Swallows against their feathered enemies. Cats also catch many Swallows, snatching them out of the air as they skim close to the ground in pursuit of grass-moths and similar low-flying insects. Rats and mice devour their eggs and young to some extent.

**Destructive
Sparrows**

From about 1880 to 1890 tens of thousands of Barn Swallows were killed in order to use their wings, heads and tails for decorating women's hats. During those years the agents of the millinery trade slaughtered them over large areas of their breeding territory. This is the bird, in fact, which aroused in the mind of George Bird Grinnell, then editor of *Forest and Stream*, such indignation at the waste of bird-life for millinery that he wrote a vigorous editorial in 1886 which immediately led to the founding of the first Audubon Society.

In the Middle States the Barn Swallow comes soon after the first week in April, a time when the flying insects upon which it feeds may be expected to be plentiful. Its first appearance, as well as its last in autumn, is usually in the vicinity of water; and, before pairing, the nightly roost of the birds is in the low bushes near some marsh-meadow.

Four to six eggs are laid, white, speckled sparsely with pale red and brown. Two broods are usually reared in a season, the first nest being built in early May and the second in June; and sometimes even a third brood comes. The young are dull and brownish at first, like Bank Swallows, and the forked tail is not fully developed until a somewhat advanced growth is reached.

**Eggs and
Young**

At this season the food-hunting flight of the Barn Swallow is incessant, and, as the birds are of a sociable nature, they often go out in groups, when their happy twittering makes one of the sounds we should miss sadly were they to disappear altogether from our neighborhood. In addition to killing myriads of mosquitos and their kin, small, injurious moths, flies, beetles, and several species of winged ants are taken; and this fact makes these birds, or should make them, very welcome about barns and stables.

Everything concerning the life of a Barn Swallow is simple, innocent, and suggestive of the dawn of things, before wild nature had learned to protect itself against the wiles of man; yet this Swallow is as quick of wit as of wing where the care of its young is concerned. I well remember the expedient resorted to by a pair of Swallows that had trouble in coaxing their belated nestlings to leave a rafter in our hay-loft.

The brood was ready to fly one warm day in the early part of August,

or the parents at least thought so, but the nestlings were perfectly content where they were; the table was good and the view unexceptional. Coaxing did not avail, so the next day the parents pushed them out on the hay, and there they stayed for two days more. But they either could not or would not fly.

**Lessons in
Flying**

The third day, the parents refused to carry food for them into the hayloft, but paused on the window-sill, where they uttered a lisping chirp, fluttered their wings and held out insects temptingly. In this way the young were lured up, and finally spent the night on the sill, cuddled together.

Next morning the youngsters were coaxed to the limbs of a hemlock, the nearest tree to the window, but one that offered perilous perching for their weak feet. Two of the four went in the green of the most steady branches, but two grasped twigs and swung over, head downward, having no strength of grip with which to retain an upright position. Under one bird were tiers of soft green branches; under the other, a stone wall.

The old birds gave a few sibilant twitters and darted almost invisibly high. In a few moments the sky was alive with Swallows, which fluttered about the bird that was suspended above the wall. To and fro they wheeled, keeping always above the little one, as if to attract its attention. The parents stayed nearer, one with a small moth in its beak, and seemed to urge an effort to secure it. Still above the wall the little bird hung motionless, except that its head was slowly drooping backward more and more, and the circling birds became more vociferous. Suddenly the parent who held the moth alighted on the branch at the spot where the bird was clinging, while its mate darted swiftly close beneath. Whether the darting bird really pushed the little one up,

**A Thrilling
Rescue**

or only made the rush to startle it to sudden action, I could not discover, but in a flash the deed was accomplished and the bird righted. The visiting Swallows wheeled and lisped for a minute, and then were engulfed by the sky, as mist in the air blends with the sun-light.

In the later part of August the family groups break up and a general flocking begins. From this time until their final disappearance the Barn Swallow and his brothers, the Bank Swallow and the Tree Swallow, lend life and beauty to the autumn landscape, whether they perch upon wayside wires, pluming themselves, or whether they flock and wheel over sand-dunes and meadows. The southward migration is made in short stages by daylight, and begins early in October. The winter is spent in Central America and Brazil.

Classification and Distribution

The Barn Swallow belongs to the Order *Passeres*, Suborder *Oscines*, and Family *Hirundinidae*, and its scientific name is *Hirundo erythrogastra*. The species ranges in summer over all North America south of western Alaska, Hudson Bay and Labrador, breeding throughout this area; it winters within the tropics.

THE TREE SWALLOW

By MABEL OSGOOD WRIGHT

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 33

She is here, she is here, the Swallow!
Fair seasons bringing, fair years to follow!

—*Greek Swallow Song.*

This bird, known also as White-breasted Swallow, may be easily distinguished from his brethren by his dark back, lustrous with glints of metallic blue and green, and by the pure white of the under surface extending quite up to the bill—a white marking so precise that at a short distance the dark head looks like a cap pulled low. The tail is bluntly forked, and the sharp-pointed wings exceed it in length, this being very noticeable when the bird is at rest upon a wayside telegraph-wire—his favorite perch.

Characteristics

As the sight of the Barn Swallow arranging his stucco-work home on the rafters is one of the signs of coming summer in the country, so the April return of the Tree Swallow is among the first authentic signs of spring; for, as it is an insect-eater, it cannot live where it is too cold for these winged creatures to flourish. The Phoebe-bird, also a fly-catcher, comes in March, it is true, but as it makes its home about barnyards and outbuildings, where manure is stored, it is more sure of its food-supply than is the Tree Swallow, which naturally belongs to the remoter region of wooded pond-edges, where the frost lingers.

Time was when the Tree Swallow was evenly distributed through its range, which extends northwest as far as Alaska, and could be found nesting in the larger part of it; but now it has become much localized as a summer resident on account of the difficulty of finding suitable and undisturbed nesting-places. This swallow's natural home is a tree-hole, but as land comes under cultivation hollow trees quickly disappear, except in swampy regions where inaccessibility and the half-rotten condition of the timber save them from the ax of the covetous lumberman.

In many places the Tree Swallow, like the Purple Martin, will adapt itself to a bird-box, an artificial hollow in a post, or even an old gourd, such as in the South is hung up for the Martins. These hollowed-out and well-dried gourds are now being brought into use in the Northern States, and appear to be much liked by the birds. They form an excellent substitute for the wooden nesting-box, and a picturesque and inexpensive addition to the list of artificial nesting-places.

Adaptability

In July, 1914, Mr. T. Gilbert Pearson found Tree Swallows nesting in colonies in crevices of the rocks along the cliffs of the Four Brothers Island in Lake Champlain, New York. He also found their nests in

hollow logs cast up by the waves on the shores of islands along the coast of Maine, and adds that the Maine lobstermen call the birds "Martins," and often erect boxes for their accommodation in nesting-time.

A nesting-hole having been selected, it is lined with dried grass and a few feathers, put together without the plaster used by the Barn Swallow. The half-dozen eggs are paper-white, like those of woodpeckers and of nearly all birds that lay their eggs in dark holes; but why this should be so has not yet been satisfactorily explained.

The Tree Swallow has many attractive domestic habits; it is not in the spring, however, but in the long period of the fall migration that we become most familiar with it. Indeed, the preparation for migration of these swallows, continuing from July to late in October, is one of the spectacular features of American bird-life; for, although the large flocks are made up of Barn, and Bank, and Cliff Swallows, as well as of Tree Swallows, the last are greatly in the majority.

**Autumal
Migrations**

By day these swallows skim over the meadows and the country at large with a wide circling flight easy to distinguish from the more angular course of the Barn Swallow. Toward night, they gather either in the marsh-reeds or in the low bushes of some region of ponds, or along the back-water of rivers, where they spend the night, coming forth again in clouds at dawn.

This fact, that during the migration swallows invariably roost near water, gave rise to the absurd idea that they dive into the water and spend the winter in the muddy bottom in a state of hibernation. From roosting in the bushes on the sandy bars above marshes and along creeks, where the bayberry (*Myrica cerifera*) is common, the Tree Swallow, kept in cover by storms, was doubtless driven by necessity to feed upon the waxy bayberries; for this berry, which is eagerly eaten, is the one exception to its insectean diet.

"No sooner," wrote Audubon of these swallows as he saw them along the Ohio River, "have the young of the second brood acquired their full power of flight than parents and offspring assemble in large flocks, and resort to the roofs of houses, the tops of decayed trees, or the sandy beaches of our rivers, from whence they take their departure for the South. They fly in a close body, and thus continue their journey until they reach the places adapted for their winter residence, when they again resume by day the habits which they exhibit during their summer sojourn in the Middle and Northern States, but collect at night and resort to the sedges and tall plants of the marshes."

**A Note by
Audubon**

Miss Lemmon has told in *Bird-Lore* of one of these flockings in Englewood, New Jersey:

On October 3, 1899, my attention was called to a huge flock of Tree Swallows about a quarter of a mile from my home. These birds are abundant here from July to October, but on this occasion at least 2,000—



TREE SWALLOW

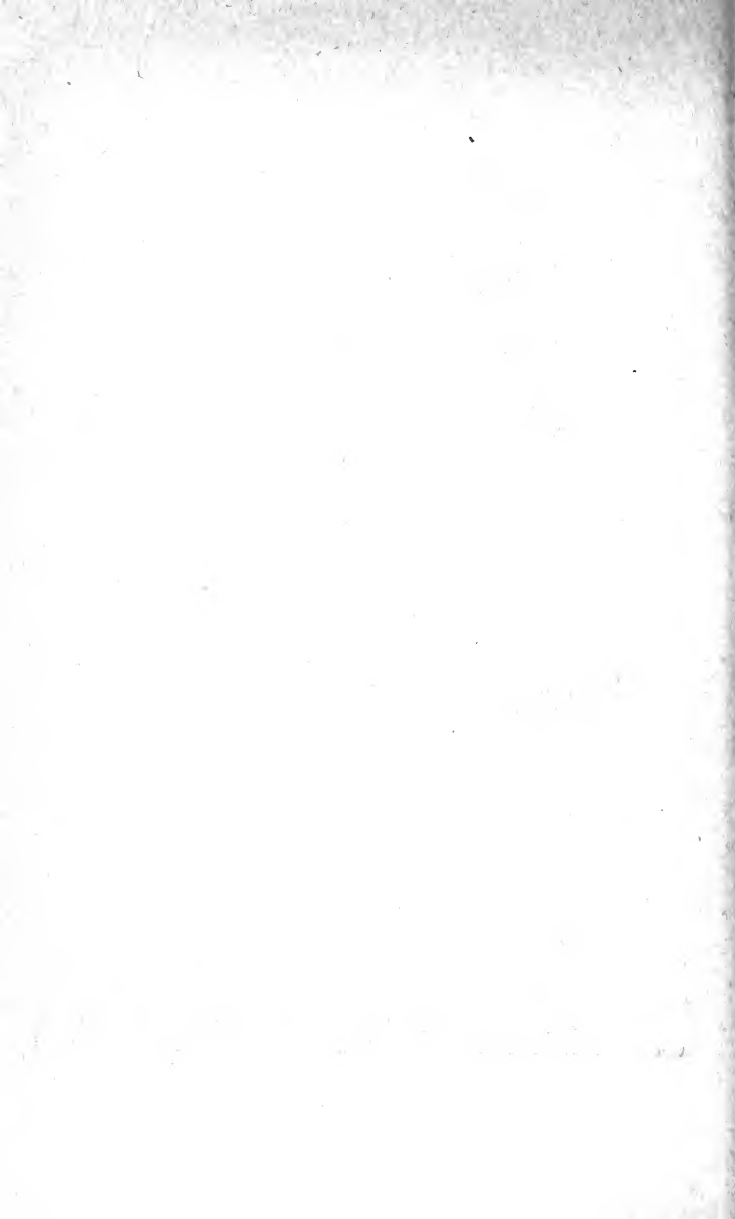
Order—PASSERES

Family—HIRUNINIDÆ

Genus—IRIDOPROCNÆ

Species—BICOLOR

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estimating from photographs and from the counting of the live birds—were collected on the telegraph-wires and in the adjoining fields, and not a single specimen of any other species could be found in the flock.

Beside the road is a small brook with two or three exposed pools, and here was a great oval whirl of birds, all going in the same direction, each in passing dipping for a drink, then rising to re-take its place in the line. Now and then some returned to the wires or other joined the drinkers, but the numbers were so great that a collision seemed unavoidable.

A large part of the flock had settled in a pasture some distance away, in so close a group that they made a spot of blue on the short grass. Crossing over to these I found them quietly enjoying the sunlight, and, as I approached from the southwest, all had their backs toward me, showing to perfection the beautiful steel-blue of the feathers. Most of the time they were still, though now and then one undertook to walk a few inches, if, indeed, such a ridiculous hobble could be called a walk. But forty feet was near enough for a person—then those nearest me rose, and, passing over the others, alighted in front of them, and so they moved regularly on before me.

Beauty of the Flocks

Four or five times during an hour and a half the birds on the telegraph-wires rose in a body, with those drinking at the brook, while the flock from the pasture hurriedly crossed the intervening fields to join them. For a moment the very air seemed full of swallows; then, rising higher, they separated into smaller flocks, turning back and forth, meeting again, describing curious figures as smoothly and easily as if going through a long-practiced drill. After a few minutes, they either returned, a few at a time, to their former perches, or gradually scattered over the fields and woods, and in a little while came streaming back, a long river of swallows, to alight once more.

As the morning advanced their numbers gradually diminished, and at 3 P. M. about thirty remained. For three or four days after that these Swallows were present in great numbers, continuing their drill, after which I noticed no more than usual.

Like all its kin, the Tree Swallow rids our atmosphere of many troublesome gnats and other insects. Forbush says that it is probably more useful than the Bank Swallow, for it is oftener seen about houses and gardens, where it catches flies, mosquitos, and noxious insects. "Leaf-eating beetles, canker-worms, cabbage-butterflies, small moths, click-beetles, rove-beetles and other beetles, winged ants, and many other flying insects form part of its food."

Insect Prey

The Tree Swallow not only comes earlier and stays longer with us than any one of the clan, but it is the only one of the family to winter in the United States, remaining during that season wherever in the Southern States frost is rare (and hence insects may continue on the wing), but most of them go to Central America. Those that stay north of the tropics, however, are occasionally exposed to the danger of starvation when a sudden drop in the temperature not only impairs the bird's

vitality but cuts off its food-supply. Of one of these tragic incidents Mrs. Slosson tells us—for with these seemingly care-free birds of passage, as with ourselves, it is not always either summer or good living:

The cold wave reached us at Miami, on Biscayne Bay, Florida, in the night of February 12, 1899. It was preceded by severe thunder storms in the evening. On the 13th, Monday, it was very cold all over the State, with snow and sleet as far south as Ormond and Titusville. Our thermometers at Miami ranged from 36° to 40° during the day. As I sat in my room at the hotel, about four in the afternoon, I saw a bird outside my window, then another and another, and soon the air seemed full of wings.

Opening my window to see what the visitors could be, I found they were Tree Swallows. Several flew into my room, others clustered on the window-ledge, huddling closely together for warmth. There were hundreds of them about the house seeking shelter and warmth. They crept in behind the window-blinds, came into open windows, huddled together by dozens on cornices and sills. They were quite fearless; once I held my hand outside and two of them lighted on its palm and set there quietly. As it grew dark and colder their numbers increased. They flew about the halls and perched in corners, and the whole house was alive with them.

**Swallows
in Distress**

Few of the guests in the hotel knew what they were; some even called them "bats," and were afraid they might fly into their faces or become entangled in their hair. One man informed those about him that they were Hummingbirds, "the large kind, you know," but all were full of sympathy for the beautiful little creatures out in the cold and darkness. A few were taken indoors and sheltered through the night, but what were these among so many?

The next morning the sun shone brightly though the weather was still very cold—the mercury had fallen below 30° during the night. But as I raised the shade of one of my eastern windows I saw a half-dozen of the swallows sitting upon the ledge in the sunshine, while the air seemed again filled with flashing wings. I was so relieved and glad. Surely the tiny creatures, with tints of steely-blue and shining green contrasting with the pure white of the under parts, were more hardy than I had feared. But alas! it was but a remnant that escaped. Hundreds were found dead. Men were sent out with baskets to gather the limp little bodies from piazzas, window-ledges, and copings. It was a pitiful sight for St. Valentine's Day, when, as the old song has it, "The birds are all choosing their mates."

Classification and Distribution

The Tree Swallow belongs to the Order *Passeres*, Suborder *Oscines*, and Family *Hirundinida*. Its scientific name is *Iridoprocne bicolor*. It ranges in summer throughout temperate North America, and winters from the Gulf States southward to Guatemala and Cuba.

THE KINGLETS

By MABEL OSGOOD WRIGHT

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 34

The American Kinglets are of two species: the Golden-crowned Kinglet and the Ruby-crowned Kinglet.

When October comes the fall migration is in full swing in southern New England. The trees are full of the bustle of comings and goings, and the morning sun, that now gives little heat before eight o'clock, draws many night-travelers from their seclusion to preen and spread their feathers after a dew-bath in the grass. Aside from call-notes, more or less musical, there is an absence of real singing, save that of the Meadow-lark, White-throat, or Song Sparrow, whose cheerfulness is unconquerable, and the murmurs of the young of the year, who are often impelled to try their voices before their first spring.

October
Bird-notes

As the the birds of summer vanish we turn eagerly to those that may be with us in the cold season, divided technically into two groups—the Winter Residents and the Winter Visitants. We might naturally think that birds that can stand the rigors and changes of winter, even in our Middle States, must be of large size and powerful in wing, but is this always so?

No, quite the contrary. The resident hawks and owls are large, as is also the Crow; while the Flicker, Jay, Meadowlark, Waxwing, Crossbill and Robin are sizable; but how about the Purple Finch, Myrtle Warbler, Bluebird, Song Sparrow, Chickadee, Winter Wren and the Golden-crowned Kinglet? This Kinglet is third in the list of our three "least" birds, for the Ruby-throated Hummingbird measures 3.75 inches in length and the Winter Wren 4.06 inches, while the Golden-crowned Kinglet is 4.07 inches. The Ruby-throat leaves with the first warning of frost, but the Winter Wren becomes a familiar resident about wood-piles and brush-heaps and the tiny Kinglet may be seen in the coldest months of the year.

A Tiny
Visitor

When, in early October, you see the shadow of a tiny bird of dusky olive plumage working industriously between you and the sky among the terminal twigs of an apple tree, or maybe a spruce, then watch out! The bird that acts and looks like one of the tribe of Warblers, so hard to identify in autumn, and has a Warbler-like voice, not only may be, but most likely is, a Kinglet.

Go as close as possible, and watch the restless head atop the fluffy ball of feathers. Does a heavy black band margin a yellow line that en-

closes a patch of fiery orange on top of the bird's head? Then it is the male Golden-crowned Kinglet. If the patch is only black and yellow, then the bird is a female. If the bird *has two distinct white wing-bars and a white eye-ring*, and does not show the striped head-markings, it is likely to be the Ruby-crowned, whose flaming red crest, being partly concealed by olive feathers, is conspicuous only in a certain light.

These two Kinglets, though so much alike in general appearance, have very distinct individualities. Both species breed northward from the United States, and are, therefore, only with us as visitors, yet their special attributes belong to different seasons. It is for the exquisite spring song of the Ruby-crowned that we prize him; for, like a wandering minstrel, he sings his way from tree-top to tree-top along the northern route to his breeding haunts; while the value of the sprightly Golden-crowned lies in its cheerful companionship, for its call is an almost insect-like chirp.

Golden-crowned Kinglet

This Golden-crowned Kinglet is the one most readily identified, not only by its brilliant crown, but by its animated little song, *teezee—teezee—teezee*, given in an ascending key and ending in a sort of titter, half cry, half laugh. This performance is given constantly as the bird searches the smallest twigs for the insect-food upon which its high vitality depends, for both Kinglets are great consumers of the insects of the terminal shoots of trees, that larger birds cannot reach.

The most complete account we have of the nesting of this Kinglet is that by William Brewster, printed in *The Auk* for 1888, relating to three nests found in Worcester County, Massachusetts, the first on June 13, nearly finished; on June 29 it contained nine eggs. Mr. Brewster's description is as follows:

"It was placed in a slender spruce on the south side, within two feet of the top of the tree, and at least sixty feet above the ground, suspended among fine, pendent twigs about two inches below a short, horizontal branch, some twelve inches out from the main stem, and an equal distance from the end of the branch. The tree stood near the upper edge of a narrow strip of dry, rather open woods, bordered on one side by a road and on the other by an extensive sphagnum swamp.

"The outside of the nest was composed chiefly of green mosses prettily diversified with grayish lichens, . . . the general tone of the coloring, however, matching that of the surrounding spruce foliage. The interior, at the bottom, was lined with delicate strips of inner bark and rootlets. Near the top were feathers of the Ruffed Grouse, Hermit Thrush and Ovenbird, arranged with the points of the quills down, the tips rising slightly above the rim and curving inward, so as to form a screen for the eggs. The second nest was closely canopied by the spruce foliage, under which it was suspended, leaving hardly enough room for the parents to enter.

Nest of a Gold-crown

"The ground-color of the eggs varies from cream-white to a deep muddy cream-color. Over this are varied markings of pale wood-brown, these, in turn, being the background for sharper markings of lavender.



GOLDEN—AND—RUBY—CROWNED KINGLETS

Order—PASSERES
Genus—REGULUS

Family—SYLVIIDÆ
Species—SATRAPA AND CALENDULA

National Association of Audubon Societies



In both nests the eggs were too numerous to find room on the bottom of the nest, and were *piled in two layers*. [Incidentally, it would be interesting to know how the little birds manage to turn these nine or ten eggs so as to secure equable heat.]

"These nests were found by watching the birds while building; a task of no little difficulty in dense spruce woods where the light was dim, even at noonday. Moreover, the movements of this little architect were erratic and puzzling to the last degree . . . We finally found that her almost invariable custom was to approach the nest by short flights and devious courses, and, upon reaching it, to dash in, deposit and arrange her load in from two to four seconds and at once dart off in search for more."

You may expect to see the Golden-crown in the Middle and Eastern States almost any time after September 20 until Christmas, then sparingly until the middle of March, when Migration the return of those who have roved farther south begins. By the first of May, at the latest, all will have passed northward to their summer home.

I have many times seen them about my feeding-tree, where they hang upside down upon the lumps of suet with all the agility of Chickadees; while on one occasion, a Winter Wren, a Brown Creeper, and the Kinglet, all occupied characteristic positions upon the same lump of suet, feasting and chatting, as it seemed, in perfect harmony. This goes to prove that the remoter birds may be encouraged to stay about habitations if only proper food is within reach; while suet in large lumps, securely fastened so that birds may perch on it and peck at it as they would in quarrying insects and grubs from under bark, is the food universal for all insect-eaters.

The public rôle of the Ruby-crowned Kinglet is that of a songster pure and simple, though he is as industrious in his search for food as his little brother, and as clever at nest-building in the mountain fastnesses, sometimes at a height of nearly 8,000 feet; in fact, this nesting of the Ruby-crown is conducted with such secrecy that we have but few and meager descriptions of it. Unlike his brother, we see Ways of the
Ruby-crown the Ruby-crown in a brief interval between middle April and May, and again for a month in late September and October. During both migrations, they are birds of the same class of thickets that warblers love.

The late Doctor Coues gives us one of the best descriptions of the ways of this Kinglet. He says:

"To observe the manner of the Ruby-crown one need only repair at the right season to the nearest thicket, coppice, or piece of shrubbery. These are its favorite resorts, especially in fall and winter; though sometimes, in the spring more particularly, it seems to be more ambitious, and its slight form may be almost lost among the branchlets of the taller

trees where the equally small Parula Warbler is most at home. We shall most likely find it not alone, but in straggling troops, which keep up a sort of companionship with each other. . . . They appear to be incessantly in motion,—I know of no birds more active than these,—presenting the very picture of restless, puny energy, making much ado about nothing.

“The Ruby-crowned Kinglet is one of our most wonderful songsters. During April and early May, the attentive listener can frequently hear the beautiful lay. The notes are clear, very loud and prolonged, full of variety and purity. This exquisite vocalization defies description; we can speak only in general terms of the power, purity and volume of the notes, their faultless modulation and long continuance.”

Audubon says of it: “When I tell you that its song is fully as sonorous as that of the Canary-bird, and much richer, I do not come up to the truth, for it is not only as powerful and clear, but much more varied and pleasing.”

**Song of
the Ruby-crown**

But of many descriptions of this wonderful song, that of Mr. Chapman is by far the most expressive: “The May morning when first I heard the Kinglet’s song is among the most memorable days of my ear’s ornithological experiences. The bird was in the tree-tops in the most impassable bit of woods near my home. The longer and more eagerly I followed the unseen singer, the greater the mystery became. It seemed impossible that a bird which I supposed was at least as large as a Bluebird could escape observation in partly leaved trees. The song was mellow and flute-like, and loud enough to be heard several hundred yards: an intricate warble, past imitation or description, and rendered so admirably that I never hear it now without feeling an impulse to applaud.”

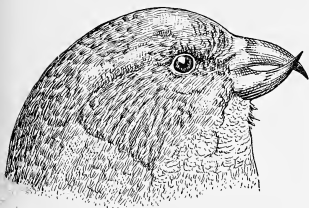
Classification and Distribution

The Kinglets belong to the Order *Passeres* and Family *Sylviidæ* (Old-World Warblers). The scientific name of the Golden-crowned Kinglet is *Regulus satrapa*. It breeds throughout the wooded parts of northern North America, and is found in winter from southern Canada to Guatemala. Those of the Pacific Coast are of the subspecies *R. s. olivaceus*. The scientific name of the Ruby-crowned Kinglet is *Regulus calendula*. It is more northerly in distribution in summer than the Golden-crown, breeding nowhere south of Canada except in the Rocky Mountains. It has two varieties: (1) the Sitka Kinglet (*R. c. grinelli*), of Alaska, and (2) the Dusky Kinglet (*R. c. obscurus*), of Guadaloupe Island.

THE CROSSBILLS

By MABEL OSGOOD WRIGHT

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES
Educational Leaflet No. 35



While we may count upon seeing certain species of birds during the migrations, and feel assured that the old favorites known since childhood will nest in the neighborhood every spring, the comings and goings of winter visitors are surrounded by a tantalizing uncertainty.

In the small company of these hardy voyagers of the air, we may, in the

Eastern and Middle States, include the familiar Junco, the Tree and the White-throated Sparrows, the Winter Wren, Brown Creeper, Golden-crowned Kinglet, Northern Shrike, and Redpoll; and also occasionally the Snowy Owl, Snowflake, and Longspur, and the wholly irresponsible Crossbills; but the presence of the last-named depends on the presence of cone-bearing trees.

**Winter
Visitors**

"These birds," as Dr. Elliott Coues remarks, "are much attached to pine-woods, the seeds of the conifers furnishing them abundant food, of a kind that their curiously shaped bills enable them to secure with great ease and address. From their summer resorts in the depth of evergreen woods the Crossbills come, flocking in the fall, to all other parts of New England and beyond, generally associated with Pine Grosbeaks and Redpolls, always gentle, unsuspecting, and apparently quite at their ease."

When, on a cold winter morning, soon after a snowfall, I hear a clear metallic call-note far up among the spruces, I know that the Crossbills have come. When I go out under the same trees to prove the sound by a glimpse of the birds themselves, the calling stops, and instead, as I pause to listen and focus my glass on a particular bird of bright hue, a rustling noise, akin to the falling of dry and somewhat heavy leaves, mingles with a few colloquial twitterings, as if the birds were talking to themselves, parrot-fashion.

**Rustling
the Cones**

The rustling is caused by the shelling of the cone-scales as the Crossbills pick out the seeds that lie between them. Sometimes a person sitting quietly under a tree will be astonished at a steady shower of these scales, not suspecting, until he rises and frightens them away, that a

flock of busy birds is at work over his head. Their mottled plumage conceals them very effectually among the evergreen foliage.

Let us stand off a bit, with backs braced firmly against a tree, and examine the nearest bird as he hangs, head downward, on a long cone, with all the nonchalance of the up-side-down Chickadee. In length the Red Crossbill is a trifle smaller than the English Sparrow; the body of the male is a dull brick-red, brighter on the rump and rusty in the middle of the back, shading to lead-gray on the wings. The female is a dull olive-green, with dark mottlings on head and back, and some white below;

**Crossed
Mandibles**

the young may be marked like the female, or may show a mixture of red and green. One characteristic marks alike male and female and young, telling their name as plainly as the Chickadee calls his—the tips of the two halves of the beak, or mandibles, are crossed, as if they had been wrenched out of joint.

No other kind of bird has a beak precisely like this. Parrot-like is a term frequently applied to the Crossbills, but though they live in flocks and climb about, using their claws very much like hands, in parrot-fashion, the likeness does not extend to their beaks. The upper half of the hooked bill of the Parrot so closes over the lower as almost to conceal it, but it does not cross past the lower mandible. Audubon was impressed by these characteristics, mentioning that the Crossbills cut apples to pieces, in order to get at the seeds, “in the manner of our Parrakeet of the South;” also, that “they frequently stand on one foot only, and employ the other in conveying the food to the bill in the manner of parrots.”

The Red Crossbill is the one most commonly seen in the Eastern and Middle States, but in some years it may be outnumbered by the White-winged Crossbill; and it often happens that both kinds will be mingled in one flock. The latter is a trifle smaller,

Characteristics

and differs chiefly in having two white wing-bars, white on the abdomen, and a decided pinkish tint on the upper parts of the body and breast. Both species have a swift, dipping flight, suggestive of that of the Goldfinch, and some of their call-notes uttered on the wing also remind one of those of that jolly little yellow finch.

The Red Crossbill sings a light but very pleasing ditty, heard even in the wild weather of February and March, which Gerald Thayer describes in Eaton's Birds of New York as a series of somewhat goldfinch-like trills and whistles, not long continued and far less rich than that of the White-winged Crossbills. It is more apt than the latter species to keep up a low twittering while feeding; and its common call-notes are like the peeping of young chickens. In reference to the White-winged, Mr. Thayer says: “The two common calls of this species are a loud, whistled *wheet-wheet-wheet*, impossible to mistake for that of any other eastern bird, and an equally characteristic rolling twitter. . . . somewhat similar to the corresponding note of the Redpoll. Its

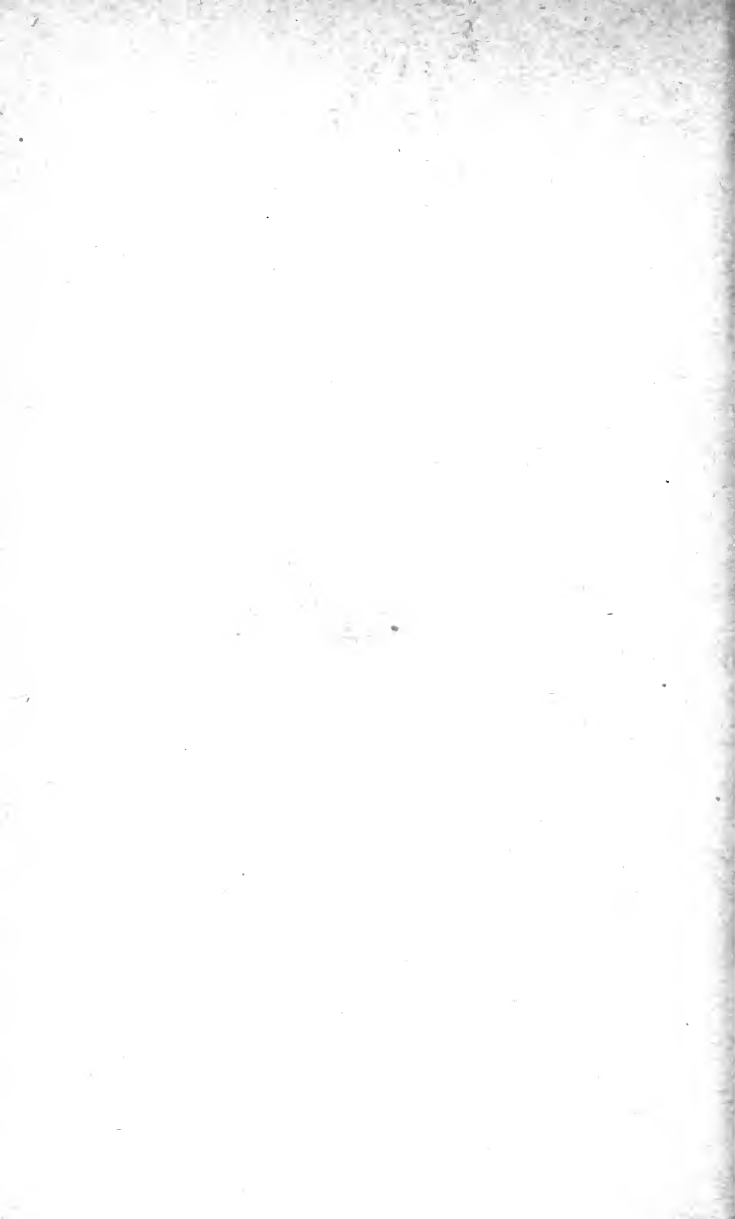


RED CROSSBILL

Order—PASSERES
Genus—LOXIA

Family—FRINGILLIDE
Species—CURVIROSTRA MINOR

National Association of Audubon Societies



song, heard in the bird's summer home, is a remarkably loud and rich series of trills, twitters and whistles, suggestive of the song of a strong-voiced canary."

"The Crossbills of both species," Dr. Coues **Singing** writes, "are birds of the most strongly marked originality of character, and it is never safe to predict what they may or may not be found doing. Their most remarkable habit is that of breeding in the winter, or very early in the spring, when one would think it impossible that their callow young could endure the rigors of the season."

While the White-winged Crossbill breeds regularly only in northern Canada, and appears in the United States only in its winter wanderings, sometimes extended as far south as Virginia, the Red Crossbill seems to be bound by no law, and it is possible to find a pair of them nesting almost anywhere in New England.

Dr. Coues mentions a nest taken in Maine in the month of February, and a nest has been found in East Randolph, Vermont, so early in March that the ground was covered with snow and the weather was very severe. The nest is made of roots and twigs, moss-lined, in the shape of a ball entered through a small hole in the side; and is usually situated well up in an evergreen tree. The eggs are dull green, spotted on the large end with brown and lavender. The nest **Nest and Eggs** and eggs of the White-winged species are essentially similar. The parents are so devoted to their young that they have been lifted from the nest in some cases without showing much alarm.

These birds are most affectionate parents, appearing to be entirely insensible of danger in defence of their homes; and at all times they exhibit a confidence in man that is too often misplaced. Edward W. Nelson noticed this in Alaska, where the Red Crossbill is rare, but the White-winged is to be seen everywhere that forests grow. "It is more familiar," Nelson tells us, "than the Pine Grosbeak, frequently coming down among the smaller growth; and it is a common sight to see parties of them swinging about in every conceivable position in the tops of the cottonwoods or the birch-trees, where the birds are busily engaged in feeding upon the buds. . . . They pay no heed to a passing party of sleds except, perhaps, that an individual will fly down to some convenient bush, whence he curiously examines the strange procession, and then, his curiosity satisfied or confidence restored, back he goes to his companions and continues his feeding. When fired at they utter chirps of alarm, and call to each other with a long, sweet note."

The diet of these birds is not so exclusive as many suppose; they like berries, the seeds of the mountain-ash, alder, birch, and similar trees and shrubs, and may sometimes be **Food** seen helping themselves to decayed garden fruits. Maynard has observed them feeding on the seeds of beach-grass, and has also found the stomach filled with canker-worms.

If one has no evergreens immediately about the house, the Cross-

bills may be coaxed to come near by fastening ears of popcorn firmly to conspicuous branches, or even unsalted popcorn balls.

As might be expected, a bird of so unique construction has given rise to many speculations, some scientific, others legendary and sentimental, as to its origin. If its beak is a development to meet food-conditions, will it be gradually modified by the cutting down of the forests of conifers? Or will the Crossbills slip away with other extinct species like the Auk and the Labrador Duck?

"In the cold winter 1875 to 1876 the parts of Chicago and the suburbs around the city," Henry Nehrling writes, "swarmed with Crossbills and other northern birds. They came into my garden and to the windows of my house at Oak Park, Illinois, picking up crumbs, pieces of fat and tallow, hemp, millet, canary-seed, cuttlefish-bone, and even salt.

**Gentle
Nature**

Quite a number were caught and kept in a cage, together with Pine Grosbeaks and Redpolls, which all lived in perfect harmony. . . .

When I had caught one in a trap-cage the other of the pair did not leave its mate, but hopped around in great distress, uttering exceedingly mournful notes."

Classification and Distribution

The Crossbills are finches of the Order *Passeres*, Suborder *Oscines*, and Family *Fringillida*. The scientific name of the Red Crossbill is *Loxia curvirostra minor*, it being classified as the North American race of the Crossbill of northern Europe (*Loxia curvirostra*). It dwells in summer between the northern forests of the United States and the headwaters of the Yukon River, and wanders irregularly southward in winter. There is also a southwestern race (*Loxia c. stricklandi*) which inhabits the mountain-tops and high plateaus from central New Mexico to Guatemala.

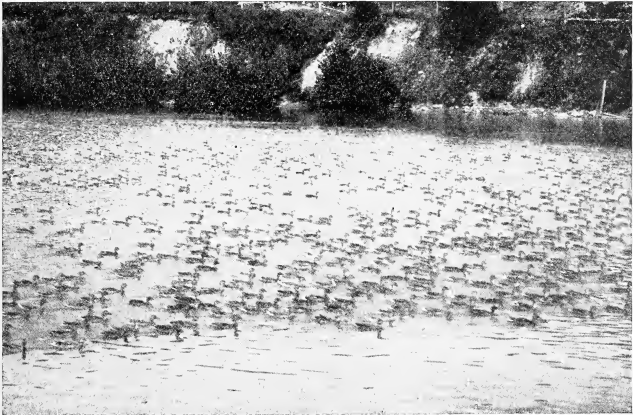
The scientific name of the White-winged Crossbill is *Loxia leucoptera*. It breeds in Alaska and northern Canada, and in the mountains of northern New England, and visits the United States irregularly.

THE MALLARD

By EDWARD HOWE FORBUSH

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES
Educational Leaflet No. 36

The Mallard is a cosmopolitan species—the “wild duck” of the world—well known as the duck from which nearly all varieties of the domestic duck were derived. It is the common wild duck over so large a part of the earth’s surface that it is of greater economic value than any other, and is exceeded by few, if any, in excellence for the table.



YOUNG MALLARDS AT THE GLOVE VALLEY PRESERVE. NEW YORK

The Mallard was formerly the most abundant wildfowl on this hemisphere. Hearne (1795) found it in vast multitudes in parts of the Hudson Bay country. Now it is no longer abundant in those regions. Before the settlement of the West, the prairie sloughs swarmed with Mallards, and in winter the waters of the south were often crowded with them. Audubon (1832) found them in Florida in such multitudes as to “darken the air.” He says that a single negro hunter, a slave of General Hernandez, supplied the latter’s plantation in East Florida, killing from fifty to one hundred and twenty birds a day in

the season. Mallards are now comparatively rare there. Prof. W. W. Cooke records that as late as the winter of 1893-94 a gunner at Big Lake, Arkansas, sold 8,000 Mallards, and 120,000 were sent to market during the season from that place alone. During the settlement of the West, hundreds of tons were killed for their feathers by negroes, Indians, half-breeds and whites, and the bodies of most of them were thrown away. Mallards are still plentiful in winter in the Southwest, though decreasing.

The Mallard breeds normally in the northern half of the United States, west of Pennsylvania, in Alaska, and in all Canada west of Hudson Bay; also in Greenland. East of Hudson Bay, and throughout the northern Atlantic States, its place is taken largely by the Black Duck.

**Breeding
Habits**

Its nest is usually placed on the ground near a marsh or in a tussock of grass, and more rarely among the bushes on some near-by hillside. It is composed mainly of coarse grasses and weeds, and often is lined with down from the mother's breast. The large, smooth eggs are dingy white, and vary from six to ten. The young when hatched soon take to the water, where they are watched over and defended by the female.

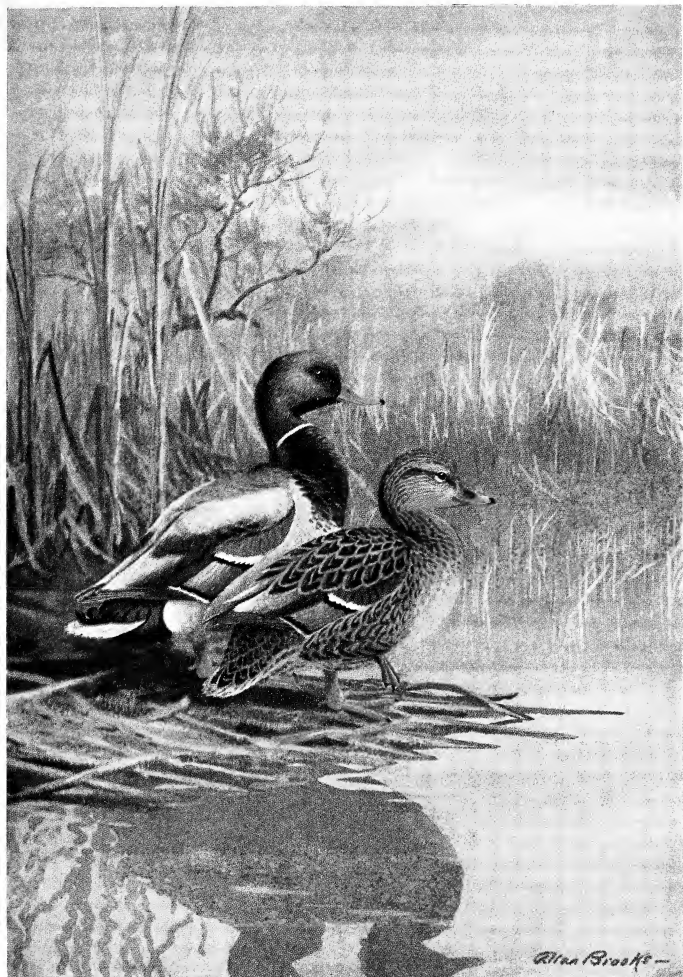
The Mallards remain in the North until the ponds and rivers freeze, when they begin their southward journey, and spend the winter mainly in the Gulf States, in northern Mexico, and along the Pacific Coast.

Like all fresh-water ducks the Mallard is largely a vegetarian, but it prefers soft, succulent, vegetable matter when such is to be found, and probably cannot thrive without a considerable ration of animal food as well, of which all our wild ducks are fond. This bird becomes of considerable economic value to the farmer at times, because of the nature of its food. It sometimes attacks sprouting or ripened grain, but like most fresh-water fowl it is undoubtedly of service in destroying such insects as locusts and army-worms, which sometimes become serious pests.

Professor Aughey found in the stomachs of ten Mallards taken in Nebraska 244 locusts and 260 other insects, besides mollusks and other aquatic food. Examination of 126 stomachs of the Mallard made at

Food

the Biological Survey revealed 17 per cent. animal-matter food and 83 per cent. vegetable. The most important items of the animal food found were dragon-fly nymphs, fly-larvæ, grasshoppers, aquatic beetles and hemipterans; bivalve and univalve mollusks, earthworms and crustaceans. The principal elements of the vegetable food are seeds of smartweeds (*Polygonum*), seeds and tubers of pondweed (*Potamogeton*) and of sedges. Other items of importance are the seeds of wild rice (*Zizania*) and other grasses, of burhead (*Sparganium*), hornwort (*Ceratophyllum*), water-lily (*Brasenia*), and widgeon-grass (*Ruppia*). A great many vegetable substances of less importance are included in the Mallard's diet, of which



MALLARD

Order—ANSERES

Family—ANATIDÆ

Genus—ANAS

Species—BOSCHAS

National Association of Audubon Societies

the following are worthy of note: Wild celery, algæ, roots of arrow-head (*Sagittaria*), fruits, such as grapes, dogwood, sour gum, and bayberries, and the seeds of such small aquatic plants as millweed (*Myriophyllum*), horned pondweed (*Zannichellia*) and mermaid-weed (*Proserpinaca*).

Mallards and other wild ducks are of much service to the rice-planters of the South, for they feed largely on the crayfish that injure dikes and levees, and on the "volunteer" rice gleaned in the fields after the harvest, which, if left to grow, produces the red rice so deleterious to the crop.

**Service to
Rice Planters**

The Mallard is of great value to the country as a means of food-supply. Its flesh and eggs formed a considerable part of the food of Indians, half-breeds, and settlers in the early days, through a large part of the Middle West and in all the western Canadian Provinces. Now this and other wildfowl are becoming so scarce along the west coast of Hudson Bay, where there are no moose, caribou are few, and the fishing is poor, that the few people living there, who have always depended largely on the birds they could pack away in the fall, find it difficult to get food enough to carry them through the winter.

The principal causes of the diminished numbers of water-fowl are market-hunting, spring shooting, and the destruction of the breeding grounds for farming. The great prairies of the West and Northwest, where the Mallard formerly bred in immense numbers, have been put under the plow. Marshes and sloughs have been drained and used as pastures. This agricultural occupation and improvement of the land, which has broken up the breeding-grounds from Arkansas to Athabaska, has been accompanied by unlimited destruction of these ducks for food and other purposes. Thus hunting, particularly the spring shooting, has driven the birds out of the United States and away from settled lands to the far North, greatly reducing their breeding area and their opportunities for reproduction.

**Causes of
Decrease**

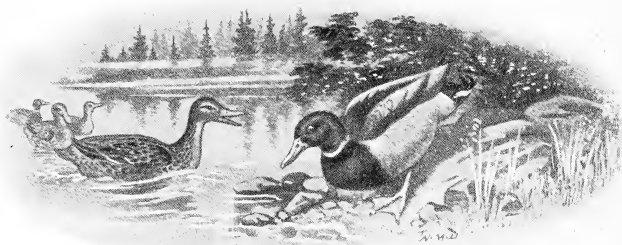
The Mallard is proverbially fond of grain of all sizes, and it is therefore easy to domesticate it and cause it to breed in captivity. Herbert K. Job, in BULLETIN No. 3 of the National Association of Audubon Societies, has given detailed directions from a wide experience for doing this. "No expensive outfit is needed," he assures the reader, "not even buildings." The usual outfit is cheap wire-fencing inclosing a small pond or a section of a brook with some adjacent land, preferably marshy, and an open shed or thatched shelter for winter. Food is simple and easy to provide. Water-fowl when properly handled are hardy and seldom have epidemic diseases.

"Breeding wild ducks usually refers to Mallards," Job explains, "as the majority raised, both in this country and abroad, are of this species, which thus stands in a class by itself. Some strains have been bred into mere barnyard-fowl, unable to fly. Plenty of stock remains, how-

ever, which has kept most of the wild traits; but constant care must be taken to introduce new blood into a stock by securing new wild drakes, or it will degenerate. Mallards, captured wild, like other wild ducks, are backward about breeding at first, though less so than other species. The usual hand-reared stock is amply prolific. All that is needed is the usual small pond. They are not particular about having access to a marsh, but will lay almost anywhere, making nests under any slight shelter, such as brush-piles, boxes, coops, wicker-baskets, logs, grass, and other growth. Some eggs may be dropped on the ground of the enclosure, or in the water, where they will be spoiled by chill. Mallards are not easily disturbed, and the eggs may be collected daily, leaving a couple of their own or artificial eggs."

Classification and Distribution

The Mallard belongs to the Order *Anseres*, the Family *Anatidæ*, and Subfamily *Anatine* (fresh-water ducks). Its scientific name is *Anas platyrhynchos*. The species ranges and breeds throughout all North America, especially west of the Alleghanies; and retires in winter south of the line of frozen ponds and streams.



THE SHARP-SHINNED HAWK

By EDWARD HOWE FORBUSH

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES Educational Leaflet No. 37

We can say much in favor of most land-birds, but the Sharp-shinned Hawk is an exception to the rule. It is a bold marauder, and, judged by the standard of the poultryman, the game-keeper, the sportsman, or the bird-protectionist, it is a convicted felon. Its trade is battle, murder, and sudden death, and, unfortunately, the greater number of its victims are the weak and defenseless young of game-birds and poultry, and the beautiful and useful songsters of field, farm, grove, orchard, and forest.

This small bird is one of a group of "ignoble" hawks—the Accipiters—which may be distinguished from the Sparrow Hawk, Pigeon Hawk and other falcons by their comparatively short, rounded wings, and their long tails. The Falcons (*Falco*) have a slightly shorter tail, and long, pointed wings. The Buzzards (*Buteo*) have long, broad wings and a broad tail, and often soar in circles; but the Accipiters move across the country by alternately flapping and sailing. The Sharp-shinned Hawk, in general appearance as well as in habits, resembles two larger species, Cooper's Hawk and the American Goshawk.

Kindred

Cooper's Hawk stands next in size to the Sharp-shinned, and the two are much alike in appearance. The adults of each species in some parts of the country are known as Blue Darters. These three species, because of their numbers, wide distribution, and great rapacity, probably commit greater and more widespread havoc among birds and game than any other hawks in North America. The larger, pernicious Falcons are far less common than the Accipiters, and the Buzzards and Marsh Hawks are, in general, more useful than injurious to man.

The Sharp-shinned Hawk is larger than either the Sparrow Hawk or the Pigeon Hawk, and is rather longer and slimmer. Specimens average a little more than a foot in length, the largest about two inches smaller than the smallest specimens of the Cooper's Hawk. The plumage at full maturity is usually slaty or bluish gray above, and the underparts are whitish, barred and marked with reddish. Immature birds are brown above and streaked with dark brown or reddish brown below. The tail is square-tipped and heavily barred.

The distribution of this hawk is nearly co-extensive with the continent of North America. It breeds throughout most of the United States and Canada, and winters from the latitude of Massachusetts to Central America. In September, numbers of these hawks may be seen high in

air, migrating southward in a leisurely manner, and so they follow the southern flight of the smaller birds on which they prey.

Wooing begins among these hawks from April until early in June, according to the latitude. Perched in an exposed position, the male issues his shrillest call-notes, then moves about from place to place until a female responds. The ardent courtship is soon over and the happy pair fly away in company to select a suitable nesting-site. Nest-building occupies about one week. The nest is usually placed rather high in an evergreen tree in some sequestered locality. More rarely, it is situated in a deciduous tree, in a hollow stub, or on some lofty ledge of rocks.

Sometimes an old Crow's nest or a squirrel's nest is utilized as a basis upon which to construct the home. In this case the nest is a large, conspicuous structure; but ordinarily it is not very noticeable, and, in some cases, is well concealed by the foliage. It usually consists of a platform of sticks resting on a whorl of branches and fixed against the trunk of the tree. Dry grasses and strips of bark are interwoven to form the lining. Some nests are less skilfully formed and are unlined.

The Sharpshin's eggs number from three to five, and are pale white, greenish or bluish white, very heavily blotched, spotted and marked with light brown, dark brown, drab, fawn, and lavender, often in a ring about some part of the egg. Both sexes join in incubation and in the care of the young, which, when first hatched, are covered with soft white down.

The young are confined to the nest for about four weeks. Then they begin to climb and flutter about among the branches, and if undisturbed may remain several weeks longer in the vicinity of the nest, where they are fed by the parents. The woods resound with their shrill, squealing cries. Having finally strengthened their wings by exercise among the tree-tops, they attempt longer flights, and soon leave their home forever.

This bird is a model of activity and courage. Probably none of the raptorial birds is proportionately its superior in prowess. Every movement is marked by nervous haste. It is fierce, swift, impetuous—the embodiment of ferocity and rapacity. It does not hesitate to attack birds much larger than itself. C. J. Maynard tells of one that struck a Night Heron in mid-air, dashing it to the ground.

Not seldom it strikes and kills other birds or mammals so large that it cannot carry them away. It has been known to kill and carry off a young pullet so heavy that its toes dragged on the ground. I saw a clamorous Crow follow one of these Sharpshins and attack it, but the little bird turned on the sable tormentor and drove it ignominiously from the field. Indeed, the Crow was fortunate to escape with its life, so fast and furious was the onslaught of its small but spirited antagonist.

The Sharpshin hunts forest, orchard, field and meadow. In wooded

Nesting-site

Eggs

Courage and Strength



SHARP-SHINNED HAWK

(RIGHT HAND FIGURE, IMMATURE FEMALE; LEFT HAND FIGURE, ADULT MALE)

Order—RAPTORES
Genus—ACCIPITER

Family—FALCONIDÆ
Species—VELOX

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regions it is very destructive to young poultry. Small and inconspicuous, it can glide quietly into a tree near the poultry-yard, and, watching its chance, dash down diagonally at breathless speed, seize a chicken, and get away before the startled mother-hen can come to the rescue. I have even seen the villain sitting impudently upon the gate-post of a chicken-yard, awaiting its chance; but more often it comes low over the ground, just clearing the fence-tops, and is gone with its prey in a moment. A single pair of these hawks has been known to get twenty or thirty chickens before the owner realized the cause of his loss. Ora W. Knight writes that a pair of these birds took ten or twelve chickens daily from a farm-yard for some time before they were shot.

Seizing Poultry

Like others of its genus, the Sharpshin moves ordinarily at moderate height, alternately sailing and flapping, and always on the lookout for game. As it crosses a river and sails over the meadow, an officious Redwing rises from its nest in a tussock of reeds and advances to the attack. The unhappy bird soon realizes its mistake, and, turning, makes for the shelter of the wood, but the hawk gains on the poor blackbird every second. It follows its quarry through wood and thicket, matching every twist and turn, as swift, inexorable, and relentless as fate. It can overtake and slay a Bob-White in full flight. It sweeps quietly along a forest-path and rises to a dead branch, where it stands almost motionless, scanning all the ground and every tree and thicket, but the little warblers of the wood have been warned of its approach and, crouching in terror, they will not leave their hiding-places. Impatiently the hawk leaps forward on the air and soars off to take some heedless songster unawares.

The individual Sharpshins that spend the winter in the North are the hardiest of their species, and their boldness at this season is unsurpassed. More than once this hawk has dashed into or through a window in winter to strike down a caged Canary. On a cold and snowy day in January one bore down a Bluejay within a few feet of my dog. Dr. P. L. Hatch records that while he was riding across the prairies in Minnesota in winter during a furious wind, with the mercury 46° below zero, one of these hawks passed with inconceivable velocity, close to the ground, and seized and bore off a Snow Bunting directly in his path. Sometimes, in such instances, the victim appears to be helpless—paralyzed with fright.

Hunting Tactics

Evidently the Sharp-shinned Hawk delights in the chase, and prefers birds to any other food. Dr. A. K. Fisher, of the Biological Survey, reports as follows on the contents of 107 stomachs of this hawk that contained food: Six had poultry or game-birds, 99 contained other birds, eight contained mice, and five showed insects. Dr. B. H. Warren examined 19 stomachs of this bird, 17 of which were found to hold remains of poultry or game-birds. The Sharpshin feeds to some extent on mice, shrews, frogs, lizards and insects.

The destructiveness of this species has been admitted, but the folly

of classing all hawks and owls together as injurious is shown by an experience at my home at Wareham, Massachusetts. In 1906 a pair of Screech Owls built their nest and reared their young in a box put up for them in a pine-grove. This grove was a noted Robin-roost and many birds nested in the vicinity. During the season the owls killed one Robin, a Red-winged Blackbird and several Bluejays, but they subsisted chiefly on mice, and fed their young mainly with mice. All the smaller birds seemed to have entered on an era of prosperity, and were more numerous on the farm in 1907 than in 1906. In 1908 we were away until July. The Screech Owls had disappeared, and a pair of Sharp-shinned Hawks had a nestful of young in the grove. During July and August these hawks so harried and destroyed the birds of the neighborhood that virtually all were killed or driven away, except two pairs of Song Sparrows and a pair of Robins near the house. For the first time in our experience, the Robin-roost, which formerly was haunted by hundreds if not thousands of Robins in summer, was deserted, and the cries of the hawks were about the only bird-notes heard in the grove. The contrast between the effect produced by the owls and that caused by the hawks was so marked as to leave no room for doubt regarding the utility of the Screech Owl and the harmfulness of the Sharp-shinned Hawk.

Destruction of Birds

With the increase of game-preserves in this country, and the increased destruction of vermin, the Sharp-shinned Hawk must gradually disappear, for the game-keeper is his inveterate enemy. Let us hope that the useful and comparatively harmless kinds of hawks and owls may not suffer from the game-keeper's activity, because of the faults of the three species of true bird-hawks, but that such discrimination may be used by the game-keeper, the farmer, and the sportsman, that the real culprits will be the only sufferers.

Classification and Distribution

The Sharp-shinned Hawk belongs to the Order *Raptores*, Suborder *Falcones*, Family *Butoridæ*. Its scientific name is *Accipiter velox*. It resides in Summer and breeds throughout all temperate and sub-arctic North America; and it winters from British Columbia, Iowa, and the Great Lakes southward to Panama.

THE BOBOLINK

By FRANK M. CHAPMAN

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 38

Often at night, during August and September, and also, but less commonly, in May, we may hear the watchword of the Bobolink as high in the air he flies through the darkness on his journey to or from his winter home. It is only a simple note, repeated at intervals—*tink, tink*—but so unlike the call of any other bird that we can name its author as certainly as though he were singing his inimitable song.

Let us first learn where Bobolink spends the summer, and then follow him on his journey to his winter quarters. Although a bird of eastern rather than of western North America, Bobolink appears to have followed man westward, as grain-fields have appeared on the prairies and plains. To-day, therefore, Bobolinks are found during the summer from northern New Jersey northward to Nova Scotia, and westward between the fortieth and fiftieth parallels of latitude to the Rocky Mountains; thence, in much smaller numbers, they have been recorded from Wyoming, Nevada, Utah, Idaho, and British Columbia, west, as well as east, of the Cascade Mountains.

Range

Where, now, does Bobolink winter? Not with the Red-winged Blackbirds in the South Atlantic and Gulf States, nor even in the West Indies or Central America, nor yet in northern South America, but far south of the Amazon, in the great *campos*, or prairies, of southwestern Brazil, and in the marshes of La Plata. From British Columbia to Argentina it is 6,800 miles in a line as straight as one can lay a ruler on the chart; but, however it may be with the Crow, "as the Bobolink flies" is not always the straightest line. Let us see, therefore, what route or routes the Bobolink follows.

At once we make an interesting discovery. Whether a Bobolink spends his summer in Massachusetts or in British Columbia, he leaves the United States through Florida. When Bobolinks are found in Texas or Mexico, they are merely birds which have lost their way. The port of departure, as well as of entry, is the peninsula of Florida, or, at least, the waters that bound it.

Migration

But, it may well be asked, why do not the Bobolinks of the western United States migrate southward into Mexico, with other western birds, over the all-land route?

To this it may be answered that the Bobolink is not truly a western bird. We have seen that, probably, he has settled in the far West within recent years only. So, in returning to his winter quarters, he retraces his steps, as it were, going back over the same country through which his ancestors gradually extended their range westward, until he strikes the traditional southward path.

Thus the Bobolink gives us an indication of how birds learn to travel regularly, season after season, between their winter and summer resorts. The route is learned little by little, as the birds gradually

**Inherited
Habits**

widen their range; and the birds go back by the way they came. This habit appears to be inherited, to be passed on from generation to generation; and

when we remember that birds have been migrating for thousands of years, it gives us some clue to the manner in which so great a journey as the Bobolink's may have been developed.

After leaving Florida, the Bobolink "grand trunk line" appears to have three branches. One leads to Yucatan and thence southward along the eastern coast of Central America; one crosses over Cuba to Jamaica; and one goes eastward to Porto Rico, and thence southward through the Lesser Antilles.

The Jamaica route is apparently the most popular. Gosse, in his "Birds of Jamaica," tells us that vast numbers of Bobolinks arrive in that island in October and remain until early November. Fresh from the rice-fields of our Southern States, they are extremely fat, and are known as Butter-birds, and many are killed for food.

From Jamaica Bobolink must cross 400 miles of open sea to reach northern South America—a journey which he doubtless makes in one night's flight; and, having reached the mainland, he probably follows

Winter Life

along the eastern slope of the Andes to the treeless region toward which he has been traveling for at least three months. Here Bobolink passes the next five

months, with no family cares, and nothing to do but eat and be merry. He spends, therefore, almost twice as much time in his winter home as in his summer one.

Just when the northward journey is begun, no one seems to know. Probably late in March, for Gosse writes that Bobolinks reach Jamaica in April; about the 26th of that month they arrive in northern Florida, and reach their particular meadow or pasture in the Middle and New England States during the first week in May with as much regularity as if they had traveled eight instead of eight thousand miles since leaving it.

Before we speak of the nest Bobolink has come so far to make, let us learn something of his traveling suits.

When Bobolink comes to us in May, he is wearing his wedding-dress of black and buff, and very attractive it is. His wife, however, is quite



BOBOLINK

(UPPER FIGURE, MALE; LOWER FIGURE, FEMALE)

Order—PASSERES

Family—ICTERIDÆ

Genus—DOLICHONYX

Species—ORYZIVORUS

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differently attired in a streaked, sparrow-like costume, as our portrait in colors clearly shows.

After family cares are over, in common with all birds, both Bobolink and his wife shed their now worn plumage, and an entirely new one is grown. With Mrs. Bobolink, this is not unlike the one she has just molted; but Bob himself, in making his change of dress, adopts the costume of his wife. Thereafter both are known as Reedbirds, or Ricebirds, as they journey southward, or, in Jamaica, as Butter-birds, as we have seen; and no one may say by dress alone which is Mrs. or which is Mr. Bobolink.

Mating

They continue thus to look alike until the following February, when again all the old feathers are shed and new ones grown. Styles do not change in the Bobolink world, and Mrs. Bobolink again takes the streaked dress which she and her ancestors have worn as long as any one knows; but Bob prepares for the season of courtship by donning his suit of black and buff, not, as yet, however, fully displayed, but partly concealed, as it were, by a yellowish cloak, which we find is composed of tips to the black feathers. As the summer home is approached these yellow tips drop off, and, in due time, reveal the jaunty garment beneath.

Plumage

The young Bobolinks, whether male or female, wear a plumage resembling that of their mother on leaving the nest, and the males acquire the black-and-buff plumage in the following spring.

Bobolink, however, does not rely on the charms of his plumage alone to win him a mate, but woos her also by his voice; and such a voice! What Bobolink could resist it? Did there ever issue from throat of bird so eloquent an expression of the season's joys? Lowell must have felt this when he wrote:

"The Bobolink has come, and like the soul
Of a sweet season, vocal in a bird,
Gurgles in ecstasy we know not what
Save June! Dear June! Now God be praised for June."

But if this be said of the song of one Bobolink, what shall we say when hundreds sing together, as they do in the South in the spring, clustering in the trees like Red-winged Blackbirds in March, and producing a chorus to which even the poets could not do justice.

Soon after arriving, nest-building begins. The nest is a simple affair of grasses placed on the ground in a slight depression, where the rim is even with the surrounding surface. The four to seven eggs are grayish, with numerous irregular spots and blotches of brown. The birds are careful not to betray the situation of their home. The male does not sing too near it; and the female does not leave nor return to it directly, but goes a short distance through the grass.

Nest

At this season of the year, the Bobolink is a most desirable citizen from every point of view. He pleases the eye, charms the ear, and wins our approval through his destruction of noxious insects. Grass-hoppers, caterpillars, army-worms, weevils, are all on the Bobolink's bill-of-fare while nesting; and, if our estimate of the bird's economic value were to be based on its food-habits at this season alone, one might declare the Bobolink to be as useful as he is beautiful. But, unfortunately, there is a debit side to his account with man, which is thought by some to overbalance the items to his credit.

Food

Whatever may have been his habits before man appeared, certain it is that now, with unflinching regularity, as a "Ricebird," he visits in vast numbers the rice-fields of our Southern States in late August and September. The rice is now in the milky stage, and the birds devour great quantities of it. So great, indeed, is the damage done that it more than offsets the good accomplished by the bird during the summer.

Possibly, therefore, on broad, economic principles, the Bobolink might be condemned on the ground that it is more injurious than beneficial to the material interests of man. The rice-growers of our Southern States would no doubt welcome this verdict with enthusiasm; but we imagine that, if sentence should actually be passed, Bobolink's friends at the North would gladly raise a sufficient sum to purchase the freedom of this minstrel of our June meadows.

Service

But lovers of the Bobolink should not wait for so great a crisis. If the bird's western range is increasing, its eastern one is as surely decreasing. Thirty years ago it was an abundant summer resident in northern New Jersey and in the region about New York City, where now it is either entirely absent or rare and local. Trapping in the nesting season, and shooting in the fall, are possibly, in part, responsible for this decrease. The trapping has been stopped; and certainly we now have reached a stage in our appreciation of birds when we should no longer rank song-birds as game.

Classification and Distribution

The Bobolink belongs to the Order *Passeres*, and to the Family *Icteridæ* (Blackbirds, Orioles, etc.). Its scientific name is *Dolichonyx oryzivorus*. It breeds from southeastern British Columbia, the Saskatchewan Valley, central Ontario and Nova Scotia, in Canada, southward to Utah in the West, and to the Ohio Valley and New Jersey in the East; and it winters in tropical America.

THE HOUSE WREN

By MABEL OSGOOD WRIGHT

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 39

Since the work of bird-protection has become a matter of international interest we have heard a great deal of vanishing species and of the discouraging side of the matter, while far less has been said about the



Photographed by F. L. Holts

A HOUSE WREN AT HOME

The nesting-box has been opened and shows that the bird has filled its chamber nearly to the ceiling

increase of certain species of our most familiar birds that might be still further augmented by a little care.

We cannot prevent, if we would, the trend of civilization that drains and reclaims the marshes and swampy woods dear to water-fowl and so-called shore-birds. We cannot check, or even guide, the over-thrifty forestry that does away with the moss-grown stumps—picturesque in their decay—and fills up with cement every crack or knot-hole suitable for owl, chickadee, nuthatch, or woodpecker; but a dozen birds are still abundant on which we depend for home-music, the concerts of the garden and near-by fields, and it is possible to keep these with us definitely if only

we see that suitable nesting-places are left them, or, lacking these, provide substitutes. Many of these species, in fact, are thought to be much more numerous than formerly.

Eight species of wrens are locally common in the United States east of the Rockies, wherever the region is thickly enough brushed to suit their necessities; and of these the Bewick's Wren, the House Wren, and the Carolina Wren, are sufficiently sociable not only to prefer to nest near houses, but to take quickly to nesting-boxes in preference to the usual crannies and tree-holes, or to the brush-heaps in which they spend so much time creeping to and fro, sometimes in pursuit of insect-food and sometimes, it seems, in a spirit of pure restlessness.

On some morning in the last week in April, preferably after a night of rain with wind, we come to consciousness with the knowledge that the morning song is pervaded by new tones. Presently the voice of the Thrasher is heard giving direction to an imaginary gardener about his planting; the Cat-bird has once more possessed himself of his point of vantage on top of a clothes-post; the Wood Thrush and Mockingbird sing from the dog-wood on the edge between garden and woods, and an unrepeatable burst of melody from the corner of the porch close under the window draws your attention to the little, reddish, olive-brown bird balancing there, with tail and eyes turned skyward, though you know before you look that it is a House Wren that has returned, and that, pert as he looks, very soon he will be taking housekeeping orders from the Jenny of his choice.

In a day or two Jenny, or rather a number of Jennies, will appear, and then follows a month of the most active courtship in the world of song-birds. Active? I had almost said quarrelsome, for such it usually seems; but then a mere human being may not be able to distinguish between wren repartee and the "back talk" of real anger.

Whichever it may be, the pastime occupies nearly all the month of apple-blossoms, the serious nest-building not beginning until the last week of May, in spite of the fact that a pair of House Wrens have been known to rear three broods of six in a single season.

For prolific birds such as these, whose cleanly habits lead them to prepare a new home for each brood, it will be seen that the possibility of finding suitable nesting-places is a matter of the first importance, as for such ardent insect-eaters the food-supply is always at hand during the season—from April to October—when they are with us.

The old-fashioned farm was the House Wren's paradise, as well as that of the Barn Swallow, Chimney Swift and Phœbe, though the barn-buildings were frequently too close to the house for the best of human sanitation, and the various appurtenances were collected with a view of "being handy" rather than with an eye to order and precision. Here Jenny and Johnny would locate their first nest in an empty tin can upon one of the cowshed rafters, filling all the space not absolutely needed by a mass of small dry sticks; for, above all things, the wrens seem to

**A Morning
Greeting**

**A Good
Situation**

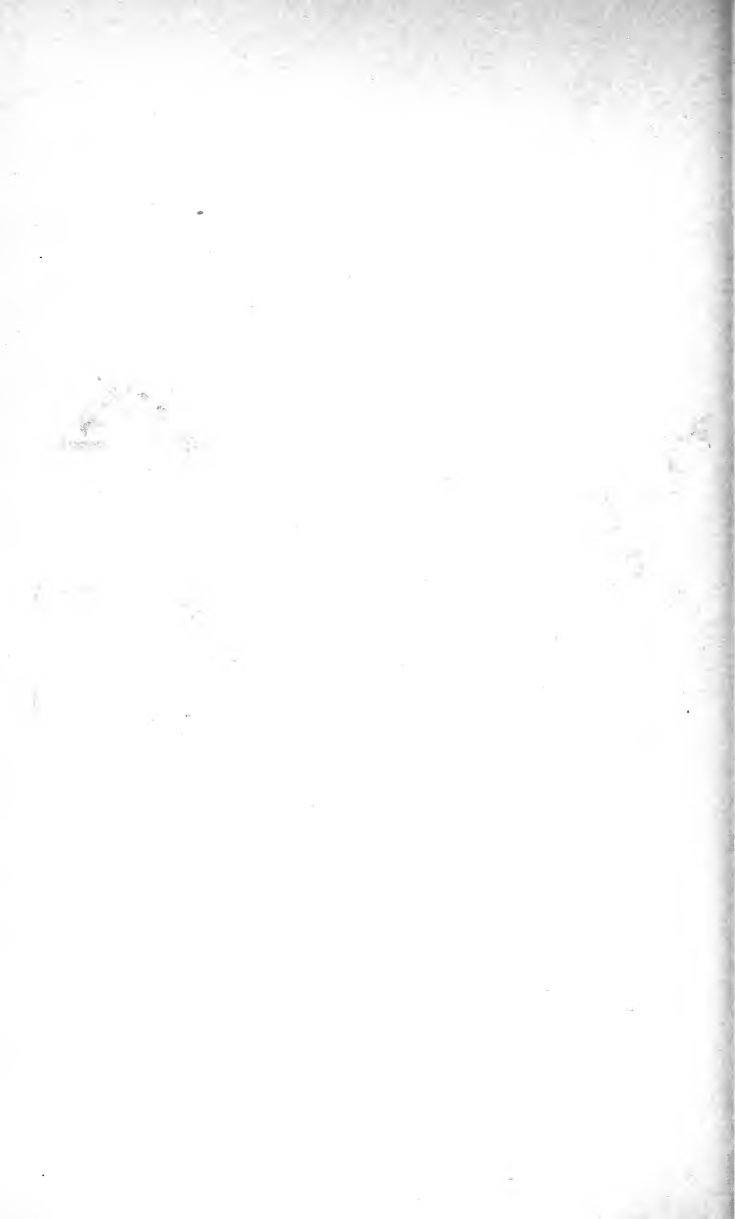


HOUSE WREN

Order—PASSERES
Genus—TROGLODYTES

Family—TROGLODYTIDÆ
Species—AËDON

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esteem coziness, and if a nook or apartment has too high a ceiling they immediately do away with this objectionable feature by raising the floor. It is well to keep this requirement in mind when making nest-boxes for wrens. A house 4 x 4 x 6 inches, with a sloping roof to shed water, and an opening two inches from the bottom, and not more than one inch in diameter, will not only meet all requirements, but help to repulse the innocently pestilent English Sparrow.

The six or eight purplish-brown eggs, sometimes darker at the larger end, in due course turn into little birds that require a deal of tending; and so rapid is the process of diges- **Sanitation**
tion with these very warm-blooded animals that the excreta are removed almost as fast as the food is supplied, and, strangely enough, appear to exceed the food in bulk; but then it must be remembered that the food is of the most highly concentrated and nutritious animal matter.

What a thrifty housewife Jenny is! Not a speck or splash is allowed to drop near the dwelling, and often before the nestlings have actually taken wing, she is varying her marketing trips by a hunt for dwelling number two.

In searching the outbuilding, sacred to tools and general litter, to be "mended some wet day," for the little bags of spiders' eggs that are so very appetizing to mother-bird as well as to the children, Jenny spied an old stone jug that had gone once too often with cider to the hayfield, and had come into contact with a rock. Badly cracked but not broken, it was pushed back on the shelf, neck out. At once curious and restless, Jenny explored the short neck, and, finding it much to her liking, sent Johnny to collect twigs for filling the unnecessary space while she finished preparing her youngsters to take wing, finding it convenient to leave an egg in the new nest before she had quite shaken off the care of the first family.

Whether the cider-jug home was too hot, or whether the mice with which the tool-house was filled became too inquisitive, this second home was abandoned after a few days of incubation. On breaking the jug to see what had happened to the eggs after the wren had flown off to find new quarters for a third venture, evidence pointed to the bird or birds having destroyed their own eggs in a fit of temper or disgust at their surroundings. Each **Destroying its own Eggs**
egg was perforated by a single sharp thrust that could not have come from the teeth of a mouse, and the contents of the egg had not been otherwise disturbed.

Such a state of things I once saw happen practically under my very eyes, although I could not tell whether the male or female was the egg-piercer. The nest was in a small house in the porch-vine. One morning, a few days after incubation had begun, the return of one bird was heralded by violent scolding on the part of the one sitting. Then both flew about, lunging at each other and fighting desperately. One bird, rather worsted, stopped to rest, wings spread and panting, when immediately the other flew into the house and proceeded to scratch and break the furniture.

Then this one came out and flew away. Next day neither appeared, and I found the eggs pierced, each with a single thrust.

The third nest that the old-farm wrens built was inside the north window-blind of the best room of the farmhouse, a window seldom opened between spring and fall house-cleaning. As it was then the first week in August, the situation, sheltered alike from sun and thunder-showers, was evidently appreciated. This third brood, to the number of five, prospered.

It can be easily seen by those who wish to have wrens about their places that house-room must be provided, as the English Sparrow is likely to take to himself many of the old haunts. However, the box with the one-inch opening is as yet a problem to the sparrow, or the red squirrel, though the latter can and will enlarge the hole unless it be edged with tin. Make your houses of the right size—not one or two only, but a dozen. Think out the location and see that they are at least partly protected from sun. Do not put the houses too close together, for Madam Wren is a bad neighbor, and her temper is as quick as her flight.

Outwitting Intruders

At the end of the season clear the old nests from the house. A wren can carry and lay unbelievably long twigs, but to undo the work is too great a trial of her patience. Last year a series of a dozen of my wren-boxes remained unoccupied because they had not been emptied.

Under proper auspices the House Wren is increasing, and if it is not doing this in your neighborhood may it not be your own fault? Once established in a locality, a wren clings to it. This year, other space failing, a pair have made a strange nest in a house-maid's pail that was hung, bottom upwards, to air on a stake behind a trellis where they had once nested. The pail had a slightly incurved edge, and between this and the supporting stake the birds built a narrow platform up toward the bottom of the pail, which acted as a roof. The structure was made of sticks that it seemed impossible that so small a bird could lift, much less turn endwise and carry through the round meshes of the trellis. The nest when finished was of the shape of that of the Eave Swallow, the supporting stake holding it against the side of the pail.

A Nest in a Pail

"What shall we do?" I said to the maid, on being shown the nest, which was well outlined between the morning and the evening of the first day. "My, but the work of them!" was her admiring reply. "Leave them have it; I can do with something else, for it's a sin to discourage that much pluck when it trusts you for the lend of the pail."

More of this spirit will mean many more wrens about our houses.

Classification and Distribution

The House Wren belongs to the Order *Passeres* and Family *Troglodytidae*. Its scientific name is *Troglodytes aedon*. It is to be found in summer throughout temperate North America, and in winter in Mexico. The House Wrens west of the Plains are regarded as a western subspecies (*T.a. parkmani*), sometimes called Parkman's Wren.

THE BUSH-TIT

By WILLIAM L. FINLEY

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 40

The Bush-tit's home is on the Pacific Coast. He is so much of a Westerner that he is entirely unknown in the Eastern States. He may be recognized by his diminutive size, as he is but little larger than a hummingbird, but more fluffy in appearance, and with a tail that is as long as his body. He is dressed modestly in grays and browns, with not a touch of bright coloring. As a nest-builder, he has no equal among our small birds, for he weaves a gourd-shaped home of soft, flexible materials, from eight to

A Little
Westerner



A BUSH-TIT WITH FOOD FOR ITS YOUNG

Photographed by H. T. Bohlman

ten inches in length, with a side-entrance near the upper end. He is fearless and readily accepts human friendship.

One can hardly help falling in love with a Bush-tit. He is such a tiny mite, not larger than your thumb. He goes along in such a bustling, businesslike way. He is absolutely fearless in ordinary circumstances. One can make friends with the Bush-tit as easily as with his cousin, the Chickadee. Any one who has studied bird-character would know that these two birds are related, even if he did not know that both are members of the family *Paridae*. I do not know why the Bush-tits and Chickadees place so much confidence in mankind. Perhaps they remember only the

kindnesses of our race, and not the evils. But, even if these two birds are much alike in character, they are different as home-builders. One might wonder how the Bush-tit has developed so remarkable an ability as a home-builder, when the Chickadee is content to dig himself a den in the heart of some old stump.

The Bush-tit never seems to be moody; perhaps he never has the blues.

Love of Companions

He loves company. Through a large part of California the Bush-tits forage about in flocks nearly nine months of the year. In Oregon and Washington they come in the spring, nest, and depart in the fall. A flock of Bush-tits is always restless. The Juncos, like the Bush-tits, stay in flocks a large part of the year. I often have watched them about my home. After a hunt for food, when their hunger is satisfied for a moment, they sit about in some tree resting and preening themselves, and their continual twittering gives the impression of a real bird-concert. Bush-tits are great talkers. A flock forms a continually moving excursion. A few always take the lead, bobbing along from tree to tree, others follow rapidly, and when they take possession of a bush it looks as if the whole thing had suddenly taken wings.

The Bush-tit has no distinctive color-marks, such as the white tail-feathers of the Junco; but he has a series of call-notes that are of great importance in keeping each member of the flock informed as to where the others are.

I stood, one day, in an alder-copse watching a flock of Bush-tits that was hunting through the branches. It was a family of young birds. Each had learned to keep up a constant *tsre-e, tsre-e! tsit! tsre!* as if continually saying something. But this gossip was not so much for the sake of conversation as to keep the whole flock constantly together. While I was watching, three or four of the midgets were within a few feet of me.

One of the birds in the next tree began a shrill quavering whistle, and instantly it was taken up by every one of the band. The two birds near me, and every one of the others, froze to their perches.

A Time for Disappearing!

Had I not known it, I couldn't have told just whence the whistle came; it sounded so scattering, like the elusive, grating call of the cicada. Then a hawk swept overhead, and the confusing chorus lasted as long as the hawk was in sight; nor did one of the little Bush-tits seem to move a feather, but all just sat and trilled in perfect unison. It was an unique method of protection: the whole flock had learned to act as a unit. It would have been hard for an enemy to tell where a single bird was, the alarm-note was so deceiving, the birds so motionless, and their clothing harmonized so perfectly with the foliage. I have observed this habit several times.

Throughout the western part of Oregon and Washington, the Bush-tits often nest in willows, hemlocks, or hazels, and the site selected is usually from six to eight feet from the ground. In California, the oaks are favorite nesting-places.

The Bush-tit is a master-builder among birds, for he constructs a real



BUSH-TIT

Order—**PASSERES**

Genus—**PSALTRIPARUS**

Family—**PARIDÆ**

Species—**MINIMUS**

National Association of Audubon Societies



mansion. I once watched a pair of these tiny creatures lay the foundation for a typical, long-pocket nest; I say, lay the foundation, but really the Bush-tit does not follow our ideas of architecture, for he shingles the roof first and puts in his uprights and his floor-joists last.

After the pair of lovers had selected a site for a home in a hemlock-tree, they began weaving in some cross-pieces between the twigs. Then they left a place for a round doorway, and began weaving the walls of moss, fibers, and lichens. This was to be the hallway down to the main living-room.

**Weaving
the Nest**

The outline of the long pocket was built, and then filled out from the inside. The feather-lining was added last, and this required a great amount of hunting. When one of the Tits came with a feather, he would pop down into the nest, and the whole structure would shake and bulge, as the little fellow fitted in the material; then out he would come to continue the hunt. It seemed as if they would never get enough feathers; for, even after some of the pure white eggs were laid, whenever in their travels the pair would run across a feather back they would come and add it to their bed.

In some parts of Oregon, where the moss hangs in long bunches on the limbs of trees, the Bush-tit utilizes this as a natural beginning for a nest. I saw one of these birds get inside a long piece of moss and weave it into the wall of the nest. At another time, I saw a Bush-tit's nest that was twenty inches long. The little weavers had begun their home on a limb, but evidently it was not low enough to suit them, for they made a fibrous strap ten inches long and swung their gourd-shaped nest to that, letting the nest hang in a bunch of willow leaves.

I never had a good idea of the amount of insect-food a Bush-tit consumed until I watched a pair of these birds a few days after the eggs were hatched. Both birds fed in turn, and the turns averaged about five minutes apart during a large part of the day. The parents were busy from dawn till dark. They searched the leaves and twigs, the branches and trunks of every tree. They hunted through bushes, and grasses, and ferns, and food seemed to be abundant. Sometimes they brought caterpillars, moths, and daddy-long-legs, that one could see, and again they brought bills full of larvæ and scale-insects that one could not recognize because they were so minute. One pair of Bush-tits about a locality means the destruction of an untold number of insect-pests. If we could estimate the amount of insects destroyed by all the birds about any one spot we should find it enormous. Without the help of these assistant gardeners, at work early and late and constantly at it, bushes and trees would soon be leafless.

**Insect-
Eaters**

The Bush-tit does not possess the aërial grace of a swallow, or even the nimbleness of a warbler. He bustles along in such a jerky way that often he looks as if he would topple heels over head, and go whirling to the ground like a tailless kite. He is not so successful a wing-shot as is a flycatcher, but in stalking he has an eye that few birds can equal.

Prof. F. E. L. Beal, of the Biological Survey, has made a careful study

of the Bush-tit and its relation to the fruit-industry on the Pacific Coast. Three hundred and fifty-three stomachs of Bush-tits were examined. They were collected during every month of the year, the greater number being taken during the spring and summer. The fact that less than one per cent. of the food of the Bush-tit consists of fruit, and that more than four-fifths of its diet consists of insects and spiders, nearly all of which are harmful, shows that the bird is a very valuable resident of any fruit-growing or farming district. According to Professor Beal, the largest item in the insectean portion of the Bush-tit's food consists of bark-lice, or scale-insects.

The San José scale is one of the most pernicious and destructive pests to the fruit-growing industry on the Pacific Coast. As this scale is very minute, it is difficult to identify it positively after it has been eaten by the birds and is mixed with the other food in the stomach. Some species, such as the olive-scale, are larger and more easily identified. Out of the total of 353 stomachs examined, 138 held scales, and several stomachs were entirely filled with them, so that it is certain that the Bush-tit devotes a large part of its time to destroying scale-insects. Professor Beal examined one brood of eight nestlings about ten days old, taken along a stream that bordered a neglected orchard. The stomach of every one of these young birds contained larvæ of the codling-moth. The parent Bush-tits hunted through the old orchard, and did much to keep down the horde of insects that thrived and lived there. This is the Bush-tit's life-work.

Destroying Scale-Insects

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MAKING FRIENDS WITH A BUSH-TIT FAMILY

Photographed by H. T. Bohlman

Classification and Distribution

The Bush-tit belongs to the Order *Passeres*, Suborder *Oscines*, and Family *Paridae*. Its scientific name is *Psaltriparus minimus*. It is to be found all along the Pacific Coast from southern British Columbia to northern Mexico. Three subspecies are recognized: *P. minimus minimus*, the typical species prevalent near the coast; *P. m. californicus*, of the mountainous interior; and *P. m. grinda* of Lower California.

THE MOCKINGBIRD

By T. GILBERT PEARSON

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 41

What the Nightingale is to Europe the Mockingbird is to the Southern States—the most wonderful song-bird of the country and the universal favorite of the people. His reputation as a musician is world-wide. Whoever hears his song is deeply impressed, and wherever the story of birds is told the power of the Mockingbird's voice is recalled. He is one of the first in the spring to sing; indeed, I have heard him near the northern border of his range singing with great force on a clear February morning when ice covered the branches of all the trees with glittering frost-work.

A Prince of Singers

In those States that border on the Gulf of Mexico, Mockingbirds sing at intervals throughout the winter months, and by March 1 are in full song. In that semi-tropical region they are among the most abundant of birds. I have thought sometimes that they must be conscious of the power of their numbers, from the bold, defiant manner in which often the music will come from a dozen or more throats within hearing at one time, drowning in its volume the notes of all other denizens of the fields and shrubbery. The bird revels in the glory of his vocal strength, and shouts his ringing challenge to the trees, the flowers, the very sky itself.

Watch a Mockingbird some spring morning, as with ruffled feathers and drooping wings he sits on the topmost bough of a tree and pours out the beautiful story of his love. The very intensity of the music within his breast seems from time to time to lift him many feet into the air. With dangling legs and carelessly drooping wings he drops again to his perch, singing the while. Anon he descends to the earth for a moment, makes a few rapid hops in the grass, and bounds again into the air with scarcely an intermission in his song. Music high and low, loud and soft, hilarious and sorrowful, with never a hesitation, never a false note, falls upon your ears as you hearken to this wonderful, masterful fellow, the music-prince of the southern highways and groves. It is at night, however, that the Mockingbird is at his best. If he is the music-prince of the grove by day, he is the song-king of the lawn on moonlit nights, when sometimes his singing may be heard until dawn. He is our American Nightingale!

Power of Mimicry

Besides his native song, the Mockingbird has the power of acquiring by practice the notes of many other birds that he is accustomed to hear. He imitates the song of the Robin and the Wood Thrush, the Bluebird and the Wren; and will give with remarkable distinctness the clear whistle of the Cardinal Grosbeak. In regions where the little Sparrow

Hawk is a common resident, many of the Mockers will reproduce its cry so perfectly as to deceive the most highly trained ear. Not all Mockingbirds have equal power of imitation, for the gift of mocking in different individuals seems to vary as much as the range of their natural song. An observer in South Carolina speaks of hearing one mimic the notes of no fewer than thirty-two birds during an interval of ten minutes.

The nest of the Mockingbird is variously situated—in small trees, brush-heaps, briars, in the corners of rail-fences, in the decayed trunks of trees, on stumps, in piles of cord-wood, and in vines growing about the doors and verandas of village or country houses. Once I found a nest between the wall and the stick-and-clay chimney of a ruined cabin. Building-materials consist of twigs, dry grasses, pieces of paper, strings, strips of bark, feathers, rags, or other suitable articles easily procured. The structure is lined with rootlets. The distance at which the nest is placed above the ground varies from three to ten feet. Rarely one may be seen on the bough of a large tree at an elevation of fifty feet above the ground.

The eggs have a pale, greenish-blue, ground-color, and are rather heavily covered with reddish-brown spots. Four is the number usually laid in a nest, sometimes five, and rarely six. The one profession of the male in the spring is singing, and so completely does this engross his mind that to his mate is left the entire responsibility of constructing their habitation and hatching the eggs. May is the principal month for nesting, although I have seen Mockingbirds incubating their eggs as far north as Ocracoke

Inlet, North Carolina, by April 10. In the southern part of the bird's range two broods are reared in a season.

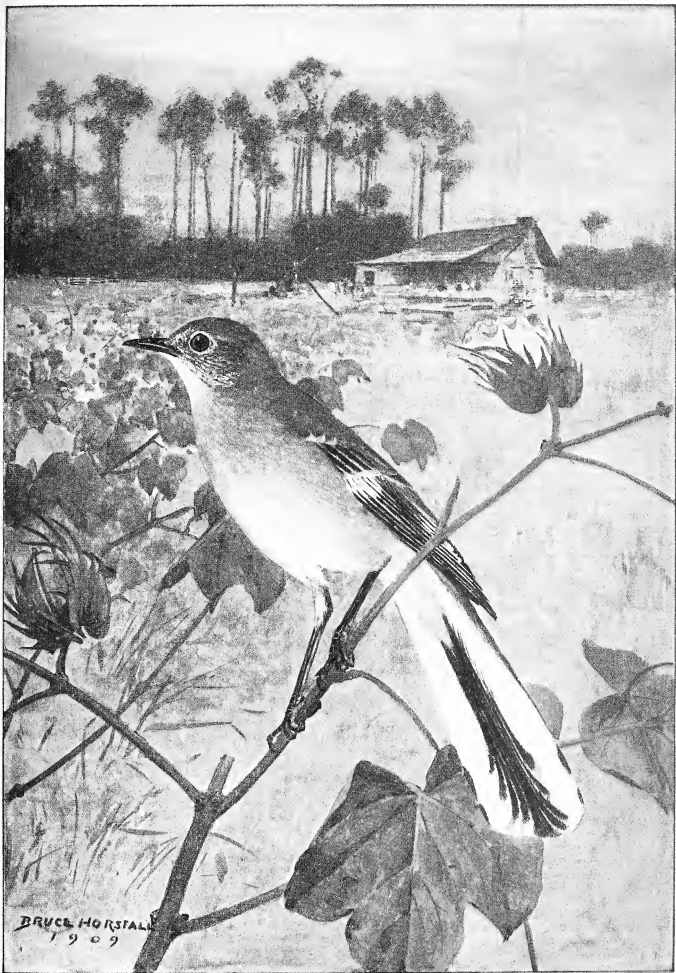
While brooding the eggs, or caring for the young, the nest is guarded with the utmost care. The parents will not hesitate to attack any enemy, real or imaginary, that may approach their domain, be it crow, or dog, or man; if they do not actually assail him they will at least hover near and scold soundly, and their cries of alarm at once warn other birds in the vicinity of impending danger. If the intruder be a hawk, the cry is taken up and passed from garden to garden by these self-appointed sentinels, and the evil news of the hawk's approach is heralded faster than the winged desperado can fly.

If a Mockingbird's nest be destroyed, within a few days the mother-bird will begin building a new one; if an accident befalls this likewise still another will be built. A pair once made their nest among the rails of a fence near my home. The owner of the fence soon afterward, while making some repairs, accidentally tore the nest from its position and the eggs were broken. The birds then settled in a small tree near by, but an animal in the pasture rubbed the tree down, and again the birds were without a home.

Nest

Eggs

Persistent Home-makers



MOCKINGBIRD

Order—PASSERES
Genus—MIMUS

Family—MIMIDÆ
Species—POLYGLOTTOS

National Association of Audubon Societies



In their search for a more secure position the sorely distressed Mockers sought the protection of a large orange-tree, and on a horizontal limb, ten feet from the ground, built a nest. Here more trouble awaited them, for a cat climbed the tree, despite the thorns, and ate the young in the nest. If the poor birds were discouraged by this series of disasters they did not show it in their actions. A week after this last catastrophe I saw the female carrying twigs in among the dagger-shaped leaves of a yucca. Here, at last, she had found a secure retreat, and reared her young in safety, free from the intrusion of man, or ox, or cat.

If kindly treated, this bird will often become very trustful; and, if you are so fortunate as to have trees and shrubbery about your house, he will perch in your doorway, and even hop about your room. I knew one that often did this, until one day a heavy hand was laid upon him and he was placed in a cage. But the moment he was imprisoned his tameness vanished. He refused all food, and, dashing wildly against the cruel bars, sought his freedom long and untiringly.

He could hear the buzzing of a Hummingbird's wings among the woodbine on the veranda-trellis. He heard, too, the twitter of Swifts as they circled and darted about the sky, and again and again the songs and calls of his fellows reached his ears, as they chased one another about the grove in their mimic combats. In his efforts to escape he drove his bill so incessantly between the bars of the cage that his head bled from many bruises. At times he called loudly for help, and never was content a moment until his wings bore him once more into the bright sunshine; for, like most wild creatures that have grown to maturity in the free air, he never could be taught to live in captivity.

A friend of mine once picked up a young Mockingbird that had been injured, and kindly cared for it. She placed it in a cage, and fed it for a time with ripe berries and a mixture of boiled egg and potato. Later, when it was able to fly, she gave it its liberty. Instead of leaving it followed her about the house, hopping and flying along the floor. It would alight on her arm and feed from her hand. If she were out of its sight for an hour it would become uneasy, and, entering the house by door or window, would seek her from room to room, chirping loudly in distressed tones. For many weeks the bird remained about the house and lawn, and would come when called by its mistress.

Audubon relates a similar instance as happening at Natchez, in Mississippi.

The fact that Mockingbirds, when taken while young, and properly cared for, will thrive in captivity, is unfortunate for the preservation of the species. Thousands of young are collected each year and placed in cages, but only a small number of captives survive the first few months of their imprisonment. The exportation of caged Mockingbirds is prohibited by law.

**Exportation
Forbidden**

"In winter," wrote Audubon, in the second volume of his *Birds of*

America, "nearly all the Mockingbirds approach the farmhouses and plantations, living about the gardens or outhouses. They are then frequently seen on the roofs, and perched on the chimney-tops; yet they always appear full of animation. Whilst searching for food on the ground their motions are light and elegant, and they frequently open their wings as butterflies do when basking in the sun, moving a step or two, and again throwing out their wings. When the weather is mild, the old males are heard singing with as much spirit as during the spring or summer, while the younger birds are busily engaged in practising, preparatory to the love season. They seldom resort to the interior of the forest either during the day or by night, but usually roost among the foliage of evergreens, in the immediate vicinity of houses in Louisiana, although in the Eastern States they prefer low fir trees."

Although Mockingbirds are found more abundantly in the Southern States, they occasionally wander much farther north in the summer; some, indeed, have been known to build their nests in Illinois and New Jersey. At the approach of winter these wanderers usually seek the South, and seldom winter north of Virginia; yet for some reason a Mockingbird declines now and then to leave his northern summer-home, and despite the snows and sleet will remain until the succeeding spring. One is known to have stayed at Rochester, New York, during the winter of 1905-6, possibly induced to do so by the abundant food provided for it by Mrs. Carroll E. Brown.

Food

While investigating the feeding-habits of this remarkable bird, Dr. F. E. L. Beal found that in the fifty-two stomachs examined nearly a third of the contents was of vegetable origin; half of this was fruit, and a large part of the remainder was seeds. The birds' appetite for fruit and berries in some communities becomes so troublesome that occasionally many fruit-growers complain of their depredations, while others plant more fruit in order to provide enough both for man and bird. The latter is the humane and economic method, and should be followed by all orchardists.

Classification and Distribution

The Mockingbird belongs to the Order *Passeres*, Suborder *Oscines*, and Family *Mimidae*. Its scientific name is *Mimus polyglottos*. Its breeding-range comprises the whole United States north to Maryland, southern Iowa and central California; but those of the southwestern United States and Mexico are assigned to a subspecies (*M. p. leucopterus*).

THE ORCHARD ORIOLE

By WITMER STONE

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 42

Several bird-voices are especially associated in my mind with the apple-orchard—the mournful cooing of the Dove, the monotonous call of the Wood Pewee, and the lively chant of the Orchard Oriole.

The last is a song that at once attracts attention—a rapid series of clear notes, fairly tumbling over one another as they suddenly break



NEST OF AN ORCHARD ORIOLE

upon the ear, and stopping abruptly before we have discovered the performer. It is a song that recalls in some respects that of the Warbling Vireo, while the rapid sequence of notes reminds one of the rollicking medley of the Bobolink. Compared with the song of the Baltimore Oriole it lacks strength and fullness of tone, but is much more delicate. The Orchard Oriole is a persistent singer, and during the nesting season his lively melody is heard continually, even during the heat of midday. Sometimes, like the Bobolink, he sings on the wing, but only when passing rapidly from one tree-top to another.

He is not, as one might judge from his name, exclusively an inhabitant of the orchard, but is equally at home among the shade-trees about the

house or along a village street, especially in the thick foliage of the Norway spruces frequently planted about our lawns. Always during the breeding season, however, the Orchard Oriole is distinctly a bird of the cultivated land immediately about man's habitation, rather than of the wilder, wooded country. When the nesting cares are over the Orioles scatter more widely, and we often come upon little family parties foraging

**Friendly
Disposition**

along the fence-roads and edges of the woods, far from house or garden. Originally, before there were any orchards to lure him away, the Orchard Oriole was an inhabitant of wooded river-banks, according to Mr. Widmann's experience in Missouri; and in Pennsylvania I have found it in such places along the wilder parts of the lower Susquehanna Valley.

It is no easy matter to get sight of the singing Oriole, as he clings closely to the shelter offered by the dense foliage of the tree-tops. Now and then, however, he flies rapidly from one favorite feeding-spot to another, or back to the nest-tree. As he comes suddenly into view on one of these flights he always seems smaller than one would expect; probably the volume of his song, or our familiarity with his relative, the Baltimore Oriole, leads us to picture him larger than he really is. His length is seven inches, nearly an inch shorter than the Baltimore.

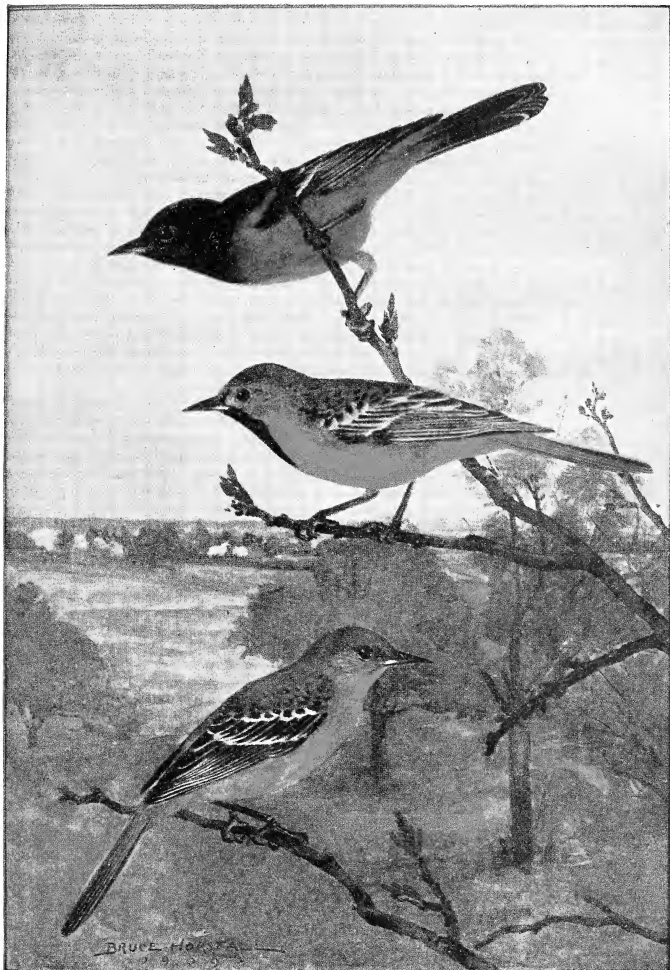
The food of the Orchard Oriole consists largely of caterpillars and other insects that he finds among the tree-tops; but now and then, especially after the breeding season, we see an individual alight in an open field, often on plowed ground, in search of other insects that lurk there. William Brewster has also noticed these birds in South Carolina hovering before trumpet-flowers, sipping honey after the manner of

**Service to
Mankind**

Hummingbirds. In late summer, when the family groups go foraging about the country, berries of various kinds seem to constitute a large portion of their food; but so far as I am aware they never do serious damage to cultivated fruit.

On this subject of food Major Bendire writes: "Few birds do more good and less harm than our Orchard Oriole, especially to the fruit-grower. The bulk of its food consists of small beetles, plant-lice, flies, hairless caterpillars, cabbage-worms, grasshoppers, rose-bugs, and larvæ of all kinds, while the few berries it may help itself to during the short time they last are many times paid for in the greater number of noxious insects destroyed; and it certainly deserves the fullest protection."

The nest of the Orchard Oriole is usually supported upon slender twigs in the top of an apple-tree. It is somewhat pensile, but much shorter and more rigid than the long, pocket-like nest of the Baltimore; in fact, it is usually nearly spherical, with the opening somewhat constricted. It is made of fine, dry, greenish or yellow grass, elaborately interwoven and lined, especially on the bottom, with soft vegetable down from thistle-blooms, buttonwood-seeds, etc. Wilson relates that he carefully unwound a single strand of grass from one of these nest and found



ORCHARD ORIOLE

(UPPER FIGURE, ADULT MALE; MIDDLE FIGURE, YOUNG MALE; LOWER FIGURE, FEMALE)

Order—PASSERES
Genus—ICTERUS

Family—ICTERIDÆ
Species—SPURIUS

National Association of Audubon Societies

it to be thirteen inches long, and to have been looped through the other strands thirty-four times. The eggs are grayish white with lavender spots, blackish blotches, and "pen-marks;" and are thus similar to those of the Baltimore, but smaller and more coarsely marked. They number three to five, and measure 80 by 55 hundredths of an inch.

I have noticed that Orchard Orioles and Kingbirds often nest in the same tree in the orchards of southern Pennsylvania, and was interested to find that other observers have noticed the same thing in Maryland and South Carolina. For some reason or other the pugnacious Flycatcher, that usually drives all other birds from the vicinity of his nest-tree, seems able to live on the best of terms with the modest Orchard Oriole.

Nesting Habits

Audubon, describing the habits of the Orchard Oriole in Louisiana, remarks that the male has a habit of mounting on the wing during the mating season, jerking his tail and body, flapping his wings, and singing with remarkable impetuosity. "These gambols and carollings are performed frequently during the day, the intervals being employed in ascending or descending along the branches and twigs of different trees, in search of insects or larvæ. In doing this they rise on their legs, seldom without jetting the tail, stretch their neck, seize the prey and emit a single note. . . . At other times it is seen bending its body downward in a curved posture, with head greatly inclined upward to peep at the underparts of the leaves, so as not to suffer any grub to escape its vigilance."

The plumage of the male Orchard Oriole is subject to striking changes as the bird passes from nestling to adult, and these proved very puzzling to the early ornithologists. In fact, it was left for that painstaking student, Alexander Wilson, properly to explain the several plumages of this bird. The old male is shown at the top of the accompanying plate in his chestnut-and-black spring dress, while the female at all times wears the olive-and-yellow plumage shown in the lowest figure. The male in its nesting-plumage, and during the first autumn, is similar to the adult female; but by the next spring we find that he has acquired a black throat, such as we see in the middle figure; so that we often find one nest attended by a black-throated, olive-green male, while the proprietor of the nest is clad in chestnut-and-black.

Development of Plumage

To add to the complication some of the olive-green males have a part of the tail-feathers black, and have black and chestnut spots on other parts of the body. Some ornithologists are of the opinion that these birds are in their second-year breeding plumage, while the black-and-chestnut birds are in the third; but it seems probable that they represent merely individual variations, and that all the males are in the black-and-chestnut dress by their second nesting-season.

At any rate, the male Orchard Oriole is a good example of the interesting problems that are encountered in the study of sequence of plumages

and molting. Similar differences between breeding males of the first and second year may be detected in other species, but are not usually so pronounced. The Baltimore Oriole is much duller the first year, and the Scarlet Tanager and Rose-breasted Grosbeak have olive or brown wing- and tail-feathers, instead of black ones. All these changes, too,

**Changes by
Molting**

are brought about by a molt or renewal of the feathers, either in the late summer after the breeding-season or in the early spring. The feathers themselves do not

change color, so that wherever changes of plumage such as those take place they are produced by the replacement of feathers of one color by those of another.

The Orchard Oriole does not range so far north as does the Baltimore Oriole, and in the northern part of its range it is often rare and local, and is greatly outnumbered by the Baltimore. In the southern Middle States, however, it is abundant and outnumbers the Baltimore. In winter it retires to Central America. It reaches the southern border of the United States about April 1, and the latitude of Washington and St. Louis about April 28. In the autumn we see only a few after September.

Duller in color and in many other respects less striking than his relative, the Baltimore, the modest Orchard Oriole has always had to take second place. The older authors christened him the "spurious," or inferior, Baltimore Bird, and from this has come his specific name *spurius*. Then, too, he is rather rare in the northeastern United States, where most of our bird-biographers have pursued their studies, and he has consequently figured but little in literature, and is less

**An Attractive
Bird**

known than his more brilliant relative. To those who have had the good fortune to know him well, how-

ever, he is none the less attractive; while, owing to his preference for the vicinity of man's abode, he is usually associated in one's mind with fond recollections.

The old house with its cluster of farm buildings, the rows of gnarled and lichen-covered trunks of apple-trees, their branches laden with green fruit, the warm sunshine of early summer and the song of the Orchard Oriole—all are ever closely intermingled in my memory.

Classification and Distribution

The Orchard Oriole belongs to the Order *Passeres*, Suborder *Oscines*, and Family *Icteridæ*. Its scientific name is *Icterus spurius*. It inhabits in summer eastern North America, and breeds from the Canadian border throughout the whole United States and northern Mexico, east of the dry plains. It winters in Central America and northern Colombia.

THE RED-HEADED WOODPECKER

By FLORENCE MERRIAM BAILEY

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 43

The Woodpeckers are a band of foresters most of whom spend their lives saving trees. Many of them do their work hidden in the dark forests, but the Redheads hunt largely in plain sight of passers-by. Why? Because, while they devour enough enemies of the trees to deserve the name foresters, they are particularly fond of vegetable foods and of the large beetles found in open country.

Watch one of these handsome red-headed birds on a fence. Down he drops to pick up an ant or a grasshopper from the ground; then up he shoots to catch a wasp or beetle in the air. Nor does he stop with fly-catching. Nutting—beech-nutting—is one of his favorite pastimes; while berries, fruits, and seeds are all to his taste.

If, in his appreciation of the good things that mankind offers, the Redhead on rare occasions takes a bit more of cultivated fruit or berries than his rightful share, his attention should be diverted by planting some of his favorite wild fruits, such as dogwood, mulberry, elderberry, choke-cherry, or wild black cherry.

But, in judging of what is a bird's fair share of man's crops, many things should be considered. Food is bought for the Canary and other house pets; and many persons buy food for the wild birds, summer and winter, to bring them about their houses. Flowers cost something, too. But without birds and flowers, what would the country be? Before raising his hand against a bird, a man should think of many things. A man who is unfair to a bird is unfair to himself.

**A Bird's
Fair Share**

It would be a stingy man, indeed, who would begrudge these Woodpeckers their acorns and beechnuts. While the leaves are still green on the trees, the Redheads discover the beechnuts and go to work. "It is a truly beautiful sight," Dr. Merriam says, "to watch these magnificent birds creeping about after the manner of warblers, among the small branches and twigs, which bend low with their weight, while picking and husking the tender nuts."

The nuts are not always eaten on the spot, for, like their famous Californian cousins, the Redheads store up food for winter use. All sorts of nooks and crannies serve the Redheads for storehouses—knot-holes, pockets under patches of raised bark, cracks between shingles and in fences, and even railroad-ties. Sometimes grasshoppers and other edibles

are put away in storage instead of nuts. The wise birds make real caches, concealing their stores by hammering down pieces of wood or bark over them.

Beechnuts are so large a part of the food of the Redheads in autumn and winter in some localities that, like the gray squirrels, the birds are common in good beechnut winters and absent in others. Cold and snow do not trouble them, if they have plenty to eat, for, as Major Bendire says, many of them "winter along our northern border, in certain years, when they can find an abundant supply of food." In fact, in the greater part of the Eastern States the Redhead is "a rather regular resident," but in the western part of its range "it appears to migrate pretty regularly," so that it is rare to see one "north of latitude 40°, in winter." It has become a rare bird in New England.

Erratic Migration

In regions where this erratic Woodpecker migrates, it leaves its nesting-grounds early in October, and returns in the latter part of April or the beginning of May. Before too much taken up with the serious business of life the Redhead goes gaily about, as Major Bendire says, "frolicking and playing hide-and-seek with its mate, and when not so engaged, amusing itself by drumming on some resonant dead limb, or on the roof and sides of houses, barns, etc." Although, like other drummers, the Red-headed Woodpeckers are not found in the front ranks of the orchestra, they beat a royal tattoo that may well express many fine feelings.

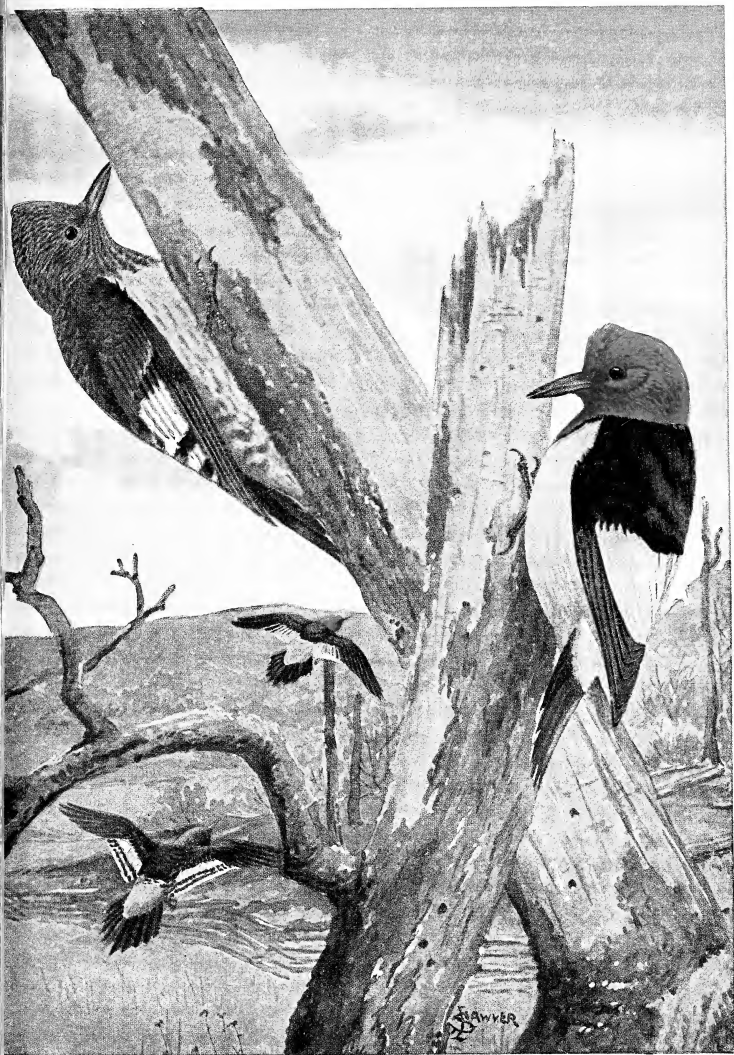
When the musical spring holiday is over and the birds have chosen a tree for the nest, they hew out a pocket in a trunk or branch anywhere from eight to eighty feet from the ground. When the young hatch there comes a happy day for the person who, by kind intent and unobtrusive manners, has earned the right to watch the lovely birds flying to and fro in caring for their brood. At last come days when the gray-headed youngsters instead of hanging out the window boldly open their wings and launch into the air. Anxious times these are for old birds—times when the watcher's admiration may be roused by heroic deeds of parental love; for many a parent-bird fairly flaunts itself in the face of the enemy, as if trying to say, "Kill me; spare my young!"

Nestlings

One family of Redheads once gave me a delightful three weeks. When the old birds were first discovered, one was on a stub in a meadow. When joined by its mate, as the farmer was coming with oxen and hayrack to take up the rows of haystacks that stretched down the field, the pair flew slowly ahead along a line of locust-trees, pecking quietly at the bark of each tree before flying on. At the foot of the meadow they flew over to a small grove in the adjoining pasture.

An Anxious Family

As it was July, it was easy to draw conclusions; and when I went to the grove to investigate, the pair were so much alarmed that they at once



RED-HEADED WOODPECKER

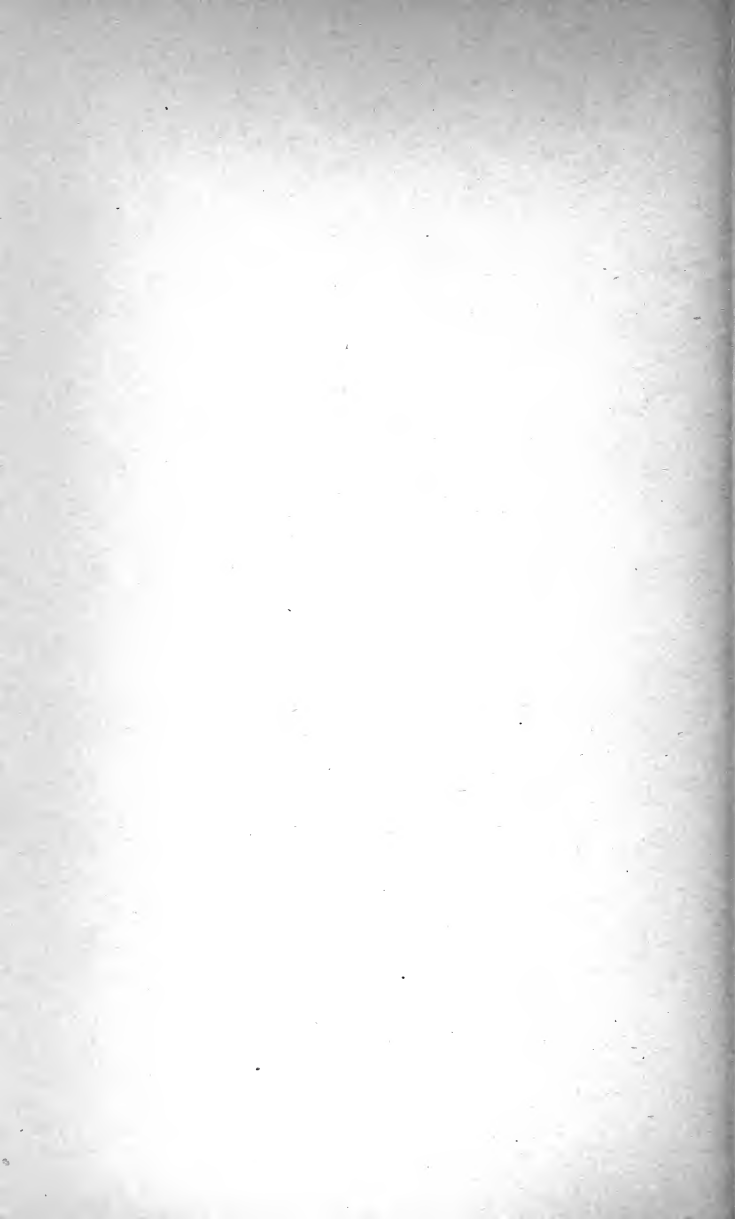
Order—PICI

Family—PICIDÆ

Genus—MELANERPES

Species—ERYTHROCEPHALUS

National Association of Audubon Societies



confirmed them. Did I mean harm? Why had I come? One of them leaned far down across a dead limb and inspected me, rattling and bowing nervously; the other stationed itself on the back of a branch over which it peered at me with one eye. Both of them cried *krit'-tar-rah* every time I ventured to take a step. As they positively would not commit themselves as to which one of the many Woodpecker-holes in sight belonged to them I had to make a tour of the grove.

On its edge was a promising old stub with a number of big, round holes, and, picking up a stick, I rapped on the trunk. Both birds were over my head in an instant, rattling and scolding till you would have thought I had come to chop down the tree and carry off the young before their eyes. I felt injured, but having found the nest could afford to watch events from a distance.

It was not long before the old birds began feeding their young. They would fly to the stub and stand under the nest while rousing the brood by rattling into the hole, which had the odd effect of muffling their voices. When, as they flew to and fro, a Flicker stopped in passing, they drove him off in a hurry. They wanted that grove to themselves.

**Feeding
the Babies**

On my subsequent visits, if, in spite of my precautions, they discovered me, they flew to dead tree-tops to watch me, or startled me by an angry *quarr' quarr' quarr'* over my head. When they found that I made no attempt to go near the nest, however, they finally put up with me and went about their business.

After being at the nest together they would often fly off in opposite directions, to hunt on different beats. If one hunted in the grove, the other would go out to the rail-fence. A high maple was a favorite lookout and hunting-ground for the one who stayed in the grove, and cracks in the bark afforded good places into which to wedge insects. The bird who hunted on the fence, if suspecting a grub in a rail, would stand as motionless as a Robin on the grass, apparently listening; but when the right moment came would drill down rapidly and spear the grub.

If an insect passed that way the Redhead would make a sally into the air for it, sometimes shooting straight up for fifteen or twenty feet and coming down almost as straight; at other times flying out and back in an ellipse, horizontally or obliquely up in the air, or down over the ground. But oftener than all, perhaps, it flew down to the ground to pick up something which its sharp eyes had discovered. Once it brought up some insect, hit it against the rail, gave a business-like hop, and flew off to feed its young.

**Insect
Hunting**

The young left the nest between my visits, but when, chancing to focus my glass on a passing Woodpecker, I discovered that its head was gray instead of red, I knew for a certainty what had happened. The fledgling seemed already much at home on its wings. It flew out into the air, caught a white miller and went back to the tree with it, shaking

it and then rapping it vigorously against a branch before venturing to swallow it.

I followed the youngster, rousing a Robin that made such an outcry that one of the old Redheads flew over in alarm. "*Kik-a-rik, kik-a-rik,*" it cried as it hurried from tree to tree, trying to keep an eye on me while looking for the youngster. Neither of us could find it for some time, but after looking in vain over the west side of a big tree I rounded the trunk and found it calmly sitting on a branch on the east side—which goes to prove that it is never safe to say a woodpecker isn't on a tree, till you have seen both sides!

The old Redhead found the lost fledgling about the time that I did, and flew over to it with what looked like a big grub. At the delectable sight, the youngster dropped all its airs of independence, and with weak infantile cries turned and opened wide its bill!

Two days later I found two birds that may have been father and son, on the side of a flagpole, out in the big world together. The old bird's head glowed crimson in the strong sunlight, and it was fortunate indeed that only friends were by.

The striking tricolor makes the Redheads so good targets that they are in especial danger from human enemies and need loyal, valiant defenders wherever they live. And what a privilege it is to have birds of such interesting habits and beautiful plumage in your neighborhood! How the long country roads are enlivened, how the green fields are lit up, as one of the brilliant birds rises from a fence-post and flies over them! In the city, it is rare good luck, indeed, to have a pair nest in an oak where you can watch them; and even a passing glimpse or an occasional visit is something to be thankful for.

"There's the Redhead!" you exclaim exultantly, when a loud tattoo beats on your roof in spring. And "There's the Redhead!" you cry with delight, as a soft *kikarik* comes from a leafless oak you are passing in winter; and the city street, so dull and uninteresting before, is suddenly illumined by the sight.

Classification and Distribution

The Red-headed Woodpecker belongs to the Order *Pici* and Family *Picidae*. Its scientific name is *Melanerpes erythrocephalus*. It inhabits the southern border of Canada and all the United States east of the Rocky Mountains, but is now rare east of the Allegheny Mountains and upon the southwestern plains, and is migratory only on the cold northern border of its range.

FRANKLIN'S GULL

By HERBERT K. JOB

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 44

In late April or early May, when the rich black soil has thawed at the surface, the settler of the northwestern prairies goes forth to plow. The warm season is short and the tillage vast, so he delays not for wind or storm. One day he is dark as a coal-heaver, for the strong winds that sweep almost ceaselessly over the prairie hurl upon him avalanches of black dust. Next day, perchance, in a driving storm of wet snow, he turns black furrows in the interminable white expanse, his shaggy fur coat buttoned close around him. Then comes a day of warm sunshine, when, as he plows, he is followed by a troupe of handsome birds which some mistake for white Doves. Without sign of fear they alight in the furrow close behind him, and, with graceful carriage, hurry about to pick up the worms and grubs that the plow has just unearthed. Often have I watched the plowman and his snowy retinue, and it appeals to me as one of the prettiest sights that the wide prairies can afford. No wonder that the lonely settler likes the dainty, familiar bird, and in friendly spirit calls it his Prairie Pigeon, or Prairie Dove.

“Prairie
Doves.”

It is indeed a beauty, a little larger than a domestic Pigeon, with white plumage, save for the grayish “mantle,” the dark slaty “hood” over head and neck, and the black-tipped wings. It often passes so near that one can see that the white underparts have an exquisite rosy blush, like that of a peach-blossom. In reality it is not a Pigeon or Dove, but a Gull, one of the several rosy-breasted Gulls of northern regions—Franklin's Gull, or, as the earlier ornithologists called it, Franklin's Rosy Gull, named in honor of Sir John Franklin, the arctic explorer.

In Audubon's time few white men had penetrated the “Great American Desert,” or seen this handsome Gull, which Dr. John Richardson had discovered in the “fur countries.” Audubon himself had never met with it alive and has no picture of it in his great work, in which he described it from the only two stuffed skins available, brought from the Saskatchewan country, probably by some explorer or fur-trader. Indeed, little has been known or written about it till within quite recent years. Accounts of its habits in the standard works have been very meager and unsatisfactory. It is distinctively a bird of the prairies, ranging over both dry land and marshy lakes throughout the region of the great northwestern plains.

A Recent
Acquaintance

Now that these billowy western prairies are teeming with settlers thousands of farmers know well this beautiful bird. No wonder that it is popular. Its tameness and familiarity are delightful, especially to those who live remote from neighbors. Its abundance, too, in some places, is picturesque and spectacular. I have seen the air alive with them as they settled like a snowy blanket upon the dark plowing.

Another fact which should mark it as one of our notably valuable species is that it is largely insectivorous. When in flocks they follow

**Insects
Eaten**

the plow they are eagerly eating the grubs and cutworms exposed to view; or, alighting on the prairie sward, they are busy devouring grasshoppers, locusts, and whatever other insects come in their way. I have often watched them chasing and catching insects a-wing, darting about like swallows, either low over the marshes or well up aloft. In a nesting-colony in Minnesota, Dr. T. S. Roberts found that the young were fed almost wholly on insects; the stomach of one specimen examined contained remains of fifteen kinds, several of which were notably injurious to man. Most of their food, at this time, consisted of the nymphs of dragon-flies. Like all other Gulls, they will, when opportunity offers, eat the eggs of other birds, as I once saw one do in a Grebe colony. This, however, was partly my fault, as I had frightened the Grebes from their nests before they had time to cover their eggs as usual, and thus put extra temptation in the Gull's way.

Another attractive element in this bird is its restlessness and mystery. It is nearly always on the move. Faintly come cries, as of a distant flock of Wild Geese, or a pack of hounds. Louder and louder grow the voices, and presently an undulating line of Gulls appears. Leisurely yet steadily it sweeps by, and soon vanishes in the distance, whither bound who can tell? Often have I longed to follow and learn the secret. But wherever I might drive with the bronchos and buckboard I would see the lines still on the move. Where there is a marshy lake these Gulls

**Mysterious
Movements**

may often be seen, sometimes in large numbers, hovering over the rushes or canes, throwing up their wings to settle down, presently to come fluttering up again, parties departing to straggle over the prairie, and other parties arriving, probably passing to and from their distant breeding-ground.

Each spring in May all the Franklin's Gulls of a wide region somehow agree to resort to a particular one of the various marshy lakes for the purpose of rearing their young. Just how they decide the important question is not for us to know. At any rate, what they do select is a great area of grass, reeds, or rushes, growing out of the water, and there, out of the abundance of dry stems, each pair builds a partly floating nest, side by side with others, thousands of them. These great cities of the Franklin's Gull present one of the most spectacular sights of bird-life on our continent.



FRANKLIN'S GULL

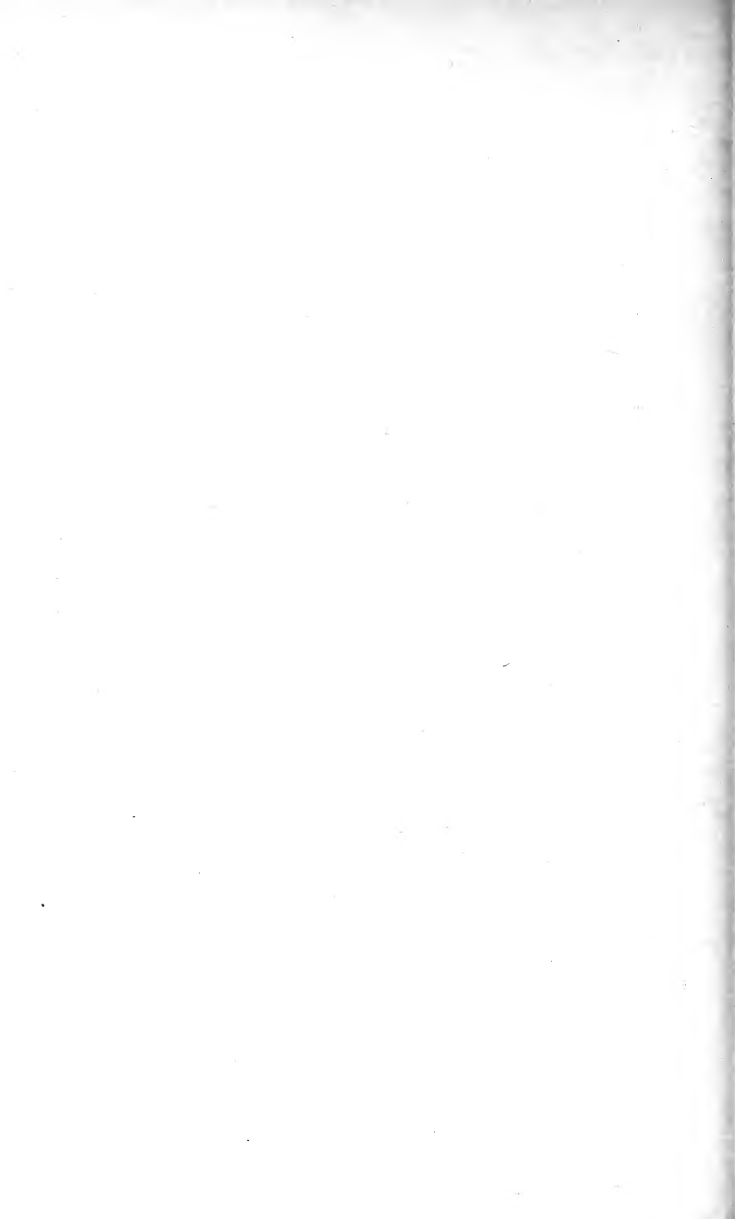
Order—LONGIPENNES

Family—LARIDÆ

Genus—LARUS

Species—FRANKLINI

National Association of Audubon Societies



It is no easy matter to discover a colony, as the birds select a wild region and are likely to change their location from year to year. Thus, to ascertain from settlers where they have nested one year does not assure finding them there again. The distances over the prairie are so vast that one may easily miss the right place. By dint of driving and tramping for hundreds of miles, during several trips to the Northwest, I have succeeded in finding two of the great colonies. One was in North Dakota, which I have described in "Among the Water Fowl." The other and later experience was out in the broken, rolling prairie country of southwestern Saskatchewan, where there are many lakes and where this Gull is, in many districts, a common bird. Most of the lakes were alkaline, and had no favorable grass or rushes.

**Search for a
Colony**

The ninth of June began as one of the many cold, lowering days of the unusually wet season of 1915 on those bleak plains, when we started off on another cold drive in search of the elusive colony. The sky was dark with heavy banks of cumuli, having a sinister, autumnal aspect. For five miles the trail meandered up and down over the rolling prairie, then up a billowy ridge. Out beyond us for some miles extended a perfectly flat plain, which in time past had evidently been the bed of a large lake. All that was left of it lay well out in the middle of the area, a long, narrow lake, in two arms, surrounded by a vast area of reeds growing out of the water. In the foreground a big bunch of cattle was feeding. As we drove nearer I noticed a few of the Gulls flying toward the lake or hovering over the reeds. The nearer we came, the more birds were seen. Stopping the horse, I looked through my binoculars. There was no longer room for doubt. Hundreds of Gulls, anywhere I might look over a wide area, were fluttering up and alighting again.

**Hosts of
Gulls**

Driving to the margin of the great marshy flat, where the prairie began to be wet and soft, we halted. Near us began a solid area of reeds that extended out perhaps a quarter of a mile to the first open water. We could now hear the confused chattering of the multitude of birds. With cameras strapped to our backs and long rubber boots pulled up, we started in, rather anxiously, fearing that the water might prove too deep to wade, and we had no boat. To our delight it proved to be not over knee-deep. Canvasbacks, Redheads, and other Ducks kept flying out before us, and Coots and Grebes slipped off through the tangle. We paid them scant attention now, for we were about to witness a sight so remarkable that we had eyes for hardly anything else.

Now the Gulls began to discover us. Rising in clouds, with ear-splitting screaming, they flew to greet us, hovering but a few yards over our heads. The sun was shining brightly through the fast-departing clouds, and the birds' white breasts showed clearly the delicate rosy tinge. Here, now, were the first of the nests at our feet, platforms of dead reed-stems, built up from the water among the reeds, which now had a

fresh growth as yet only waist high, and thus were not tall enough to impede the view. The eggs were in twos and threes, dark drab in hue, and heavily marked with black. It seemed as if the whole colony must be a-wing, yet at almost every step new multitudes were startled and rose with tragic screams. In every direction we were encompassed by thousands upon thousands of screaming, indignant, outraged birds. Those whose nests were at our feet darted at our heads with reckless abandon; when we remained still for a time they would settle upon their nests within a dozen or fifteen feet of us.

The place chosen by this assemblage was amid a denser growth and in less water than is often the case. The North Dakota colony I found nesting in quite open and deep water. Instead of reeds, a sparse growth of meadow-grass furnished support and anchorage for the nests. This was substantially the condition encountered by Dr. Roberts in his Minnesota colony, where the young would swim out from the protecting reeds; then the wind would catch them and begin to blow them out into the rough open water, where they would doubtless perish. The old birds would try to compel them to swim back, which they were unable to do. Failing in this, they would lay hold of the youngsters with their bills and drag or hurl them back to their nests, sometimes wounded and bleeding.

A Perilous Situation

With the waning of July the life of these "white cities" also wanes. The nights grow sharp and chill, the frosts coat the sloughs with incipient ice, and the settler must bid adieu, for a time, to his companionable "Doves." Like sailing-craft running free before the onslaughts of Boreas, they carelessly wander onward, to spend their "winter" where winter is but a memory, with choice variety of insect-life for daily fare. And when at length the northern prairie lakes and sloughs are unlocked from their icy bonds, and the "Prairie Pigeons" once more course the long deserted expanses, many a human heart is glad.

Escaping Winter

Classification and Distribution

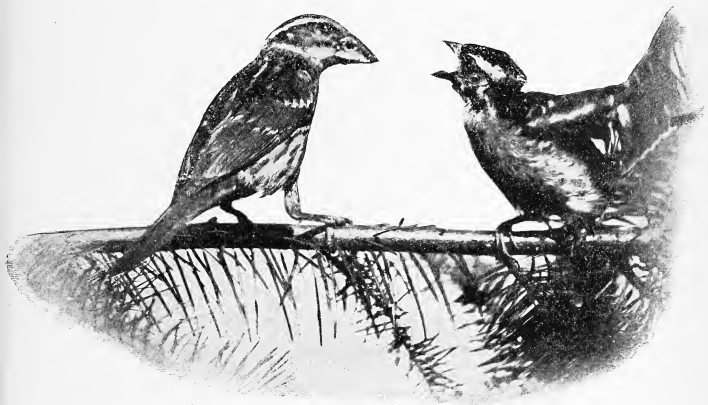
Franklin's Gull belongs to the Order *Longipennes*, the Suborder *Larina* and the Family *Larida*. Its scientific name is *Larus franklini*. It is found in summer, and breeds from Iowa to the North Saskatchewan River, and northern Manitoba; and it winters from the coast of the Gulf of Mexico to Brazil and Chile.

THE BLACK-HEADED GROSBEAK

By WILLIAM L. FINLEY

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES
Educational Leaflet No. 45

The Black-headed Grosbeak is one of the birds of my childhood. As long ago as I can remember I saw him in the mulberry and the elder trees about my home when the fruit was ripe. I did not know his name, but I knew him by thick bill, his bright colors, and his high-keyed call-note.



MALE BLACK-HEADED GROSBEAK FEEDING YOUNG

Photographed by Herman T. Bohlman

One has little trouble in getting acquainted with a bird of so marked an individuality. The black head, the red-brown on the breast, brightening to lemon-yellow below and under the wings, the black tail, and the wings with two white wing-bars, are distinctive of the male. The female is more demurely dressed in dark brown and buff. But the garments are not the only distinctive features of the Black-headed Grosbeak.

For several summers I watched a pair of these Grosbeaks that lived in a clump of vine-maples on the hillside. The same pair, no doubt, returned to the thicket for several years. It seemed that I could almost recognize the notes of their song. If our ears were tuned to the music of the birds could we not recognize individual birds by their songs, as we do our friends by their voices?

One day I stopped to look at a bird that was caroling in one of the maples. I saw the Grosbeak-mother singing her lullaby as she sat on her eggs. It looked to me so like a human mother's love! Few birds sing in the home. However much they wish to, they are afraid. As John Burroughs says, it is a very rare occurrence for a bird to sing while on the nest. But several times I have heard the Black-headed Grosbeak do it. How this bird took up such a custom I do not know, for birds are very cautious about attracting attention to the nest.

In the Grosbeak family the Cardinal or Redbird is perhaps the most familiar, since he is so generally resident throughout the southern half of the Union. The Rose-breasted Grosbeak is the species of the Eastern States, while the Black-headed Grosbeak is a native of the West. He may be found anywhere from eastern Nebraska to California, and from British Columbia south to the plateau of Mexico.

Western

As a rule, he builds a loosely constructed nest of twigs, lined with fine roots. In the more northerly Pacific States the nests are built in dogwoods, vine-maples, and alders; while in southern California the bird often nests in chaparral, willows, and other trees. The eggs number three or four, and are pale blue thickly spotted with brown.

The Black-headed Grosbeak is sometimes complained of by fruit-growers on the Pacific Coast. It is fond of figs, cherries, and berries, but fruit is not the larger part of its diet. It destroys many insects that are harmful to fruit, such as the codling-moth, canker-worm, flower-beetles and scale-insects.

According to Bulletin No. 32 of the United States Biological Survey, entitled "Food Habits of the Grosbeaks," by W. L. McAtee, the Black-headed Grosbeak is a bird of much value to fruit-growers, notwithstanding the fact that it eats some fruit. Mr. McAtee's careful studies prove that during its six months' stay in its summer home two-thirds of its food is supplied by insects. It shows a distinct preference for the black olive-scale, one of the most abundant and destructive insects on that coast. This service alone more than pays fruit-growers for the fruit

Fruit	it eats. To give a clearer estimate of the value of
Pests	this bird to man, scientific observations show that for
Eaten	every quart of fruit eaten, the Black-headed Grosbeak

devours more than three pints of black olive-scales and more than a quart of flower-beetles, besides a generous supply of canker-worms and of the pupæ of the codling-moth.

The Black-headed Grosbeak has a rollicking song, like that of the western Robin and western Tanager. I have sometimes found it difficult to distinguish the song of the Grosbeak from that of the Tanager. The Black-headed Grosbeak is brilliant both in dress and in song. I loved to watch the male that lived in the clump of maples. He used to perch at the very top of a fir-sapling near the nest to stretch his wings and preen his tail, as if he knew his clothes were made for show.



BLACK-HEADED GROSBEAK

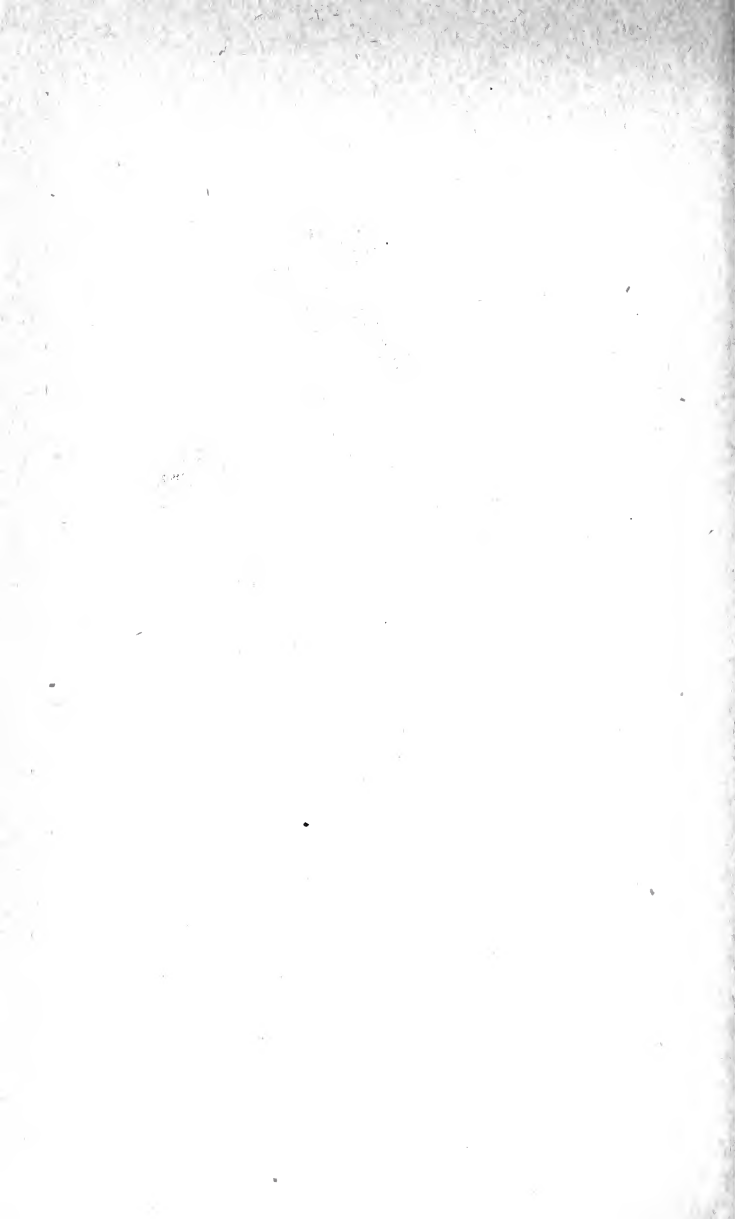
Order—PASSERES

Family—FRINGILLIDÆ

Genus—ZAMELODIA

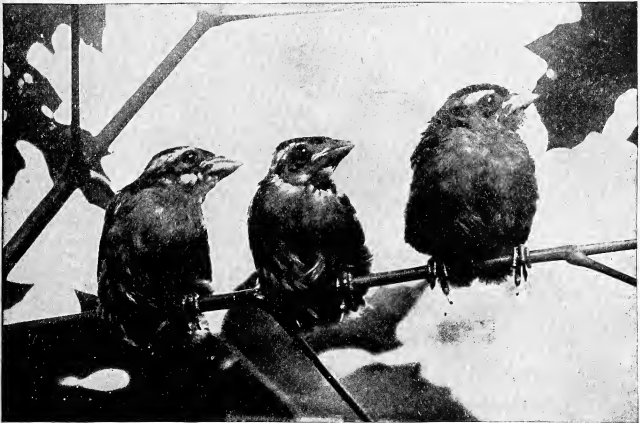
Species—MELANOCEPHALA

National Association of Audubon Societies



Early in the morning he showed the quality of his singing; later in the day it often lacked finish. The tones sounded hard to get out, as if he were practising—just running over the notes of an air that hung dim in his memory.

We had a good chance to study and photograph a pair of Black-headed Grosbeaks that nested near our home, and were soon on so intimate terms with both birds that we could watch them at close range. Nature has given the Grosbeak a large and powerful bill, to crack seeds and hard kernels. It seemed to me this would be an inconvenience when it came to feeding its children; if it was the parents did not show it.



YOUNG BLACK-HEADED GROSBEEKS

Photographed by Herman T. Bohlman.

The mother would cock her head to one side so that her baby could easily grasp the morsel, and it was all so quickly done that only the camera's eye could catch the way she did it. She slipped her bill clear into the youngster's mouth, and he took the bite as hurriedly as if he were afraid the mother would change her mind and give it to the next baby.

The parents fed their nestlings a diet of both fruit and insects. Once I saw the father distribute a whole mouthful of green measuring-worms. Next he visited a garden down the hillside, brought one raspberry in his bill, and coughed up three more.

The three young Grosbeaks left the nest on the morning of July 6. They were not able to fly more than a few feet, but they knew how to

perch and to call for food. I never heard a more enticing dinner-song. The minute a youngster's appetite was satisfied, he always took a nap. There was no worry on his mind as to where the next bite was coming from. He just contracted into a fluffy ball, and didn't pause a second on the borderland. It was so simple. His lids closed and it was done. He slept soundly, too, for when I stroked the feathers of one he didn't awake. Yet at the sound of the parent's wings he awoke as suddenly as he had dropped asleep.

I have watched a good many bird-families but I never saw the work divided as it seemed to be in this household. The first day I stayed about the nest I noticed that the father was feeding the children almost entirely, and whenever he brought a mouthful he hardly knew which one to feed first. The mother brought food once an hour, while he fed the nestlings every ten or fifteen minutes. This seemed contrary to my understanding of bird-ways, where, as a rule, the male is wilder than his wife, and she has to take the responsibility of the home. To my surprise, the third day I found the father was the busy bird. The fourth day the mother seemed to have charge of the feeding again, but she spent most of her time trying to coax the bantlings to follow her into the bushes.

Many times, in the case of other birds, I have seen both parents work side by side in rearing a family; but these Grosbeaks seemed to have a way of dividing duties equally, and alternating days of rest with days of labor.

Classification and Distribution

The Black-headed Grosbeak belongs to the Order, *Passeres*, the Family *Fringillidae*, and the Genus *Zamelodia*. Its scientific name is *Zamelodia melanocephala*. Its summer range is in the mountainous region between the Great Plains and the Pacific Coast, as far north as southern British Columbia; and it winters in Mexico.

Parents
Share
Labor

THE ROBIN

By T. GILBERT PEARSON

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 46

No bird holds so prominent a place in the minds of the American people as the Robin. It is distinctively a companion of man, and wherever his hand has cleared the wilderness the Robin has followed. From Mexico to the Yukon travelers meet it, and the residents will tell him of its coming and going. It has passed into the literature of the country, and one reads of it in books of science and of romance. Poets have woven its image into their witchery of rhyme, lovers fondly spy upon its wooing, and by the fireside of every household children lisp its name when stories are told in the twilight.

**A General
Favorite**

Heedless indeed is the ear that does not harken when the Robin sings. Loud and clear it calls at dawn, and sweet are the childhood memories it brings of fresh green fields swept by gentle winds and of apple-blossoms filled with dew.

One spring a pair built their nest on the limb of a balsam standing beside a much-used walk near my home. In gathering the material for the nest the greatest care was taken by the Robins to work at those hours when there was the least chance of being observed; thus the greater part was done in the early morning, when few people were astir. Perhaps one reason for this was that the blades of dead grass, twigs, and other nest-material, were then damp and pliable from the dews of night, and were much more easily woven into position than after they had become dry and brittle. Only during the last few days of construction did I detect the birds working in the afternoon. The mud for the nest was found by a pool at the end of a horse-trough.

On April 18 the nest appeared to be completed, for no more materials were brought. On the 22d the female began sitting. I could see her tail extending over one side of the nest, her bill pointing upward at a sharp angle from the other. She flew off the first day when the half-hundred boys who frequented the walk came along on their way to dinner, but she soon became accustomed to them, and would sit quietly, although numerous heads passed within five or six feet. No one disturbed the nest with its four blue eggs, and on May 6 I saw her feeding the young. Four days after this event I noticed the heads of the younglings bobbing over the rim of the nest. They were gaining strength rapidly.

**Domestic
Bliss**

The morning of May 17 was cool, and a drizzling rain had been falling for some hours. This dreary morning happened to come on the day

when the young Robins desired to leave the nest. Rain could neither dampen their desire nor check their plans. At seven o'clock three of them were found sitting motionless, a foot or more from the nest, on the limb that held it. Each had gathered itself into as small a space as possible, and with head drawn close seemed waiting for something to happen. But their eyes were bright as they looked out over the vast expanse of the lawn before them—that trackless region, to explore which they dared not yet trust their strength. The fourth one could not be found. In the next two days two others disappeared, after spending some hours of happy life on the grass and in the shrubbery. I strongly suspected that the Academy's cat knew where they had gone.

Knowing that the family would never return to the nest, I removed it from the limb, for I wanted to see how the wonderful structure was put together. In its building a framework of slender balsam twigs had first been used. There were sixty-three of these, some of which were as much as a foot in length. Intertwined with them were twenty fragments of weed-stalks and grass-stems. The yellow-clay cup, which came next inside, varied in thickness from a quarter of an inch at the rim to an inch at the bottom. Grass worked in with the clay while it was yet soft aided in holding it together, and then, last of all, came the smooth, dry carpet of fine grass. The whole structure measured eight inches across the top; inside it was three inches in width and one and a half deep. It was one of those admirable objects that are made for a purpose, and it had served that purpose well.

Structure of Nest

It is good to watch the Robins when a touch of autumn is in the air and the *wanderlust* is strong upon them. On rapidly beating wings they drive swiftly across the fields, or pause on the topmost spray of a roadside tree and look eagerly away to the southward. Their calls are sharp and inquisitive. Clearly the unsuppressed excitement of starting on a long journey pervades their nature. In a little while they will go.

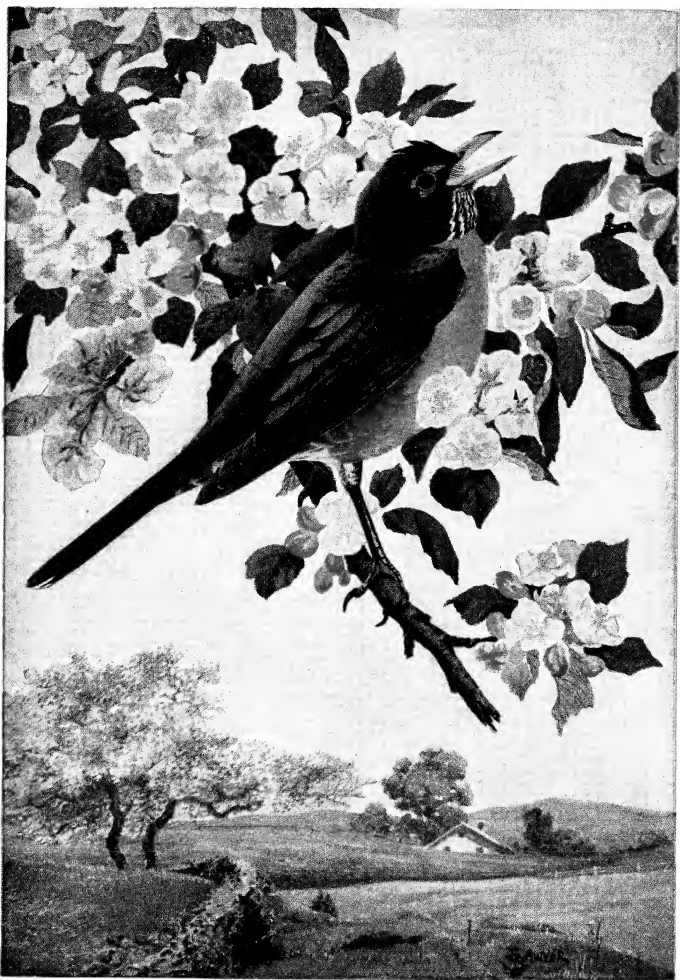
Later you may find them in their winter home, feeding on the black-gum-trees in a Carolina swamp, the berries of the China-tree in Georgia, or the fruit of the cabbage-palmetto in Florida. But their whole nature seems to have suffered change. No cheerful notes of song await you, no gathering of food from the grass on the lawn, no drinking from the cup on the window-sill, none of the confiding intimacies so dear to their friends in the

Winter Wildness

North. We see them in flocks, wild and suspicious.

They grow fat from much eating, and used to be hunted for the table. As lately as 1913 I found strings of them offered in the markets of Raleigh, North Carolina, and was told that they were worth sixty cents a dozen, the highest price I had ever been asked for them.

Robins in winter sometimes congregate by thousands to roost at a favorite spot, and here the hunters would come to take them in the



ROBIN

Order—PASSERES
Genus—PLANESTICUS

Family—TURDIDE
Species—MIGRATORIUS

National Association of Audubon Societies

ruthless way in which, Audubon tells us, men destroyed so many Wild Pigeons during the last century. Here is an authentic account of the raiding of one such roost, given to the writer by Dr. P. P. Claxton, United States Commissioner of Education, who was familiar with many of the details:

**A Tennesse
Robin-Roost**

"The roost to which I refer was situated in what is known as a 'cedar glade,' near Fosterville, Bedford County, Tennessee. This is a great cedar country, and Robins used to come in immense numbers during the winter months to feed on the berries. By the middle of a winter's afternoon the birds would begin coming by our house in enormous flocks, which would follow one another like great waves moving on in the direction of the roost. They would continue to pass until night. We lived fifteen miles from the roost, and it was a matter of common observation that the birds came in this manner from all quarters.

"The spot which the roost occupied was not unlike numerous others that might have been selected. The trees grew to a height from five to thirty feet, and for a mile square these were literally loaded at night with Robins. Hunting them while they roosted was a favorite sport. A man would climb a cedar tree with a torch, while his companions, with poles and clubs, disturbed the sleeping hundreds on the adjacent trees. Blinded by the light, the suddenly awakened birds flew to the torch-bearer, who, as he seized each one, would quickly pull off its head, and drop it into a sack suspended from his shoulder.

**Slaughter of
Robins**

"The capture of three or four hundred birds was an ordinary night's work for any hunter. Men and boys would come in wagons from all the adjoining counties and camp near the roost for the purpose of killing Robins, so that often a hundred or more hunters, with torches and clubs, would be at work in a single night. For three years this tremendous slaughter continued in winter, and then the survivors deserted the roost."

These are almost identically the methods formerly employed in killing untold thousands of Wild Pigeons (see Leaflet No. 6) in the past; and they resulted in the utter extinction of those valuable birds.

That protection should be extended to the Robin because of its economic value as a destroyer of injurious insects is the united opinion of many observers, despite the objection sometimes raised that it is too fond of small fruits. The United States Department of Agriculture, which looks so carefully into various subjects of vital importance to our country, sent Waldo L. McAtee, an expert naturalist, to Louisiana one winter, and he made many observations on the feeding-habits of these birds. Under date of February 20, 1910, he reported:

**Economic
Value**

"I collected twelve Robins near here yesterday, and got the following results from an examination of their gizzards: Eight had eaten nothing but insects, the other four had taken, respectively, 95, 80, 65 and 0 per cent. of insects and other invertebrates. The insects eaten included grass-

hoppers (*Tettix*), bugs (*Pentatomidæ*), beetles (chrysomelids, weevils, bill-bugs and carabids), beetle-larvæ (wire-worms and others), caterpillars, including cutworms. Another day I collected three other Robins which had eaten insects, including larvæ of crane-flies (*Tipulidæ*), which are sometimes known as leather-jackets. The larvæ feed on the roots of grasses, including grain-crops and other plants, and are sometimes quite injurious.

**Insects
Eaten**

"Each one of these three birds had eaten one or more specimens of a leaf-beetle (*Myochrous denticollis*), a plant-feeder, and injurious. On a basis of the eighteen stomachs I have examined this month, I consider the Robin to be essentially an insectivorous bird in Louisiana in February. I notice that great numbers of the Robins feed in open, grassy fields, where their diet must consist largely of animal matter, as the birds do not eat weed-seeds. They are shot here from morning to night; shots are heard in every direction."

The National Association of Audubon Societies has long been working to secure the passage of laws better calculated to protect the Robin, and its efforts were greatly strengthened by the financial aid rendered by Mrs. Russell Sage. We believed that in every State of the Union this bird should be placed on the list of protected species, and never allowed to be killed as game. Although Robin shooting, in the South especially, has long been considered a legitimate sport, the time has surely come when the hunters should be willing to give up this practice in view of the many useful qualities of the bird.

**Robin
Protection**

These efforts were in so far successful that the Robin became protected in all the States of the Union, except six of the Southern States, when, on October 1, 1914, the Federal Migratory-Bird Law went into effect. This, of course, covered the Robin; and the friends of the bird are doing what they can to insure its safety under the terms of that act.

Classification and Distribution

The Robin (*Planesticus migratorius*) belongs to the Order *Passeres*, Sub-order *Oscines*, and Family *Turdidæ*—the Thrushes. It ranges throughout North America from the southern end of the Mexican tableland northward to the limit of trees in Labrador and thence to Alaska. In this great area it is represented by three geographical races: the Eastern Robin (*Planesticus migratorius migratorius*), the male of which is shown in the accompanying plate; the Western Robin (*P. m. propinquus*), which is like the eastern bird, but has little or no white in the tail and no black markings on the back; and the Southern Robin (*P. m. achrusterus*), which, in the Alleghany Mountains, breeds as far south as northern Georgia, and is smaller and paler than the northern bird.

BOB - WHITE

By EDWARD HOWE FORBUSH

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 47

The cheery interrogative call of Bob-white was one of the first distinctive sounds of the open field that I knew and loved, as a child, among the hills of New England. It was as well known as the morning carol of the Robin in the orchard, the drumming of the Ruffed Grouse in the woods, or the reiterated plaint of the Whip-poor-will on the moonlit door-stone. Bob-white was ever an optimist, for even if, as the old-fashioned farmers stoutly maintained, his call sometimes presaged a storm, the prophecy "more wet" was delivered in what seemed so cheerful a frame of mind, and in so happy and joyous a tone, as to make rain seem the most desirable thing in life.

A Bird
of Good Cheer

Perhaps there is no bird to which the American people are more deeply indebted for esthetic and material benefits. He is the most democratic and ubiquitous of all our game-birds. He is not a bird of desert, wilderness, or mountain-peak, which one must go far to seek. He is a bird of the home, the farm, garden, and field; the friend and companion of mankind; a much-needed helper on the farm; a destroyer of insect-pests and of weeds. He is called Quail in the North and Partridge in the South, but everywhere he names himself in his cry—*Bob-white*.

When America was first settled Bob-white was found from Maine and southern Canada to the coast of the Gulf of Mexico. A sociable and domestic species, it followed settlement, and now inhabits suitable localities in most of the United States.

Bob-white is cheerful, active, industrious, brave (but quick to learn caution where caution is necessary), and good-natured, although in the rivalries of the mating-season the males become quarrelsome. Both sexes are devoted parents, and the male often takes his wife's place on the nest. In captivity, he has been known to hatch, brood, and care for the young. The birds of a covey are very affectionate toward one another. They converse in a variety of tender, low, twittering tones, sleep side by side in a circular group on the ground, with heads out, and, if scattered, soon begin to call and seek one another, not ceasing until all the surviving members of their little company are reunited.

Domestic
Traits

A mere cavity for a nesting-place is hollowed from the soil under a bush or fence, or in the woods, under a decaying log. In the Southern

States the nest is sometimes made in a cotton-row. It is usually well lined and is concealed with grass or stubble. If in a field, or by a roadside, it is often placed within a thick tuft of grass, or under a shrub, commonly covered and open at one side, somewhat like the Oven-bird's nest. If situated in the edge of the woods it is made mainly of leaves, and the female, while laying, covers the eggs with leaves when she quits the nest. If the nest is disturbed by man or animals she is likely to desert it; but Dr. P. L. Hatch found that when he removed the covering carefully *with forceps*, and replaced it just as he found it, the bird did not abandon its home.

From eight to eighteen eggs are deposited, but nests have been found containing as many as thirty-seven eggs—probably the product of two females. The eggs are glossy white, sharply pointed at one end, and are packed closely in the nest with the points downward. Two broods are sometimes reared in a season, but usually the so-called second brood occurs only when the first has been destroyed.

Nests and Eggs

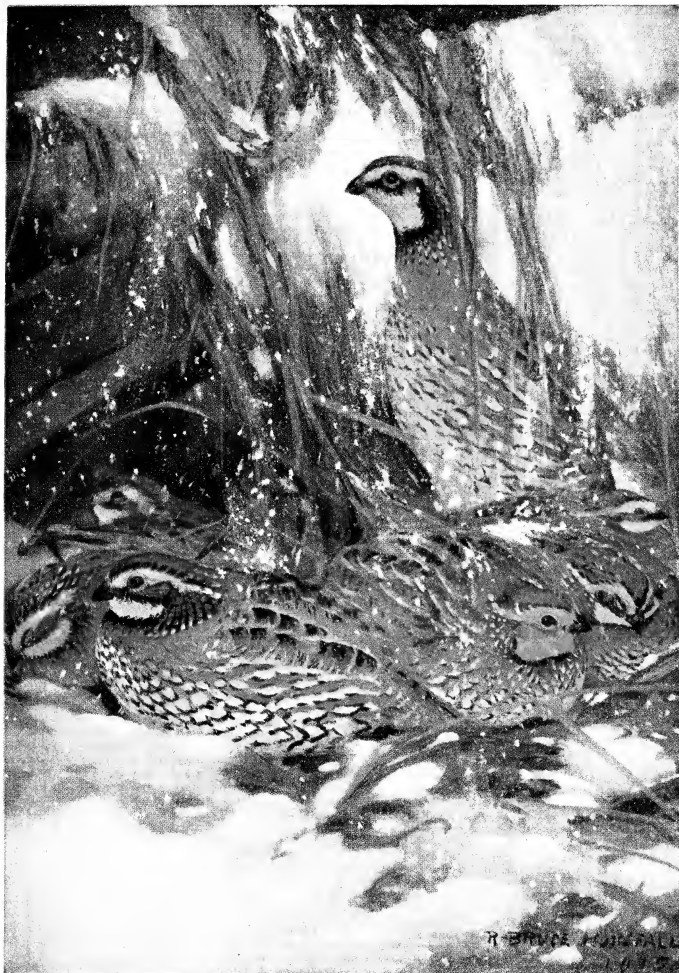
The young are hatched after about twenty-four days of incubation, and no chicks are more precocious. They usually remain in the nest until the plumage has dried, but most observers agree that they are able to run about at once. At the least alarm they squat close to the ground, where the eye can hardly detect them. The driver of my heavy farm-team once saw a mother Quail fluttering in the road before him, and stopped for fear of crushing the young, which were hiding in the road; but the farm-wagon had already killed two that had steadfastly maintained their position in the deep rut until the wheels passed over them.

This bird is an adept at concealment. A covey will squat on the ground and become virtually invisible. I stood talking with a hunter one day, years ago, in the South, when my eye caught a slight movement on the ground, and I saw an entire flock of Bob-whites sitting in a little circle almost beneath my feet, and scarcely concealed by the scanty shrubbery. As my eye found them they burst up between us with an explosive roar of wings like a feathered bomb-shell, and went whirring away.

Clever Hiding

Bob-white seldom migrates except for short distances when in search of food; but there is considerable evidence that occasionally migrations of some length toward the South take place in autumn. All the coveys that I have watched have remained throughout the year in the same locality, unless exterminated by a severe winter or by hunters. It is well known that in the South a covey has been seen, year after year, in a favorite locality for more than a quarter of a century. There the Quails increase so fast that they are able to maintain themselves well despite many enemies; but in the North they succumb to the rigors of severe winters.

Bob-white feeds almost entirely on the ground, except when driven by deep snows to seek berries and seeds from the shrubbery. Feeding by preference in the open, the birds usually keep within a short distance



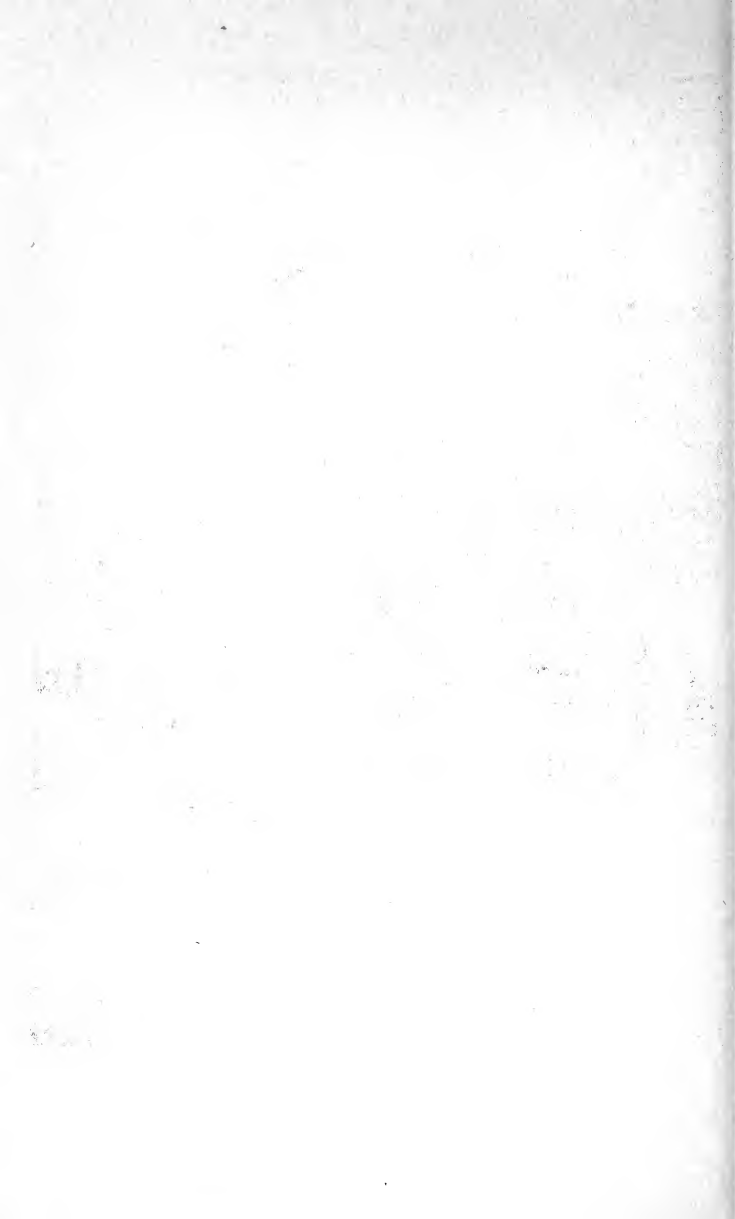
R. BIRDGE J. W. FALL
1915

BOB - WHITE

Order—GALLINÆ
Genus—COLINUS

Family—ODONTOPHORIDÆ
Species—VIRGINIANUS

National Association of Audubon Societies



of the cover afforded by thickets, swamps, or rank grain. They usually sleep in open places, where flight in all directions would be unobstructed.

Probably something like 400,000 sportsmen now go out from the cities of this country every year to hunt Bob-white. This bird has a cash value to the farmer and land-owner, for he can demand and obtain from the sportsmen a fair price for the birds killed on his property. The annual Quail crop, if judiciously handled, is worth millions of dollars to the farmers of this country. In many cases the rental of the privilege of shooting Quails more than pays the taxes of the farm, without deducting in any way from its value for agricultural purposes. Bob-white thus indirectly pays the greater part of the tax in many school-districts,—that is, the cost of the education of the children.

Thousands of dollars also are spent in many States in leasing rural land on which to hold field-trials of dogs; and in these trials no shooting is done, the dogs merely pointing the birds in a competition of skill.

**A Good
Tax-payer**

Bob-white comes into closer contact with the farmer's crops than does any other bird, yet he rarely injures appreciably any kind of grain or fruit. Through the investigations of the Biological Survey of the United States Department of Agriculture, the fact is now well established that Bob-white ranks very high as a destroyer of many of the most destructive insect pests. Among those eaten are potato-beetles, cucumber-beetles, wire-worms, weevils (including the Mexican cotton-boll weevil), locusts, grasshoppers, chinch-bugs, squash-bugs, and caterpillars. Many of these insects are destroyed by scores and hundreds. Mrs. Margaret Morse Nice, of Clark University, has published the following list of things eaten by captive Quails, each number representing the insects eaten during a single meal by one bird: Chinch-bugs, 100; squash-bugs, 12; plant-lice, 2,326; grasshoppers, 39; cutworms, 12; army-worms, 12; mosquitos, 568; potato-beetles, 101; white grubs, 8.

She found that one Bob-white would devour in a day:

Chrysanthemum blackflies, 5,000; flies, 1,350; rose-slugs, 1,286; miscellaneous insects, 700, of which 300 were grasshoppers.

**Insects
Devoured**

Mrs. Nice has given a list of 141 different species of insects eaten by the Quail, nearly all of which are injurious, and, as Dr. Charles F. Hodge has remarked, a bird that eats so many injurious insects is welcome to the beneficial ones as well; for, apparently, if we could have enough Bob-whites they would leave nothing for the useful insects to do!

As a destroyer of weeds, Bob-white stands preëminent. Mrs. Nice made a list of 129 weeds the seeds of which are eaten by this little gleaner; they are digested and the germs destroyed. The number of seeds taken by one bird at a single meal varies from 105 seeds of stink-weed and 400 of pigweed to 5,000 of pigeon-grass and 10,000 of lamb's-quarters; while the number taken by one bird in a day varies from 600 of burdock to 30,000 of rabbit's-foot clover. Dr. Sylvester Judd has reached the conclusion, by a careful computation, that the Bob-whites of Virginia and North Carolina consume annually, between September 1

and April 30, 1,341 tons of weed-seeds, and that from June 1 to August 31, they eat 340 tons of insects. If we take as our measure the quantity of weed-seeds and insects eaten by captive Quails, as given by Mrs. Nice, we find that a family consisting of two adult birds and ten young would consume 780,915 insects and 59,707,888 weed-seeds in a year, in addition to other food.

Ridding Us of Weeds

The annual loss occasioned by insects in the United States now reaches one billion dollars; and the injury caused by weeds in this country is estimated at seventeen million dollars a year. Our farmers certainly need Bob-white's help!

The principal method of protecting Bob-white has been by the passage of laws forbidding market-hunting, or export, restricting the shooting-season to one or two months in the year, and limiting the number of birds that one sportsman is allowed to take. In the South, however, and in some localities in the North and West, the birds are shielded and allowed to increase on preserves. Bob-white has been numerous for years in North Carolina, where the system of game-preserves has been

Protection and Propagation

brought to greater perfection than in any other part of the country. Guilford County alone has more than 15,000 acres on which this bird is so protected, where gunning is so regulated, and the natural enemies are so controlled, that the birds maintain their numbers.

In the North something more than game-preserves will be needed to multiply them. Their artificial production is an absolute necessity. Even in Audubon's time, Bob-white was reared successfully in confinement. Dr. Hodge has reared flocks of young birds at Worcester, Massachusetts, under their parents, under hens, and with incubators; and has demonstrated that liberty may be given to them and yet that they will return to the hand when called. This work requires only experience, and a knowledge of the methods of controlling the diseases of these birds, to make it practicable on a large scale.

Classification and Distribution

Bob-white belongs to the Order *Gallinæ*, Suborder *Phasiani*, and Family *Odontophoridae*. Its scientific name is *Colinus virginianus*, indicating that its relationship is with the Francolins rather than with the true Quails (of Europe). It is distributed over the whole of the United States, and is resident except on the northern border of its range. A smaller variety (*C. v. floridanus*) inhabits Florida; another subspecies (*C. v. texanus*), belongs to the valley of the Rio Grande; and a third subspecies, the Masked Bob-white (*C. v. ridgwayi*), inhabits southern Arizona and northern Sonora.

THE CEDAR WAXWING

By EDWARD HOWE FORBUSH

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 48

Among my earliest memories of bird-life is one that stands out clearly to this day. A Cedar Waxwing had built her nest on the low branch of an old apple-tree at the edge of the orchard, and when I, a little eight-year-old boy, came and peered in, there she sat in fear and trembling, her crest flattened, her exquisite plumage drawn close to her body and her eyes wild with fear; but she would not desert her charge, because the little ones beneath her tender breast were just breaking the shell. There



A CEDAR WAXWING'S FAMILY

was something fascinating about her lowered, flattened, almost serpentine head, with its black frontlet and the black bands enclosing her bright, startled eyes, as she snuggled down into her warm, leaf-sheltered nest. Alert and ready for instant flight, she held her place. It was my first glimpse of the home-life of a wild bird.

Next year was a canker-worm year, and all through the orchard the little inch-worm (geometrid) caterpillars began to cut holes in the leaves. Then came the Waxwings in flocks, and there they stayed, often whispering to one another and always catching worms. Such gormandizers as they were! They ate until they could eat no more, only to sit about on the branches or play with one another awhile, and then eat again. The canker-worms stripped a few of the old trees, but the Waxwings cleared most of them and saved the leaves; so we did not lose our apples. When the cherries were ripe, these birds always found them. They stayed in the cherry-trees with the same persistence that they showed in their work with the canker-worms. They have a habit, when satiated, of sitting together, sometimes five or six on the same limb, and at such a time I have seen a cherry or a caterpillar passed from one to another until it had passed up and down the line before any would take it.

Who can describe the marvelous beauty and elegance of this bird? What other is dressed in a robe of so delicate and silky a texture? Those shades of blending beauty—velvety black brightening into fawn, melting browns, shifting saffrons, quaker drabs, pale blue and slate, with trimmings of white and golden yellow, and little red appendages on the wing-quills not found in any other family of birds—all, combined with its graceful form, give the bird an appearance of elegance and distinction peculiarly its own. Its mobile, erectile crest expresses every emotion. When lying loose and low upon the head it signifies ease and comfort. Excitement or surprise erect it at once, and in fear it is pressed flat.

The Cedar Waxwing breeds very late, raising its young in July or August, when wild cherries and blueberries furnish them an abundant supply of food. In New England, the earliest nests sometimes have eggs by the second week in June. The breeding-season is at its height by the last of July. Sometimes a pair raises two broods, and a few have young in the nest in September. The nesting-site varies greatly. The apple-tree is commonly chosen, also the Virginia juniper or red cedar, wherefore the bird is commonly called Cedar-bird in most parts of the country, and sometimes Cherry-bird.

Sometimes the nest will be placed on a low limb not more than five or six feet from the ground, sometimes in tall elms or maples, more rarely in the top of a birch or of some pasture-tree. Both male and female engage in nest-building; the male often brings nesting-material, while the female fashions it into shape.

The nest varies as much in material and construction as in situation. In the South it is comparatively small and compact, built mainly of twigs, grass-culms, weed-stalks and leaves, and lined with fine grasses and grass-roots. In the farming regions of the North the nest is often a bulky structure, composed largely of the stems of weeds and grasses, a few twigs,

**Destroying
Canker-worms**

In Silken Attire

Architecture



CEDAR WAXWING
(One-half natural size)

Order—PASSERES
Genus—BOMBYCILLA

Family—BOMBYCILLIDÆ
Species—CEDRORUM

National Association of Audubon Societies

grape-vine, cedar or hemlock bark, and feathers, hair or wool; and it sometimes includes rags, string, lint, paper, or yarn in its construction.

The eggs number three to five; are pale bluish, or bluish gray, with more or less of a purple tint; and taper rather suddenly toward the small end, where they are marked with small distinct roundish spots of blackish or umber. The large end is marked with various touches and shades of purple. An egg is laid daily until the set is complete. The male and the female are said to take turns in sitting and in feeding the young, which hatch after about fourteen days' incubation.

The food of the Cedar Waxwing consists very largely of fruit; but most of it is wild fruit of no value to man.

The Biological Survey finds that nine-tenths of its food for the year is vegetable matter, almost wholly wild fruits and seeds. The animal food consists mainly of insects. When the Waxwings come in spring, they may be seen pecking at the blossoms of fruit-trees and scattering the petals broadcast; but when their stomachs have been examined quantities of the insects that infest blossoms have been found. They are fond of leaf-eating beetles, and devour quantities of the Colorado potato-beetle and the pernicious elm-leaf beetle, which has proved so destructive to elms recently in the Eastern States.

Fruits and Blossoms

Outram Bangs informed me that Waxwings entirely cleared his young elms of this pest. Mrs. Mary Treat notes a similar instance. This bird is very fond of the small geometrid caterpillars that strip the foliage from apple-trees, elms and other trees, and it destroys enormous quantities of these worms. Professor Forbes estimates that a flock of thirty of these birds will eat 90,000 canker-worms a month—a very moderate estimate, for the appetite of the bird is unlimited. The young are fed quantities of insects, and, as they grow older, the parents give them fruit. The food is usually regurgitated into the open mouths of the little ones.

In late summer and early fall the waxwing imitates a flycatcher, and, taking its post on some tall tree, usually near a pond or river, launches out over water or meadow in pursuit of flying insects. Birds taken at such times have been found crammed with insects to the very throat. Grasshoppers, crickets, crane-flies, lace-wings, butterflies, moths, bugs, bark-lice, and scale-insects form part of their bill-of-fare, with occasionally a few snails. They seem to do little injury to cultivated fruit except to the cherry-crop, and most of this usually may be avoided by planting a goodly number of early mulberry-trees when planting cherries. In my own orchard the mulberries attracted almost all birds away from the cherries. The best varieties of mulberries to plant are the Early Russian, the Charles Downing, and the New American.

Insect-Eaters

The fly-catching habit of these birds is sometimes exercised even in winter. Mr. Brewster notes that on March 1, 1866, in Watertown, Massachusetts, he saw the members of a large flock busily catching snow-

flakes. They took their station on the branches of a tall elm from which they launched forth in quick succession and snapped up the whirling flakes. The Waxwing lives a wandering Bohemian life, intent on satisfying its healthy appetite; and, this done, seems to be lost in admiration of the beauties and graces of its relatives and companions.

Perhaps in the white days of winter you may see a little flock sitting upright upon some leafless tree, calling softly to one another in their high-pitched, lisping, sibilant monotone. As Mr. Dawson says: "It is as though you had come upon a company of the Immortals, high-removed, conversing of matters too recondite for human ken, and who survey you the while with Olympian disdain."

Whispering Notes

During the nesting-season they become silent, indeed, but several competent ornithologists have heard a low song. Mr. Brewster has heard our Waxwings give a succession of loud, full notes, not unlike those uttered by Tree Swallows in spring.

The migrations and winter movements of the Cedar Waxwing are controlled largely by the supply of certain wild berries in the regions over which they pass. Therefore they may be met with in fall and winter anywhere from the latitude of Maine to that of Georgia, wherever the berries upon which they feed are plentiful.

Like some other plump and well-fed personages, the Cedar Waxwing is good-natured, happy, tender-hearted, affectionate, and blessed with a good disposition. It is fond of good company.

Sociability

When the nesting-season is past, each harmonious little family joins with others until the flock may number from thirty to sixty individuals. They fly in close order, and keep well together through the winter and spring until the nesting-season again arrives. Their manner of flight is quite their own. Often they suddenly wheel as if at command and plunge swiftly downward, alighting in a compact band on the top of some leafless tree. They often show their affectionate disposition by "billing," and by dressing one another's plumage as they sit in a row.

Classification and Distribution

The Cedar Waxwing belongs to the Order *Passeres*, Suborder *Oscines*, and Family *Bombycillidae*. It inhabits all temperate North America, breeding from the central United States to southern Canada, in wooded places; and winters in most of the United States and thence southward to Panama.

THE CHIMNEY SWIFT

By T. GILBERT PEARSON

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 49

One late summer's evening, after the sun went down, there were observed flying above the tree-tops of a North Carolina village, a large number of black objects. Some one said they were bats, while others pronounced them Swallows, but they were neither. The swarm of dusky forms swinging rapidly about the sky was a flock of Chimney Swifts. They seemed to be more numerous in the neighborhood of a large college building. Presently they began circling in one rushing, revolving, twittering mass of bird-life. One side of this living wheel passed directly over the large chimney which led downward to the furnace in the basement.

Suddenly, during those last moments of twilight before the darkness falls, one of the Swifts threw up its wings and dropped out of sight in the chimney. Soon another did the same, then another and another. They went in by pairs, by fours, almost by dozens. The wheel continued to revolve while a stream of birds, as if thrown off by a kind of centrifugal force, went pouring down into the gaping mouth of darkness.

A Chimney
Bedroom

We stood and counted as best as we could the numbers in this cataract of feathered life. Not for one moment was the scene changed until the play was at an end. "One thousand," I said. "One thousand and twenty-five," answered the gentleman with me, who had probably counted more correctly. Five or six birds that had hesitated to the last moment to take the plunge, and now possibly missed the moral support of the large company, gave up the idea of stopping there that night and, turning, flew away in the falling darkness. Night closed in upon the great chimney with its sooty walls lined with an army of clinging, drowsy Swifts; for this was the huge bedroom of these little picaninnies of the air.

It was now seventeen minutes past seven o'clock. Less than twenty minutes had been required for the flock to enter. Since early morning each bird had been upon the wing, roaming the endless pathways of the air in

Tireless
Flight

quest of insect-food. It is possible that not once during the day had one paused to rest, as the Swift trusts the weight of its body to its weak feet, except in places where, as in the hollow breast of a great tree, or down the yawning throat of a chimney, it can cling to the perpendicular wall, braced from below by its tail, each feather of which ends in a stiff, needle-like continuation of the shaft.

In the early morning, we hastened out to see if the Swifts were up and away. Over the rim of the chimney we found them coming, singly, by twos, by three, by fours; making long sweeps toward the earth with the first bound; then, mounting high in air with innumerable twitterings, they would be off for the day's experiences. At five minutes of six o'clock they ceased to appear. More than eight hundred had been counted within fifteen minutes. Something unexpected now happened. Back into the chimney came rushing the Swifts. In ten minutes one hundred and sixteen had reëntered. What could it mean? Up from the east a dark, threatening cloud was moving. The Swifts had espied it, and all those that by this time were not far afield came hurrying back to the chimney of refuge.

For many evenings we watched the birds. They always went to roost the same way, going through the same performances. For more than two weeks they continued with us. One day, near the middle of September, we saw from our window that the maple trees over on the hillside were turning yellow and red. "Autumn has come," said my friend. Perhaps the Swifts saw the sign, too, and passed the word that the summer had ended and the air would soon be free of insects.

That evening, at the hour of gathering about the chimney less than one hundred appeared. The great flock had taken up its line of flight and was now far on its course toward the land of perpetual summer. The others lingered for some time, gathering in stragglers, and also those families the young of which had been slow in getting upon the wing; and then one day they, too, were off to join their fellows in the far south.

We shall see no more of the Swifts until some day next spring, when we may hear falling to us from the air above a joyous twittering, and, looking up, may catch a view of the first arrival, a black, animated, bow-and-arrow-shaped object darting about at such a height that it seems to be scratching its back against the sky.

These birds usually reach us in April, and within a few weeks nest-building begins. The structure is a bracket-work of dead twigs, glued together somewhat in the form of a half-saucer. It may be found sticking to the wall on the inside of a chimney.

These twigs are ends of small dead branches broken from the trees by the birds, who grasp them with their feet or bill while on the wing. They are fastened together by a salivary substance secreted by glands in the bird's mouth. Apparently the flow of this gluing secretion is sometimes checked. This is possibly due in part to an unhealthy condition of the bird. At such times the nest-building must proceed slowly, and its completion may even be delayed until time for the eggs to be deposited. Often nests have been examined which contained eggs many days before the full number of twigs had been glued in place.

Before the settlement of this country the Swifts built their nests on the inner vertical sides of hollow trees, but when the white man came, with his chimneys, they left their homes and came to dwell with him.



CHIMNEY SWIFT
(*One-half natural size*)

Order—MACROCHIRES
Genus—CHÆTURA

Family—MICROPODIDÆ
Species—PELAGICA

National Association of Audubon Societies

"I well remember the time," Audubon wrote in Volume 1 of his "Birds of America," "when in lower Kentucky, Indiana, and Illinois many resorted to excavated branches and trunks for the purpose of breeding; nay, so strong is the influence of original habit that not a few still (about 1808) betake themselves to such places, not only to roost, but also to breed. . . . In such instances they appear to be as nice in the choice of a tree as they generally are in our cities in the choice of a chimney wherein to roost. Sycamores of a gigantic growth, and having a mere shell of bark and wood to support them, seem to suit them best; and wherever I have met with one of these patriarchs of the forest



NEST AND EGGS OF THE CHIMNEY SWIFT

Photographed by B. S. Bowdish

rendered habitable by decay, there I have found the Swallows [Swifts] of the forest breeding in spring and summer, and afterward roosting until the time of their departure."

A chimney is occupied usually by but one pair of birds. Audubon noticed this as a variation from the original habit of breeding, as well as roosting in communities in hollow trees. It is only in the autumn, when the Swifts accumulate from far and near about some favorite roosting-place, that we see many sleeping in one chimney.

The eggs of the Chimney Swift number four or five, and are white. Nature is not inclined to lavish her coloring material on the shells of eggs where it is not needed. With comparatively few exceptions, those that are deposited in dark places, as in chimneys, or holes in trees, or in the ground, are white. Such eggs do not need the protection of coloring matter, as do those that are laid in open nests, and are thus exposed to the eyes of many enemies.

The Swift is a very valuable bird, as is shown by the following letter written February 23, 1911, by Mr. W. L. McAtee, of the United States Biological Survey:

“My investigation of the food of the species is complete to date, and I hope to prepare a publication on the bird before very long. I may state, however, that the bird’s food consists almost wholly of insects, and that beetles, flies and ants are the principal items. It gets many beetles (*Scolytidae*), the most serious enemies of our forests, when they are swarming, and takes also the old-fashioned potato-beetle (*Lema trilineata*), the tarnished plant bug (*Lygus pratensis*), and other injurious insects.”

An extraordinary thing is the fact that we know little or nothing of this bird in its winter home. It is commonly stated that it winters in northern Mexico; but this appears not to be so. Dr. Wells W. Cooke, the highest authority on American bird-migration, refers to it (Bulletin 185, U. S. Dept. of Agr., 1915) as an unsolved problem. “With troops of fledglings catching their winged prey as they go, and lodging by night in tall chimneys the flocks [of Swifts] drift slowly south, joining with other bands, until on the northern coast of the Gulf of Mexico they become an innumerable host. Then they disappear. Did they drop to the water, or hibernate in the mud, as was believed of old, their obliteration could not be more complete. In the last week in March a joyful twittering far overhead announces their return to the Gulf Coast, but their hiding-place during the intervening five months is still the Swifts’ secret.”

In China and some neighboring countries, there are Swifts that build nests even more peculiar than the American species. No sticks or twigs are employed in their construction, the gummy saliva from the bird’s mouth being the only material used. These nests are much sought by the people of those countries as an article of food. They are built on the faces of sea-cliffs, or the walls of caves; and are gathered and sold in the markets in large numbers as “edible birds’ nests.” To prepare them for the table they are cooked in the form of soup.

Classification and Distribution

The Chimney Swift belongs to the Order *Macrochires*, the Suborder *Cypseli* and the Family *Macropodidae*. Its scientific name is *Chaetura pelagica*. It resides in summer and breeds throughout all the United States, and within the southern border of Canada as far west as the eastern foothills of the Rocky Mountains and eastern Texas. Its winter home is not known.

THE CAROLINA WREN

By WITMER STONE

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

Educational Leaflet No. 50

Two birds, dissimilar in color and family relationship, are always closely associated in my mind because of their similarity in voice and customary haunts—the Cardinal and the Carolina Wren. Both are characteristic of that region, southern in its climate and productions, which stretches along our South Atlantic seaboard, pushes northward up the valleys of the Susquehanna and Delaware rivers, and ascends the Mississippi and its lower branches.



NEST OF A CAROLINA WREN, BUILT IN AN OLD WASH-BASIN.

Photographed by Joseph Armfield.

We find both of these birds throughout the year in alder-swamps, and in low, moist woodlands, for they appear to be resident wherever they occur; and time and again I have been puzzled in early spring, when both are in full song, to distinguish their varied melodies.

Although of regular occurrence about Philadelphia, the Carolina Wren is not so abundant nor so uniformly distributed as along the broader valley of the Susquehanna, a little farther to the westward. That is the region particularly associated in my mind with the Carolina Wren in summer, just as the low swamps of New Jersey stand out as its winter quarters. The broad river rushing along among its rocks and islands,

the high, wooded hills rising from either bank, cut with innumerable rocky ravines, the summer sun lighting up the whole landscape, bring to mind the clear, far-reaching notes of the Carolina Wren floating up from every side.

In winter these Wrens and many Cardinals congregate in the low grounds bordering the tide-water creeks of southwestern New Jersey, where the sun shines more warmly than on the bleak hills of Pennsylvania. Here they find shelter and an abundance of food.

The Carolina Wren is not entirely confined to these low grounds in winter, however, but ranges well up the narrow valleys on their border; so that often we find him along the rocky banks of some ravine where flows a narrow, tumbling stream, and where the hemlocks of the North mingle with the red-buds and tulip-trees of the South.

Winter Haunts

In such retreats in midwinter, when all is white with snow and the edges of the streams are fringed with ice, we are startled by his clear, ringing whistle—*tea-kettle! tea-kettle! tea-kettle!* Suddenly he darts from behind some fallen log, all action, like the typical Wren he is, bobbing up and down on his slender legs, tail cocked in the air, his sharp eye constantly fixed upon the intruder; then drops out of sight in a moment, to reappear somewhere else in a perpetual game of hide-and-seek.

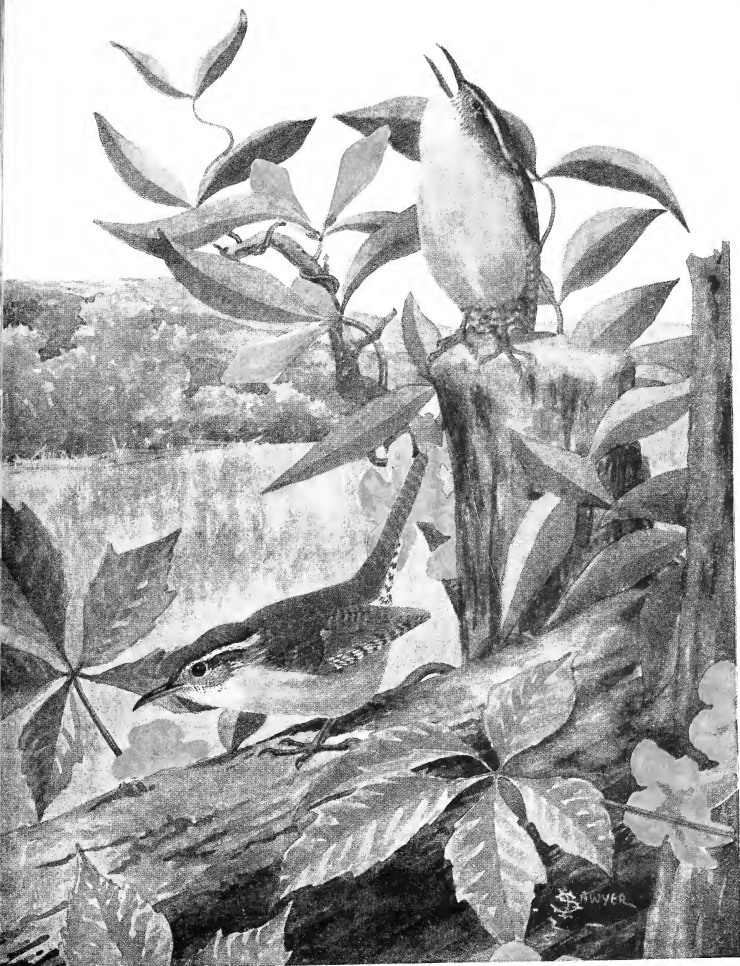
To those who are familiar only with the House and Winter Wrens he seems too large for a Wren; indeed, he seems quite as large as a Song Sparrow, especially when his soft plumage is well fluffed up. His color is bright cinnamon-brown above, strongly tinted with the same below, but whitish on the throat, and with a conspicuous white line running over the eye down to the side of the neck. When we spread apart the long rump-feathers, we find many of them marked near the middle with round spots of white, which are entirely concealed unless the plumage be disarranged. The Carolina Wren, like the other members of his family, undergoes no change of plumage. Young or old, winter or summer, his dress is virtually the same, differing merely in fullness of feather and depth or purity of tone.

His most characteristic song has been likened by Mr. Chapman to *tea-kettle, tea-kettle, tea-kettle*, and to *whee-udle, whee-udle, whee-udle*. Wilson wrote it *sweet-william, sweet-william, sweet-william*; and to Audubon it seemed to say *come-to-me, come-to-me, come-to-me*. It has variations recalling forms in the Cardinal's song, and also that of the Tufted Titmouse; and the Wren, after repeating one form for some time, often changes

A Versatile Musician

suddenly to another, producing a rather startling effect, as if another bird has taken his place. Wren-like *chucks* of annoyance or interrogation are heard when a stranger appears on the scene; and a peculiar fluttering *k-r-r-r-r-uck*, which resembles the bleating call of the tree-toad more than anything else.

The Carolina Wren is often termed Mocking Wren, on the supposi-



CAROLINA WREN
(One-half natural size)

Order—PASSERES

Family—TROGLODYTIDÆ

Genus—THRYOTHORUS

Species—LUDOVICIANUS

National Association of Audubon Societies

tion that his notes are deliberate imitations of those of other birds. Nuttall, indeed, gives a most elaborate list of his vocal performances, likening them to various birds, including the Kingfisher and the Maryland Yellowthroat, in addition to those already mentioned. It seems probable, however, that the Carolina Wren is not a mocker; that the resemblance of his notes to those of certain other birds is accidental, and that they are as truly his own as is the song of the Robin, the Hermit Thrush, or any other of our birds. That there is a striking resemblance in the notes of our Wren, the Cardinal, and the Tufted Titmouse, is beyond question; and one cannot but recall the similarity in distribution of these three birds, and wonder if there is any relationship between song and environment.

Resemblances

As spring advances, the repertory of the Carolina Wren seems to be enlarged, and his voice is always a characteristic one in the bird-chorus of his neighborhood. Rocky banks with cave-like retreats have now more interest for him than ever, and with never-abating energy he and his mate search out each promising cavity for a suitable situation for their nest. This structure is usually arched over, leaving an opening on the side, and is constructed of leaves, roots, feathers, moss, etc., lined with finer material. In the far South the dead threads of Spanish moss are much used. The eggs are four to six, creamy white, with rusty brown and lavender markings, often collected about the larger end.

Old stumps and hollow trees, or cavities in stone walls, are frequently appropriated as nesting-sites, and occasionally the bird becomes quite as familiar as his smaller relative, the House Wren. He will take possession of bird-boxes; and in one instance, a brood was reared in a mortise-hole in the wall of a house, in such a position that the old bird had to fly in and out over the heads of the people sitting on the porch.

Queer Nesting-places

T. Gilbert Pearson found nests in North Carolina situated in the pocket of an old overcoat left hanging on a back veranda, in a tin wash-basin on the mantel of a deserted cabin, in a broken gourd carelessly tossed upon a grape-arbor, and in a cap hanging against the latticed wall of an outhouse. Arthur T. Wayne records a nest found in a hole in a river-bank in South Carolina.

On an estate near Philadelphia a pair of Carolina Wrens entered the sitting-room through a window left partly open and built their nest in the back of an upholstered sofa, entering where a hole had been torn in the cover. They were not disturbed, and retained quiet possession until the young were safely reared. Not far away, a brood raised near the house came back, night after night, to roost in a rolled-up Japanese screen hanging on the porch.

Fondness for Water

As a rule, however, the Carolina Wren is distinctly a bird of wild, wooded spots, usually in the immediate vicinity of some river or small stream, for water seems to have a peculiar attraction for it. Audubon notes its fondness for water, no doubt because of the greater prevalence of its favorite insects there;

and mentions particularly its abundance on the banks and islands of the lower part of the Mississippi River.

"I frequently heard these Wrens singing," he writes in the second volume of his *Birds of America*, "from the roof of an abandoned flat-boat, fastened to the shore a small distance below the City of New Orleans"; and he sketches in a few words one of those charmingly graphic pictures of bird-ways in which Audubon was so adept. "When its song was finished," he writes, "the bird went on creeping from one board to another, thrust itself through an auger-hole, entered through the boat's side at one place, and peeped out at another, catching numerous spiders and other insects all the while."

The food of the Carolina Wren consists wholly of insects of various kinds—caterpillars, beetles, etc.; and, like all of its tribe, it is an exceedingly beneficial bird, fully meriting the protection usually accorded to Wrens by all except the house-cat, which is their mortal enemy.

Audubon mentions that "of the many kinds of insects which they destroy several are of an aquatic nature, and are procured by them whilst creeping about the masses of drifted wood." They may often be seen scrambling about the trunks of trees, searching for insects and their hidden eggs or young in the crevices of the bark.

Insect Hunting

I was delighted one day, several years ago, to hear a subdued song apparently coming from my small yard in the city. I thought at first that some neighbor had a caged Cardinal, but, upon investigating, I found a Carolina Wren exploring my wild-flower bed, and occasionally indulging in a subdued whisper-song. All day long I tried to protect him from the cats, which were intent upon stalking him from the neighboring yards, but which were kept off to a great extent by my chicken-wire addition to the fences. I trust that he departed in safety, although I knew that a few days previously the cats had deprived a visiting House Wren of his tail, and rendered him so strikingly like the Winter Wren that I fear he may have been made the occasion of a rather startling "record" of the latter species by some enthusiastic young student.

Classification and Distribution

The Carolina Wren belongs to the Order *Passeres*, Suborder *Oscines*, and Family *Troglodytidae*. It is to be found in the breeding-season throughout the whole United States east of the Plains and south of about the 41st parallel of latitude—casually further north; and it remains through the winter in all except the northern border of this area. A larger and darker variety in southern Florida is named the subspecies *T. l. miamensis*; and another subspecies (*T. l. lomita*) inhabits southwestern Texas and northern Mexico.



UPLAND PLOVER

Order—LIMICOLÆ

Family—SCOLOPACIDÆ

Genus—BARTRAMIA

Species—LONGICAUDA

National Association of Audubon Societies



SHORT-EARED OWL

Order—RAPTORES
Genus—ASIO

Family—STRIGIDÆ
Species—FLAMMEUS

National Association of Audubon Societies





YELLOW-BILLED CUCKOO

Order—Coccyos
Genus—Coccyzus

Family—CUCULIDÆ
Species—AMERICANUS





GOLDFINCH

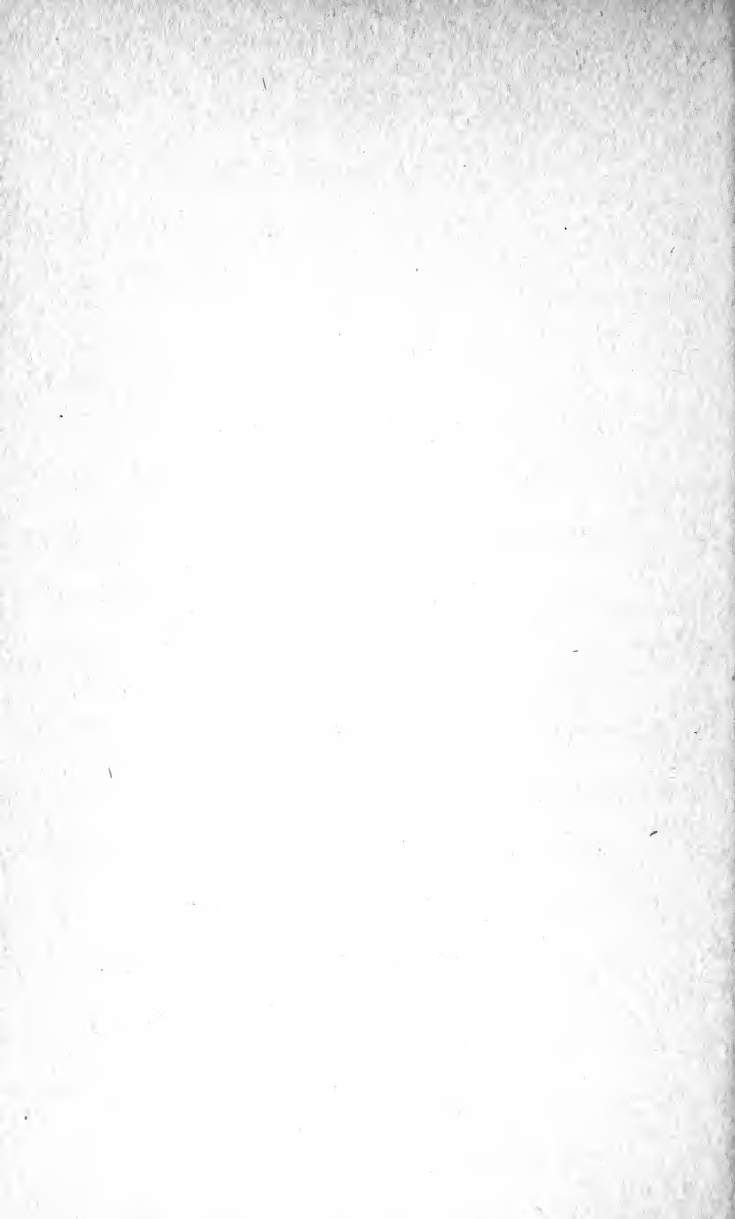
Order—PASSERES

Genus—ASTRAGALINUS

Family—FRINGILLIDÆ

Species—TRISTIS

National Association of Audubon Societies



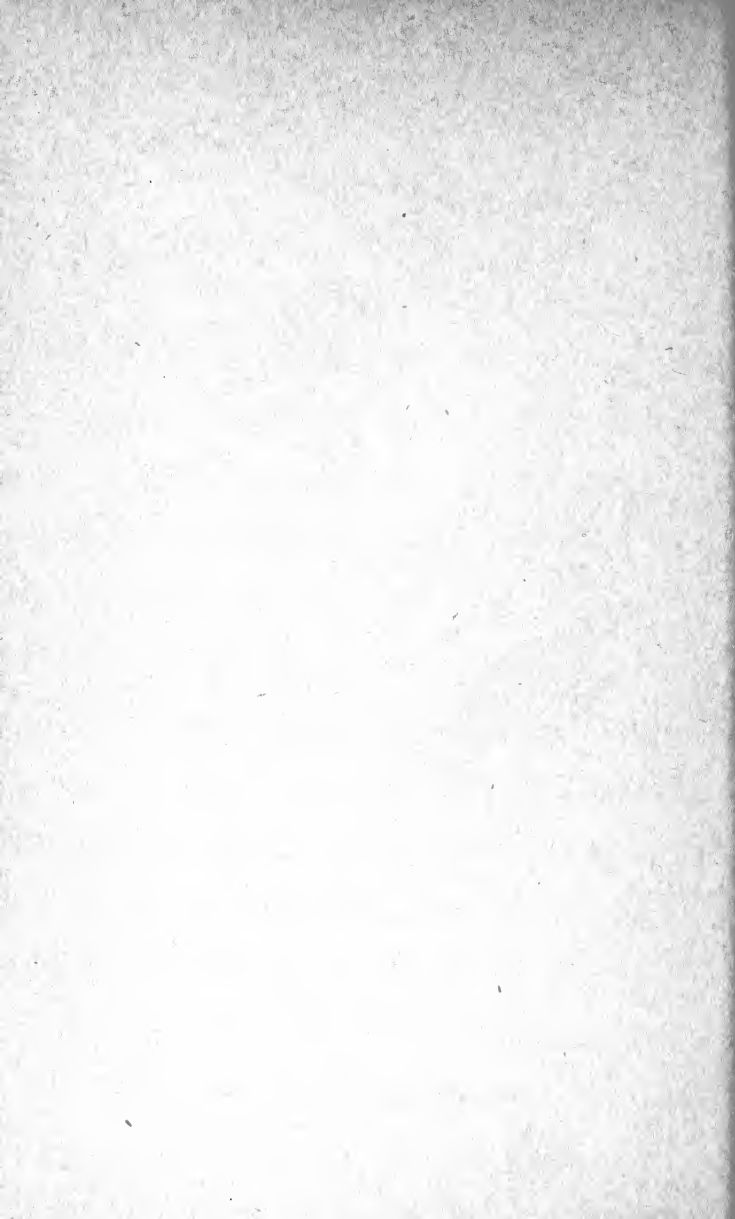


BLUEBIRD

Order—PASSERES
Genus—SIALIA

Family—TURDIDÆ
Species—SIALIS

National Association of Audubon Societies





BALTIMORE ORIOLE

UPPER FIGURE, MALE; LOWER FIGURE, FEMALE

Order—PASSERES

Family—ICTERIDÆ

Genus—ICTERUS

Species—GALBULA

National Association of Audubon Societies



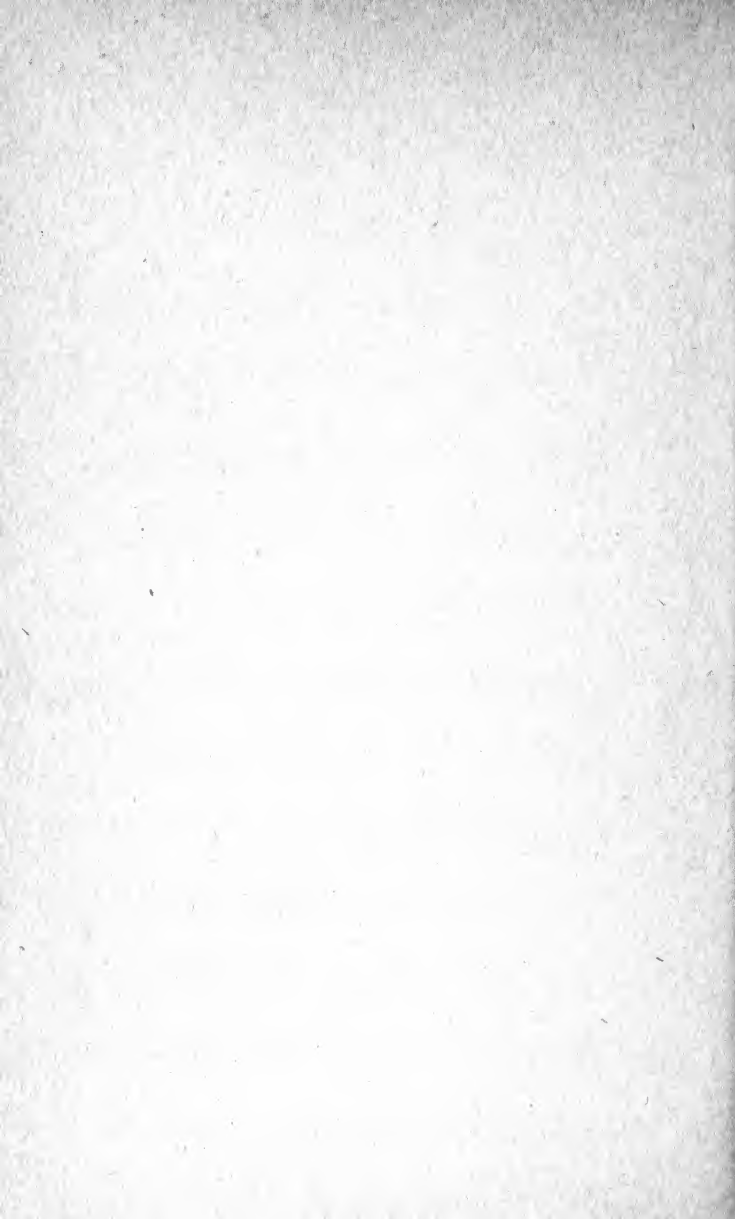
INDIGO BUNTING

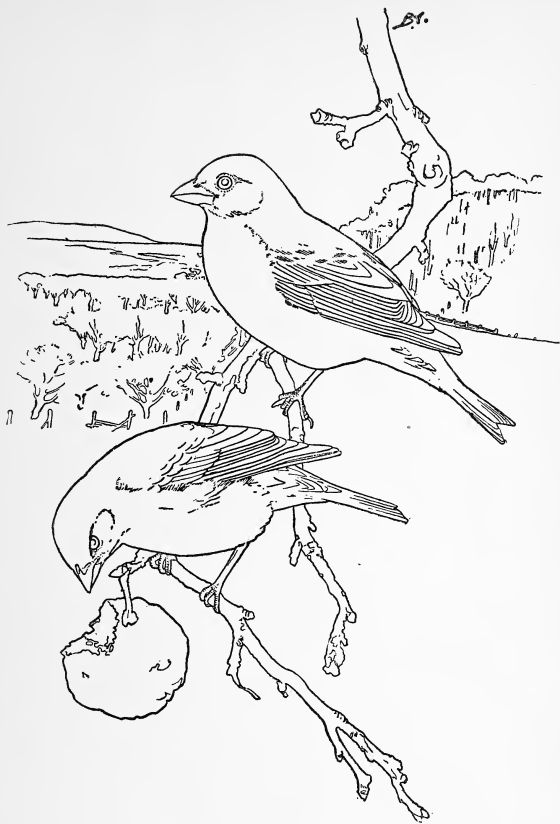
(UPPER FIGURE, MALE; LOWER FIGURE, FEMALE)

Order—PASSERES
Genus—PASSERINA

Family—FRINGILLIDÆ
Species—CYANEA

National Association of Audubon Societies





PURPLE FINCH

(UPPER FIGURE, MALE; LOWER FIGURE, FEMALE)

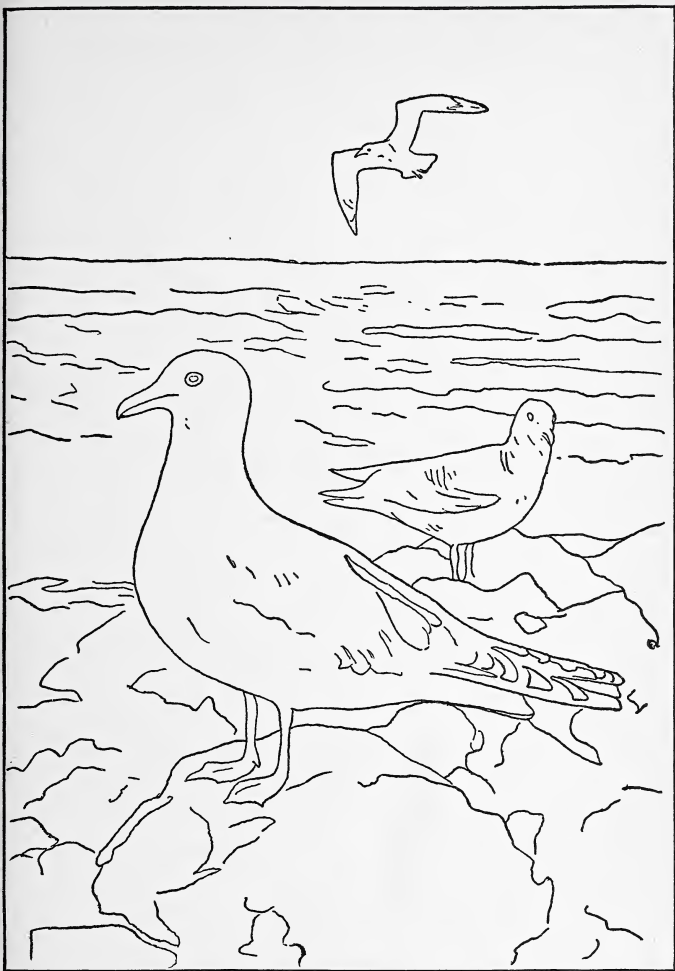
Order—PASSERES

Family—FRINGILLIDÆ

Genus—CARPODACUS

Species—PURPUREA

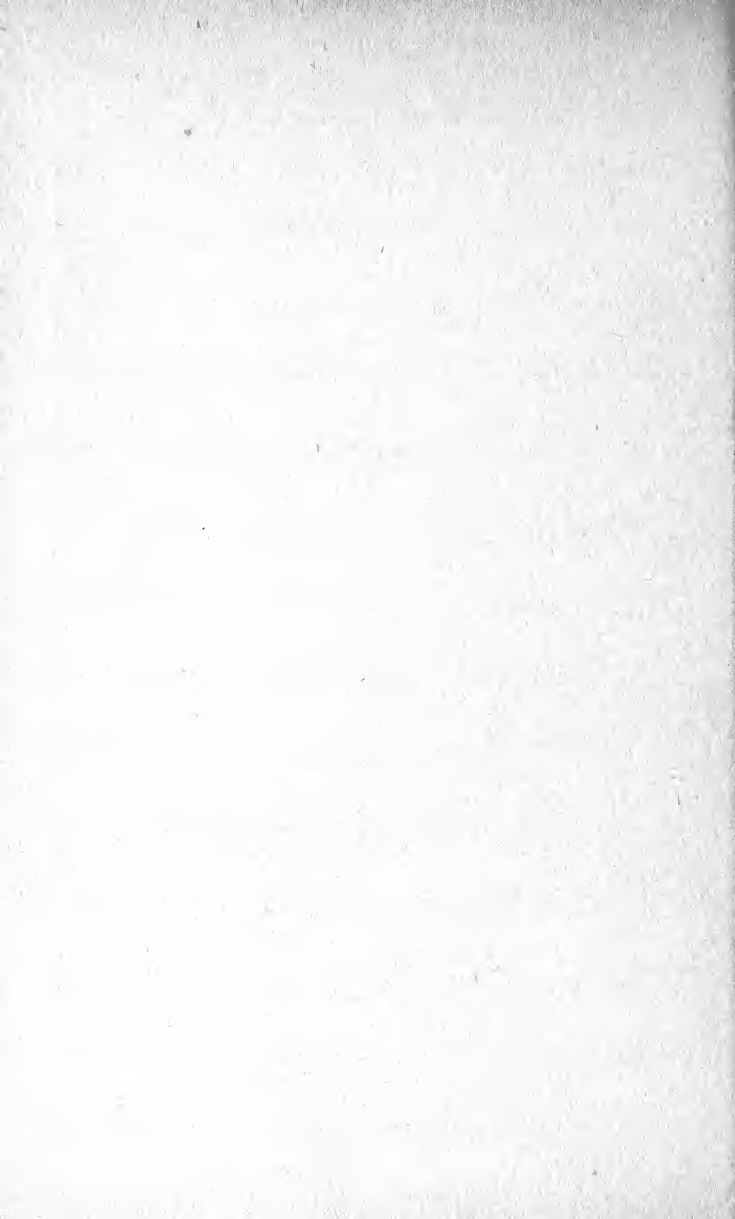
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HERRING GULL

Order—LONGIPENNES
Genus—LARUS

Family—LARIDÆ
Species—ARGENTATUS





BARN SWALLOW

Order—PASSERES

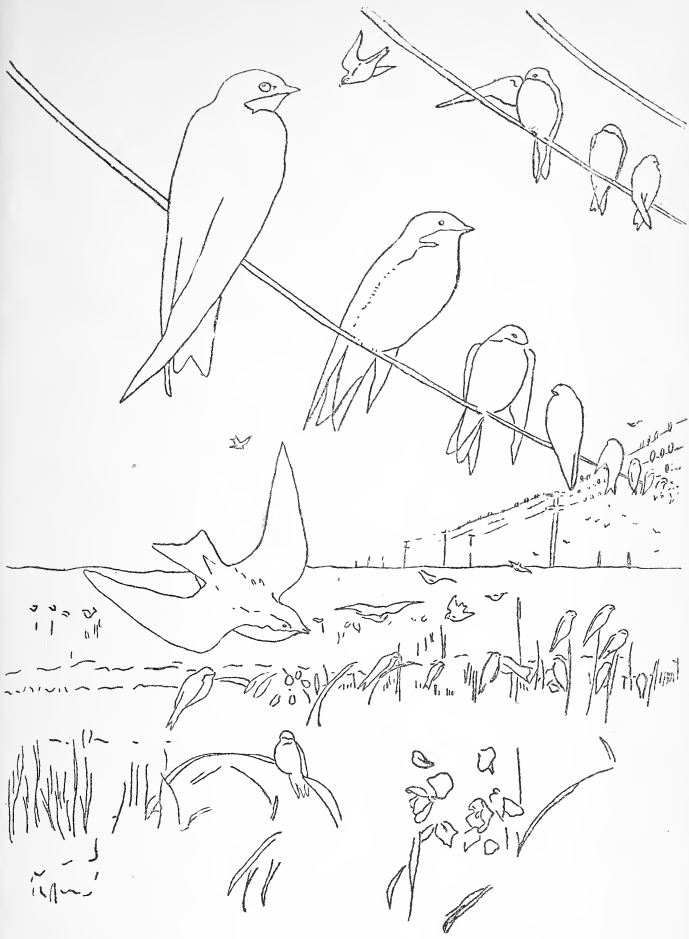
Family—HIRUNDINIDÆ

Genus—HIRUNDO

Species—ERYTHROGASTRA

National Association of Audubon Societies



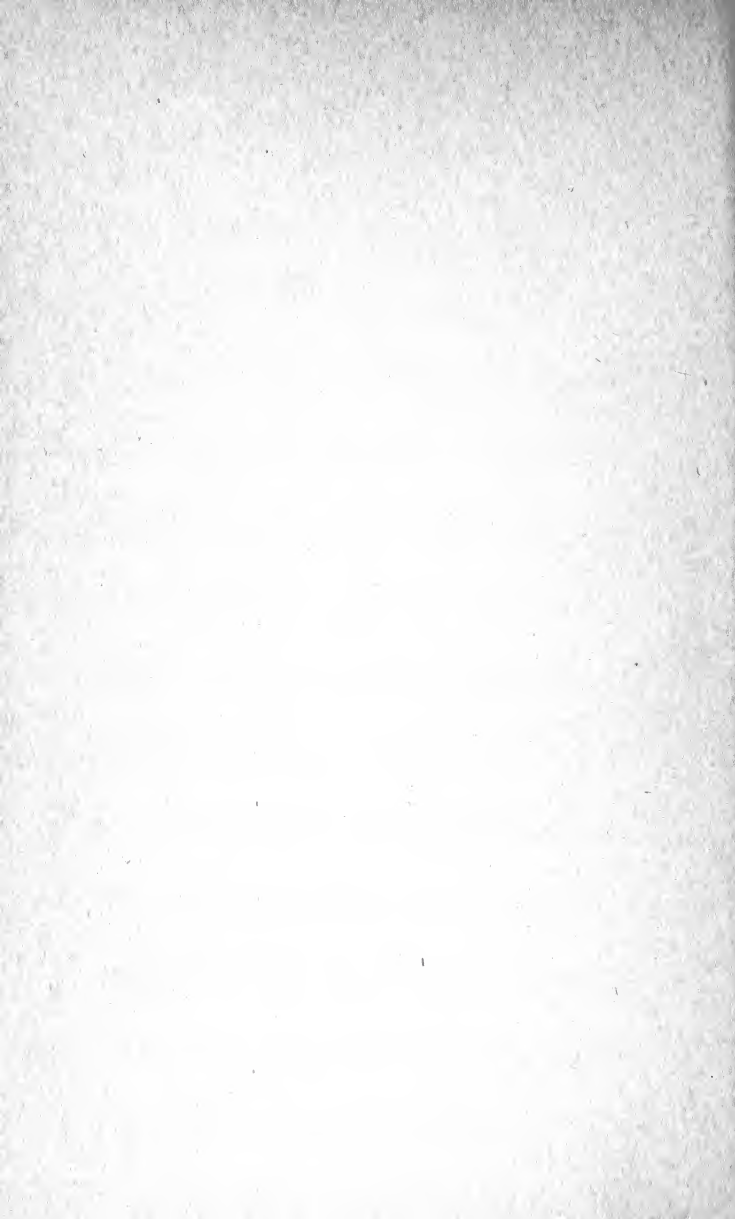


TREE SWALLOW

Order—PASSERES
Genus—IRIDOPROCNE

Family—HIRUNDINIDÆ
Species—BICOLOR

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GOLDEN-AND-RUBY-CROWNED KINGLETS

Order—PASSERES
Genus—REGULUS

Family—SYLVIIDÆ
Species—SATRAPA AND CALENDULA

National Association of Audubon Societies

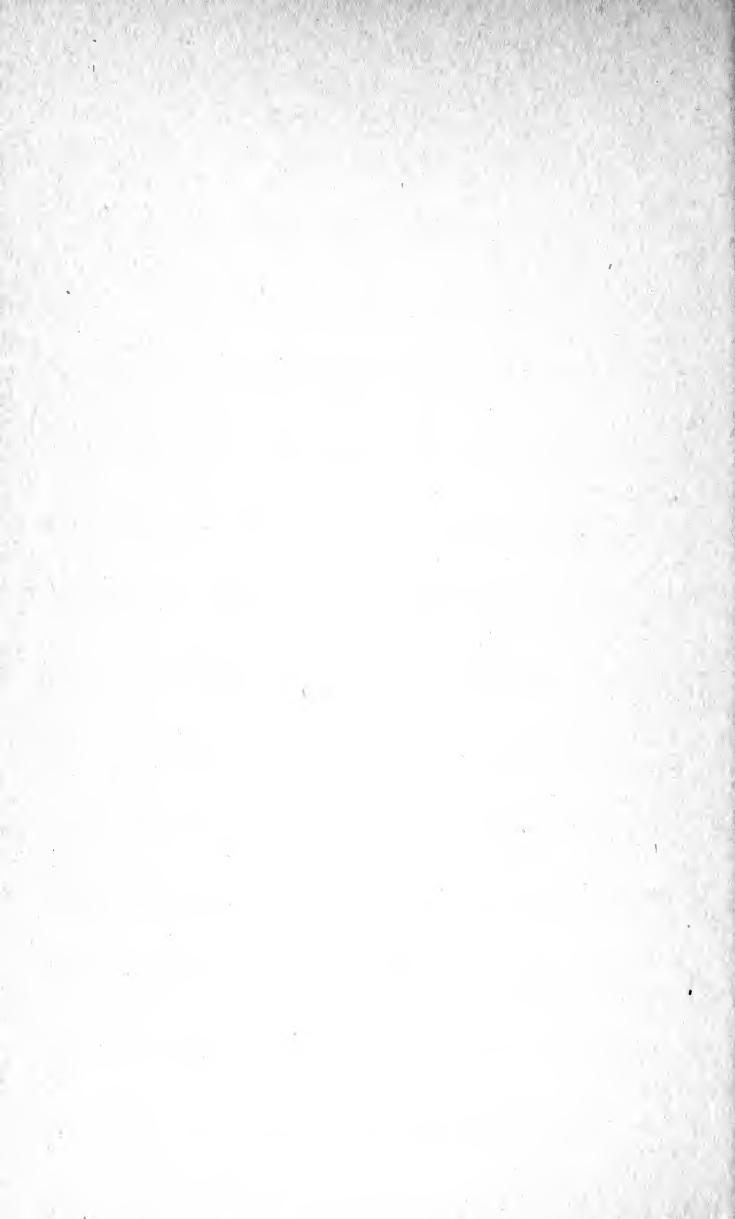


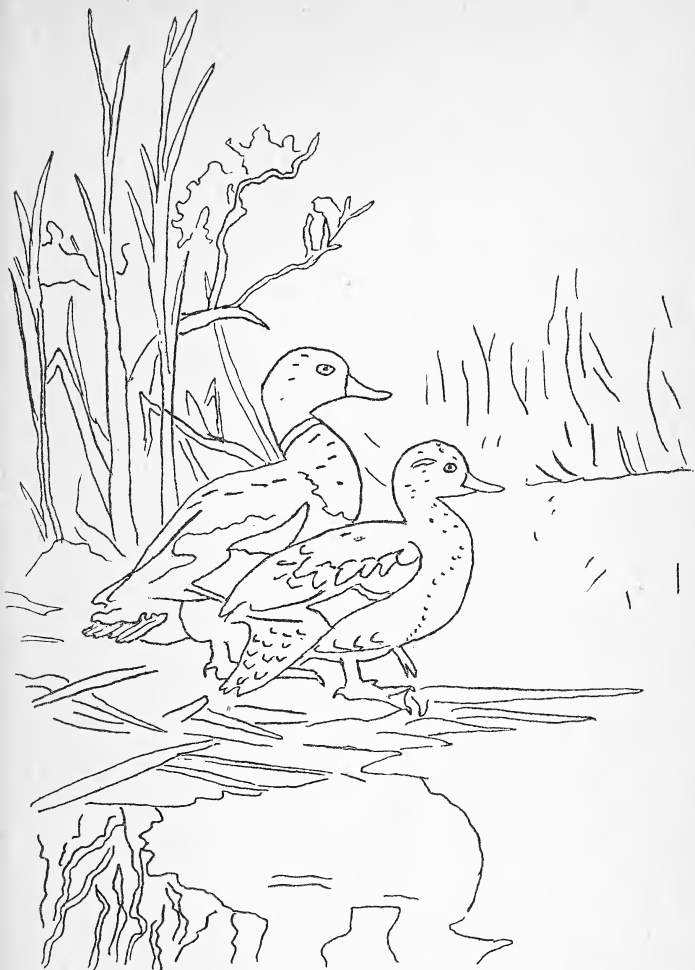
RED CROSSBILL

Order—PASSERES
Genus—LOXIA

Family—FRINGILLIDÆ
Species—CURVIROSTRA MINOR

National Association of Audubon Societies





MALLARD

Order—ANSERES

Genus—ANAS

Family—ANATIDÆ

Species—BOSCHAS

National Association of Audubon Societies



SHARP-SHINNED HAWK

(RIGHT HAND FIGURE, IMMATURE FEMALE; LEFT HAND FIGURE, ADULT MALE)

Order—RAPTORES
Genus—ACCIPITER

Family—FALCONIDÆ
Species—VELOX

National Association of Audubon Societies





BOBOLINK

UPPER FIGURE, MALE; LOWER FIGURE, FEMALE

Order—PASSERES

Family—ICTERIDÆ

Genus—DOLICHONYX

Species—ORYZIVORUS

National Association of Audubon Societies.



BUSH-TIT

Order—PASSERES
Genus—PSALTRIPARUS

Family—PARIDÆ
Species—MINIMUS

National Association of Audubon Societies

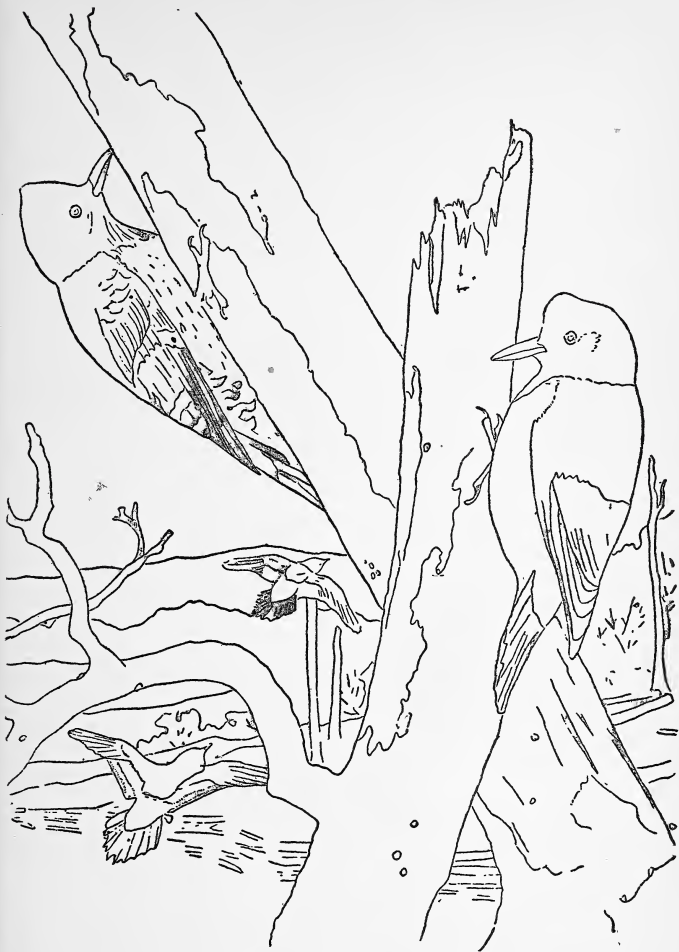


MOCKINGBIRD

Order—PASSERES
Genus—MIMUS

Family—MIMIDÆ
Species—POLYGLOTTOS

National Association of Audubon Societies



RED-HEADED WOODPECKER

Order—PICI

Family—PICIDÆ

Genus—MELANERPES

Species—ERYTHROCEPHALUS

National Association of Audubon Societies



BLACK - HEADED GROSBEAK

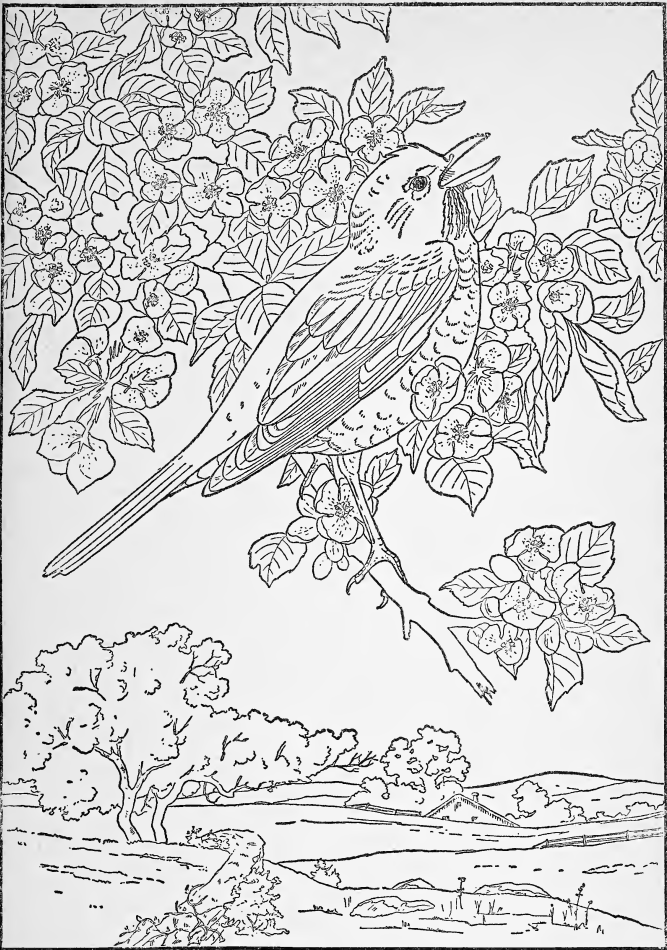
Order—PASSERES

Family—FRINGILLIDÆ

Genus—ZAMELODIA

Species—MELANOCEPHALA

National Association of Audubon Societies

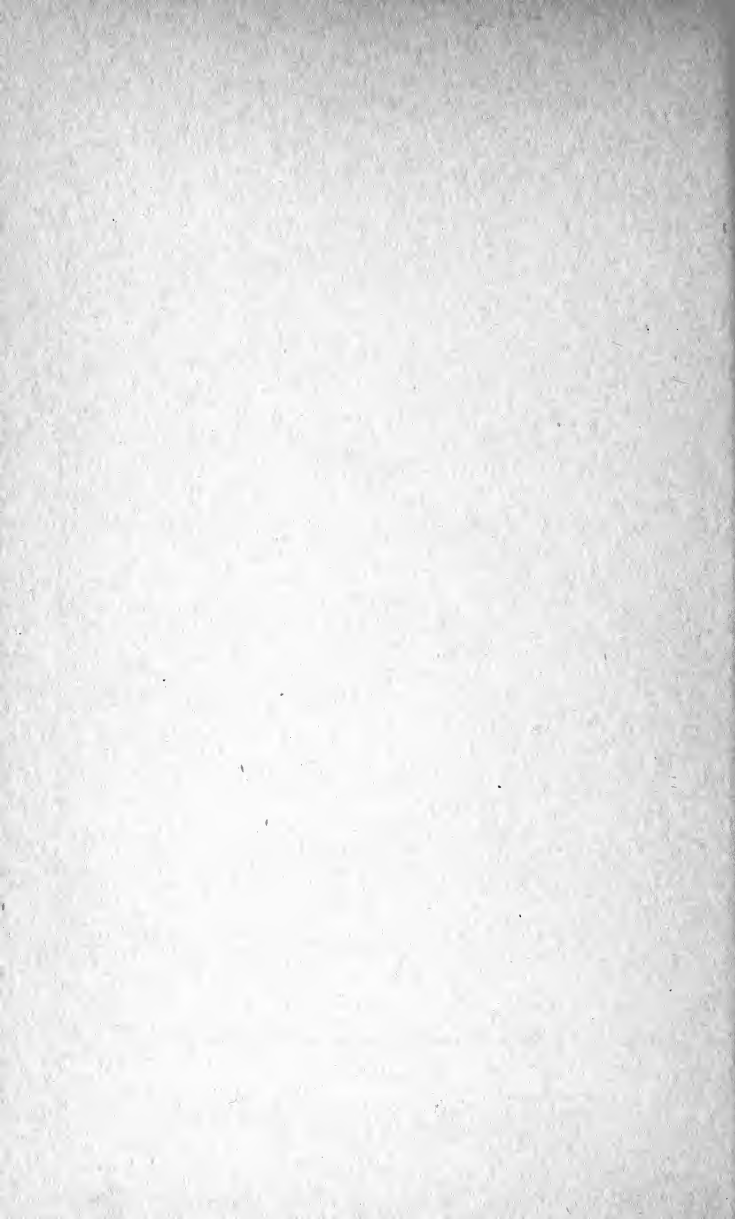


ROBIN

Order—PASSERES
Genus—PLANETICUS

Family—TURDIDÆ
Species—MIGRATORIUS

National Association of Audubon Societies





BOB-WHITE

Order—GALLINÆ
Genus—COLINUS

Family—ODONTOPHORIDÆ
Species—VIRGINIANUS

National Association of Audubon Societies



CEDAR WAXWING
(One-half natural size)

Order—PASSERES

Family—BOMBYCILLIDÆ

Genus—BOMBYCILLA

Species—CEDRORUM

National Association of Audubon Societies



CAROLINA WREN
(*One-half natural size*)

Order—PASSERES

Family—TROGLODYTIDÆ

Genus—THRYOTHORUS

Species—LUDOVICIANUS

National Association of Audubon Societies

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