



SUMMER
BIRDS
of an IOWA
FARM



IOWA STATE COLLEGE OF
AGRICULTURE AND MECHANIC ARTS

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College of Agriculture and Mechanic Arts and the United States Department of
Agriculture Cooperating.

Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914)

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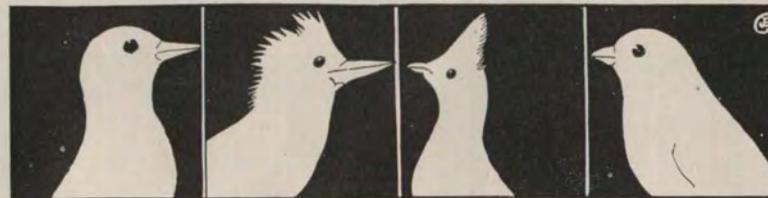


Fig. 1
Red-Headed
Woodpecker

Fig. 2
Kingfisher

PLATE I
Fig. 3
Cedar Waxwing

Fig. 4
Field Sparrow

Summer Birds of an Iowa Farm

By J. E. Guthrie*

Most people are interested in birds. Birds are beautiful, their songs are pleasing and, from an agricultural standpoint, many of them are of great value. It is probably true that without birds agriculture would be impossible, forests would die from insect attacks, weeds would overrun farms; and wild mice, ground squirrels and gophers would increase at an alarming rate. Birds are nature's antidote to these pests of the farm, more effective than any check that man could devise.

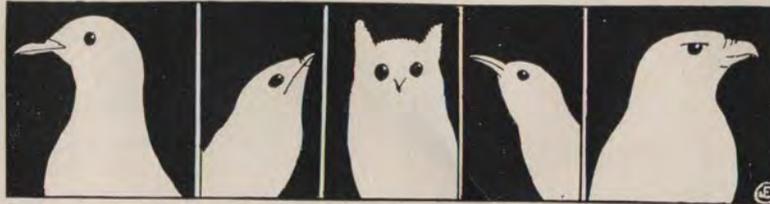
It is well, then, to know the birds, to recognize the kinds which are particularly valuable and to know why they are of value.

The value of a bird on the farm, in the woods or around the home is closely related to what it eats. Birds are active creatures, their digestion is rapid and they therefore require large amounts of food. The food habits we most value in birds are naturally those which have to do with weed seeds, destructive insects and rodents.

Many birds are especially fitted by nature for getting and using the food on which they live. These special adaptations to their needs are to be seen in such features as particular types of wings, tails, feet, and bills. Thus, many of the seed-eaters may be recognized by their sparrow-like beaks (fig. 4). Sparrows and finches do not confine themselves to seeds, however, but many of them also eat insects in large numbers. The mourning dove (fig. 5) feeds on weed seeds almost exclusively. In the list of birds on page 8, several live mainly or partly on weed

*The writer wishes to acknowledge his debt to several of the bulletins of the U. S. Department of Agriculture, to Michigan Bird Life by Barrows, and to The Birds of New York, by Eaton, for descriptions of birds and data on their habits and importance.

Thru the kindness of Dr. Thomas S. Roberts, Professor of Ornithology and Curator of the Zoological Museum of the University of Minnesota, the writer was able to use six of the illustrations which appeared in A Review of the Ornithology of Minnesota by Dr. Roberts. Four of these were from nature by Dr. Roberts, one from a mounted owl, while the horned lark is from a drawing.

Fig. 5
Mourning DoveFig. 6
Chimney
SwiftPLATE II
Fig. 7
Great
Horned OwlFig. 8
CuckooFig. 9
Red-tail Hawk

seeds and, as these birds are here in large numbers, their destruction of noxious weed seed is of very great importance. The cowbird eats about a half ounce of weed seed per day in the fall, besides waste grain and insects. Seeds of pigeon grass, smartweed, pigweed and ragweed are also eaten. About a quarter of the meadowlark's food is made up of weed seeds and waste grain. The goldfinch eats many seeds of thistles, chickweed and dandelions. The chipping sparrow's food is about 40 percent weed seed, largely grass seed. Three-fourths of the song sparrow's food is weed seed, while that of the field sparrow is almost entirely weed seed except in the summer when insects are abundant. The dickcissel is like the field sparrow in food habits. The mourning dove (fig. 5) feeds entirely upon seeds, one stomach containing 6,400 foxtail grass seeds. Another stomach examined contained 9,200 weed seeds of various kinds. About one-half of the food of the bob-white or quail is made up of weed seeds. Another species of sparrow, the tree sparrow, not included in this bulletin because it is in Iowa in the winter only, might be here mentioned. Professor Beal estimated that there were about 10 of these birds to the square mile in Iowa for 200 days of the winter; that each bird ate $\frac{1}{4}$ ounce of weed seed daily, and that thus the tree sparrows in Iowa eat 875 tons of weed seed annually. Some of our other species probably do as well.

Insect Eaters

Insects, like weeds, are not all equally bad; in fact some of them are valuable as enemies of destructive insects. It is not enough to say that a bird eats many insects, for it is necessary to know the kinds of insects it prefers. If a bird eats many ground beetles or certain kinds of flies or honeybees it may be somewhat harmful. If it fills its stomach with plant lice, chinch bugs, caterpillars or grasshoppers and has no bad habits it is very valuable. Many kinds of birds which eat weed seeds or fruit at other seasons, take a great many insects in the nesting season and give their young almost a pure insect diet. Let us

see how some of these insect-eaters live and how they benefit agriculture.

As the hard parts of insects are not easily digested, a study of the stomach contents of hundreds of birds of each important species has made it possible for man to know definitely what insects are eaten by each particular kind of bird, and in what quantities. It is generally true that birds eat most of whatever insects are abundant around them. Thus, in a plague of pests such as grasshoppers, armyworms, chinch bugs or May beetles, many kinds of birds will make almost their entire living from the abundant pest as long as the supply lasts—one of the reasons why birds are so valuable. Work of identifying the food of birds has been done largely under the direction of the United States Department of Agriculture. Results of this work have appeared from time to time in farmers' bulletins and other publications.

Of the insect-eaters in our list on page 8, the bluebird is one of the best. Nearly 70 percent of its food consists of insects, spiders and the like. In summer, while the bluebird is in Iowa, the percent is still higher, over one-half of its food being beetles, grasshoppers and caterpillars. The bluebird also eats a few wild berries and weed seeds.

The robin eats some cultivated fruit, but 10 times as much wild fruit and many insects. One-third of the robin's food is destructive insects and, in August, nearly one-fifth of its food is grasshoppers. The chickadee is especially valuable around trees, where its small size and great activity aid it in taking immense numbers of plant lice and other small insects and also insect



Fig. 10. Black Capped Chickadee family (From A Review of the Ornithology of Minnesota).

eggs, especially those of the tent caterpillars. In Iowa the work of the chickadee continues thruout the year.

The nuthatch feeds largely upon seeds in winter, but, in spring, about 80 percent of its food consists of insects. The house wren subsists almost entirely upon insects and as it rears many young in a season is very valuable so far as its food habits go, altho sometimes it molests other birds' nests and eggs. The brown thrasher's food is two-thirds insects, while that of the catbird is nearly one-half insects.

The yellow warbler lives almost solely upon an insect diet, taking whatever kinds are most abundant. The cedar wax-wing (fig. 3) is another enemy of insects, being very fond of canker-worms. All of the swallows feed almost entirely on flies, ants and other insects caught in flight. During times when destructive insects are abundant, the dickcissel and indigo bunting take many of them, altho they are mainly seed-eaters. The rose-breasted grosbeak is fond of potato bugs and is sometimes called the "potato-bug bird". It also likes wild and cultivated fruits and green peas. The cardinal is a seed-eater, but, during the nesting season, carries many insects to its young.

Stomachs of four cardinals killed in August and September contained an average of 22 insects, mostly grasshoppers. The song sparrow, field sparrow and chipping sparrow are much like the cardinal as to food, giving many injurious insects to their nestlings. The common blackbird, while destructive to fruits and grain, makes more than half of its meals on insects. More than one-third of the oriole's food is caterpillars, while most of the remainder is other insects. The meadowlark is among the most helpful of our birds as a destroyer of noxious insects, as well as of weed seeds. Red-winged blackbirds are fond of insects, which make up about one-fourth of their food. Cowbirds are especially beneficial as insect destroyers in late summer, when they eat many grasshoppers. This partly counteracts the damage they do to other birds which are hoodwinked into feeding the young cowbirds.

No bird's usefulness has been so thoroly debated as that of the crow. A summing up of the examinations of the stomachs of over 2,000 crows by the United States Department of Agriculture has shown that, in its destruction of grain, poultry and eggs, and wild birds and their eggs and young, the crow does much damage; but, by the eating of large quantities of grasshoppers, cutworms and white grubs, as well as of carrion, it renders an important and valuable service. When not over-abundant, it may, on the whole, be more beneficial than otherwise.

The habits of the blue jay and crow are somewhat similar as to food. Other birds sometimes suffer from the blue jay's dep-

redations and some fruit is also destroyed. Bluejays are active in the war against caterpillars and grasshoppers.

The phoebe and kingbird are flycatchers, like the swallows, and are of great value to the farmer. The chimney swift (fig. 6) and the nighthawk are also tireless pursuers of the flying host of insects.

Even the tiny hummingbird eats some flower-inhabiting insects as well as the nectar from flowers. While we think of woodpeckers as birds of the trees, getting their food by digging in the wood for the boring grubs, this is only partly true. The flicker is often seen feeding upon the lawns and in the fields, stomach examinations showing that 90 percent of its food is ants. The red-headed woodpecker (fig. 1) is often seen catching the millers of webworms and cutworms. It catches millers in the air, as the kingbirds do, and also drills for grubs in proper woodpecker style, like the downy woodpecker. The downy and hairy woodpeckers eat many wintering insects and their eggs which they find in crevices of the bark of trees or attached to the limbs. The kingfisher (fig. 2) sometimes catches insects, the young of some of the aquatic insects eaten by this bird being destructive to young fish. Perhaps it partly atones in this way for the fish it eats. Seventy-five percent of the food of the cuckoo (fig. 8) is insects, mostly of injurious kinds. Hairy species, such as tent caterpillars, are eagerly eaten, more than 100 having been taken from one stomach. Grasshoppers, tree crickets, beetles and bugs make up a large part of the cuckoo's diet. One Nebraska specimen contained 416 locusts and grasshoppers, besides 152 other insects.

The screech owl is very fond of insects and the sparrow hawk catches many grasshoppers and other large insects. The prairie chicken often lives for weeks upon almost a pure grasshopper diet. Its smaller relative, the quail, also regarded as a game bird, should be always protected for its value as an insect destroyer, as well as a consumer of weed seeds. Quail eat spanworms, grasshoppers, chinch bugs and potato bugs in abundance. The killdeer is among the most useful of our insect eaters, picking up many of the most harmful varieties such as white grubs, billbugs, weevils, wireworms, horseflies and mosquitoes.

The green heron often eats grasshoppers and sometimes this is also true of the bittern, altho the insects found in the stomach of the bittern are largely aquatic as it gets them from the water.

The Rodent Destroyers

Birds with hooked beaks (fig. 9) for tearing flesh, and strong, curved claws (fig. 28) for capturing and holding their prey, live largely upon small animals and birds. The butcher-bird or shrike eats some wild mice along with its regular diet of

insects, and also gets an occasional sparrow. Even the crow often eats mice. But it is the hawks and owls which are the most successful in aiding agriculture by killing rodents.



Fig. 11. Great Horned Owl
(From A Review of the Ornithology of Minnesota).

The great horned owl (fig. 7) eats many rabbits, some gophers and ground squirrels and even skunks, but it captures too many game and song birds and chickens. The little screech owl is very beneficial, most of its food consisting of mice, with occasionally an English sparrow or blue jay, or more rarely a song-bird. The short-eared owl is a day hunter and its diet is made up mostly of field mice.

From all of the facts given above it is very plain that many of our Iowa birds are of enormous value in ridding the farm of noxious weeds, destructive rodents and especially of some of Iowa's worst insect pests.

Of the 350 birds recorded from the state of Iowa, a number are here in the winter only. We call them winter visitants. They go north in summer to nest. Very many birds which winter in southern states or in the tropics and breed in the British provinces pass north thru Iowa in the spring and south again in the fall. We call these birds transients. Some birds which go south for the winter, come only this far north in the summer to raise their broods. These are the summer visitants. Finally, there are some, as the bob-white and downy woodpecker, which remain here thruout the year. These we call permanent residents. The 50 birds chosen for this bulletin are from the last two groups. Their names are as follows:

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|---------------------------------|--------------------------------|
| 1. Bluebird | 15. Dickcissel |
| 2. Robin | 16. Indigo Bunting |
| * 3. Black-cap Chickadee | 17. Rose-breasted Grosbeak |
| * 4. White-breasted Nuthatch | *18. Cardinal, Redbird |
| 5. House Wren | 19. Song Sparrow |
| 6. Brown Thrasher | 20. Field Sparrow |
| 7. Catbird | 21. Chipping Sparrow |
| 8. Yellow Warbler, Wild Canary | *22. Goldfinch |
| 9. Migrant Shrike, Butcherbird | 23. Blackbird, Bronzed Grackle |
| *10. Cedar Waxwing | 24. Baltimore Oriole |
| 11. Bank Swallow | 25. Meadowlark |
| 12. Barn Swallow | 26. Red-winged Blackbird |
| 13. Cliff Swallow, Eaves Martin | 27. Cowbird |
| 14. Purple Martin | *28. Crow |

- | | |
|-------------------------------------|--------------------------------------|
| *29. Blue Jay | *40. Great Horned Owl |
| 30. Phoebe | *41. Screech Owl |
| 31. Kingbird | *42. Short-eared Owl |
| 32. Hummingbird | 43. Sparrow-hawk |
| 33. Chimney Swift | *44. Red-tailed Hawk, Hen-hawk |
| 34. Night-hawk, Bullbat | 45. Mourning Dove |
| 35. Flicker, Yellow Hammer | *46. Prairie Chicken |
| 36. Red-headed Woodpecker | *47. Quail, Bob-white |
| *37. Downy Woodpecker | 48. Killdeer |
| 38. Belted Kingfisher | 49. Little Green Heron |
| 39. Yellow-billed Cuckoo, Rain Crow | 50. American Bittern, Thunder-pumper |

Fourteen of these birds are marked with a star and are permanent residents, the rest are summer visitants. Many of our other birds are perhaps equally common, but the space in this small bulletin allows for but a representative group of what are probably the best known and most interesting. A short description of each will be given as to color, size (length in inches) note, time of arrival and departure, place and kind of nest and eggs, etc. The food habits are spoken of in another part of the bulletin.

DESCRIPTION OF 50 SUMMER BIRDS

- BLUEBIRD.** 7 inches, Mar.-Nov. Winters in southern states and Cuba. Bright blue above, breast and sides chestnut, white below. Song a sweet warble. Nests in hole in a tree or in bird house, nest lined with grass. Eggs 4-5, pale blue.
- ROBIN.** 10 inches, Mar.-Nov. Winters in southern states. Gray above, nearly black on head, wings and tail; corners of tail white; brownish red below. Breast spotted when young. Song a clear warble. Nest usually in tree forks, on cornices, etc., of grass and mud, lined with fine grass. Eggs 4-5, bluish green. Hatch in 12 days.
- BLACK-CAPPED CHICKADEE.** 5¼ inches. Resident. Cap, chin and throat black; back, wings and tail ashy; breast and belly white. Note: "chick-a-dee-dee-dee" or sometimes a whistled "pee-wee" in which the second note is lower. This is often mistaken for a phoebe call. Nest in holes, lined with soft materials. Eggs 6-10, white, spotted with brown.
- WHITE-BREASTED NUTHATCH.** 6 inches. Resident. Blue-gray above, top of head and nape black, in female grayish, white below and on tail. Tail short. Bill straight and pointed. Note, a low "yank-yank". Nest usually in hole in tree, lined with leaves and feathers. Eggs 4-8, white, speckled with reddish brown. Often climbs about tree-trunk, head downward.
- HOUSE WREN, JENNY WREN.** 4¾ inches. Apr.-Oct. Winters in southern states. Brown above, wings and tail barred with black, nearly white below. Tail often held upward over back. Song, an energetic little warble, repeated rapidly and often. Nest in holes, bird houses, almost anywhere, built of twigs and trash, lined with fine materials. Eggs 6-10, creamy or white, thickly speckled with reddish.

6. **BROWN THRASHER, BROWN THRUSH.** 11½ inches. Apr.-Sept. Winters in southern states. Rusty brown above, two light wing bars, white below with spots, dashes and streaks of black on breast and sides. Tail and beak long. A charming songster, singing from a high perch. Nest bulky, of sticks, weeds and roots, lined with fine roots, placed on ground or in low bush, often a thick hawthorn. Eggs 4-6, thickly speckled with brown.
7. **CATBIRD.** 9 inches. Apr.-Oct. Winters in southern states and south to Panama. Slaty gray, black cap and tail, under tail coverts chestnut. Song, sweet and varied often interspersed with cat-calls. Nest in thick vines and bushes, of small twigs, bark and roots, lined with fine black rootlets. Eggs 3-5, deep blue-green.
8. **YELLOW WARBLER, SUMMER WARBLER, WILD CANARY.** 5 inches. May-Sept. Winters in South and Central America. Greenish yellow above, canary yellow on head and under parts. Male with breast and sides streaked with reddish brown. Song a sharp, vigorous "che-wee, che-wee, che-wee". Nest bulky and deep, in an upright fork 2 to 15 feet from ground, of soft flaxen materials, lined with plant-down. Eggs 4-5, white, coarsely spotted with black.
9. **MIGRANT SHRIKE, BUTCHERBIRD, MOUSE-HAWK.** 9 inches. Mar.-Oct. Winters in southern states. Ashy, throat and belly white, black spot on side of head, wings and tail black, marked with white. Notes, harsh, discordant whistles. Nest in thorn bushes and hedges, bulky, of leaves, twigs, weeds, etc. Eggs 4-7, grayish, with brown spots. Head large, hangs its prey on thorns, barbed wires, etc.
10. **CEDAR WAXWING, CEDAR BIRD, CHERRY BIRD.** 7 inches. Resident, altho many winter farther south. Crested olive-brown above, olive-yellow below, under tail coverts white or buff, forehead, chin and eye-band black. Tips of tail feathers yellow. Wings olive, some of the feathers often showing "sealing-wax" tips of bright red. Note, a thin, penetrating lisp. Nest of grass and roots lined with fine grass, often in cedar or fruit tree. Eggs 4-5, bluish white, marked with black, brown or purple.
11. **BANK SWALLOW, SAND MARTIN.** 5¼ inches. Apr.-Sept. Winters in southern states. Dull brownish gray above, white below except for a grayish band across chest. Tail nearly square. Breeds thruout North America and is also found in Europe. Nesting burrow dug in a vertical bank, usually a nest of grass, leaves and feathers at end of burrow. Eggs 4-7, pure white.
12. **BARN SWALLOW.** 7½ inches. Apr.-Sept. Winters in Central and South America. Steel-blue above, brownish below and on forehead. Tail deeply forked and with white spots. Nest of mixed mud and straw, placed on beams, usually inside of barns. Eggs 3-5, white speckled with brown and purple. Two broods.
13. **CLIFF SWALLOW, EAVES MARTIN.** 5½ inches. Apr.-Sept. Winters in Central and South America. Forehead white, top of head black, back black streaked with white, rump reddish. Wings and tail black, throat chestnut with a black patch, under parts and collar gray or white. Tail nearly square. Song, a mellow gurgle given during flight or at rest. Flask-shaped nest of mud plastered under eaves or on cliffs. Eggs 5-7, white, dotted and spotted with brown.
14. **PURPLE MARTIN, HOUSE MARTIN.** 7¾ inches. Apr.-Aug. Winters in South America. Male dark steel-blue, female duller,

- gray on upper neck, and on under parts. Tail distinctly forked. Lives in colonies. Nests in bird houses, gables or hollow trees, using leaves, grass, paper and often mud. Eggs 3-5, pure white.
15. **DICKCISSEL, BLACK-THROATED BUNTING.** 6¾ inches. May-Sept. Winters in Central and South America. Male with white chin, black throat, yellow breast and brown shoulders. Female sparrow-like. Note: a weak persistent "chip-chip-chee-chee-chee". Nest on or near the ground, of grass, weed stalks and leaves, lined with hair. Eggs 4-5, plain bluish white.
 16. **INDIGO BUNTING, INDIGO BIRD.** 5½ inches. May-Sept. Winters in Central America. Male indigo blue, wings and tail dark; female brownish, some blue on wings and tail. Sings from top of tree or bush thruout the summer, song, a bright little warble. Nest in low bushes, of grass and leaves. Eggs 4-5, pale blue or white.
 17. **ROSE-BREADED GROSBEAK, POTATO-BUG BIRD.** 8 inches. Apr.-Sept. Winters in Central America. Male black, white and rose-color in large masses; female brown or gray heavily streaked with brown, a white line over and behind eye. White wing bars. Song a rich sweet warble of beautiful quality. Nest rather shallow and fragile, of small twigs and rootlets, in a tree or bush. Eggs 4-5, greenish blue, spotted and blotched with brown.
 18. **CARDINAL, REDBIRD.** 9 inches. Resident. Mainly bright red, a black area around base of bill and running down the throat. Bill heavy; female has little red or black. Both are crested. Call, a clear, loud whistle. Nest a basket-like structure of twigs, weeds, husks, etc., lined with rootlets. Eggs 3-4, greenish-white, spotted with brown and lilac.
 19. **SONG SPARROW.** 6½ inches. Mar.-Oct. Winters in southern states. Brown or reddish brown above, ashy or whitish below, streaked everywhere with brownish black, the streaks often running together to form a large spot in the middle of the breast. Song very musical, often canary-like. Nest in trees, bushes or on the ground. Nest bulky, of grass and weeds, thickly lined with horse-hair. Eggs 3-6, spotted with brown or black. Two or three broods.
 20. **FIELD SPARROW.** 5½ inches. Mar.-Oct. Winters in southern states. Head and back reddish brown, back with dark streaks, ashy below, no spot on breast, a narrow rusty line behind eye, rump plain gray, bill reddish yellow. Song, three clear whistles followed by quickening trills usually on descending pitch. Nest on ground, usually of grass and roots, lined with fine grass and hair. Eggs 3-5, whitish speckled with reddish brown.
 21. **CHIPPING SPARROW, CHIPPY, HAIRBIRD.** 5¼ inches. Apr.-Oct. Winters in Gulf States. Sparrow-like above, ashy below, crown reddish brown, gray streak above eye, black line thru eye. Note a continuous trill on one note. Nest in bush or tree, of fine grass and rootlets, heavily lined with hair. Eggs 3-4, blue-green spotted with brown and black usually in a wreath at large end.
 22. **GOLDFINCH, WILD CANARY, YELLOWBIRD, THISTLE-BIRD.** 5¼ inches. Resident, but not yellow in winter. Male with black cap, wings and tail, tail with white edges; female yellowish brown. Song clear and canary-like. A four-note call given in flight. A galloping flight. Nests late. Nest in tree or bush, built of grass and fibers, deeply lined with very soft down from thistle, milkweed, etc. Eggs 3-6, pale blue, seldom spotted.
 23. **BLACKBIRD, BRONZED GRACKLE.** 12 inches. Mar.-Nov. Winters in southern states. Black, purplish on head, brassy on body,

- iris yellow, tail long, boat-shaped, pointed. Notes, a harsh "tshak" and a squeaky song. Nest in trees, bulky, built of coarse weeds, etc., lined with finer grass, sometimes some mud is used. Eggs 5-6, heavily streaked and blotched with brown and purple.
24. **BALTIMORE ORIOLE, GOLDEN ROBIN, HANG-NEST.** 7½ inches. May-Sept. Winters in Mexico and Central America. Male orange-yellow with black on head, wings and tail; female duller. Song a clear varied whistle. Nest a hanging pouch woven of soft, fibrous materials and attached to slender twigs of trees, usually rather high. Eggs 4-6, spotted and streaked with black and brown. Hatch in 14 days.
25. **MEADOWLARK.** 10¼ inches. Mar.-Oct. Winters in southern states. The common meadowlark of eastern Iowa and the Western meadowlark of western Iowa overlap thruout most of the state. The latter is the better singer. They look much alike. Upper parts streaked gray and brown, throat and breast yellow separated by a black crescent. Wings and tail short, outer tail feathers white. Nest of grasses, on the ground in meadow or pasture, often approached by a covered runway of grass. Eggs 5-6, white, dotted and lined with brown and lavender. Hatch in 15 days.
26. **RED-WINGED BLACKBIRD, REDWING.** 9½ inches. Mar.-Nov. Winters from southern Iowa to Gulf. Male black with shoulders scarlet bordered with buffy white; female streaked with brownish or grayish above and below. Tail rounded. Song a clear "O-kalee". Nest of woven grass and reeds lined with finer materials; placed in bushes, low trees, rushes or on the ground, commonly near water. Eggs 4-5, greenish, spotted and scrawled with black, brown and purple.
27. **COWBIRD, COW BLACKBIRD.** Male 8 inches, female 7 inches. Apr.-Oct. Winters in southern states. Male metallic greenish black, head and neck brown (not yellow); female dull brownish gray, lighter below, often with dusky streaks on breast and belly. Note, a low "tchak" and sometimes a squeak. Builds no nest but lays its eggs in nests of other birds from which the young cowbird often ejects the young of its foster-parents. Eggs hatch in 10 days.
28. **CROW, CARRION CROW.** 18 inches. Resident. Entirely black, tail rounded. Note "caw, caw" with many variations. Builds a bulky nest of sticks, lined with grass, roots, bark, etc., in a tree crotch. Eggs 5-6, bluish or greenish white, spotted and blotched with brown.
29. **BLUE JAY.** 11½ inches. Resident. Mostly bright blue above, checked with white, throat and around eye white, collar and breast crescent black, wings and tail barred with black. Tail partly white-tipped. Note usually a harsh scream "jay-jay" or a yodel "sirootle, sirootle, sirootle". A great mimic. Nest bulky, of twigs and sticks, in trees. Eggs 3-6, buff or greenish, spotted with brown and lavender.
30. **PHOEBE, PEEWEE, BRIDGE-BIRD.** 7 inches. Mar.-Sept. Winters from southern states southward. Head smoky brown, back olive, dull white below. Wings and tail blackish, tail often jerky. Note, its name very energetically spoken. Nest of grass, moss, etc., usually mixed with mud, plastered to side of beam, culvert or rock ledge. Eggs 4-5, white.
31. **KINGBIRD, BEE-BIRD, BEE MARTIN.** 8½ inches. Apr.-Sept. Winters in Mexico, Central and South America. Slate gray above, white below, head black with a concealed orange patch. Tail

- black, with white tip, square-ended. Note usually a harsh, rattling sound. Nest bulky, of grass, roots, husks, etc., lined with rootlets and fibers placed on limb of tree. Eggs 4-6, white with brown and lilac spots.
32. **RUBY-THROATED HUMMINGBIRD.** 3½ inches. May-Sept. Winters mainly in Mexico and Central America. Metallic brassy green above, throat ruby red, breast grayish white. Female lacks the red. Nest of soft materials and covered with lichens, generally placed on a horizontal limb. Eggs 2, white.
33. **CHIMNEY SWIFT, CHIMNEY SWALLOW.** 5½ inches. Apr.-Sept. Winters south of United States. (Not really a swallow.) Dark, sooty brown, blacker on head, grayer toward tail, chin and throat grayish white, each tail feather tipped with a sharp, black spine, bill short. Note, a constant twittering. Nest of small twigs, taken while the bird is flying, glued together and to the inside of a chimney with saliva. Eggs 3-5, white. Hatch in 18 days.
34. **NIGHTHAWK, BULL-BAT.** 10 inches. May-Oct. Winters from Brazil to Argentina. Gray and black, spotted and barred with dusky white. Throat band, tail band and wing crescent white. Tail forked. Looks like a big swallow in its evening flight, showing white wing spots. Note, a nasal "peent". Makes a loud boom when catching itself at the bottom of a swooping dive. No nest is built. Eggs 2, laid on bare ground or rock or gravel roof, densely spotted and blotched.
35. **FLICKER, YELLOW-HAMMER, HIGH-HOLDER.** 12½ inches. May-Sept. Winters in southern states, a few remaining in Iowa. Back of head with scarlet crescent. Brown above, barred with black, rump white, throat buff, breast with black spots, black crescent across chest. Male with black moustaches. Has a great variety of calls. Digs a nest-hole in a tree or will use a nest box. Eggs 6-10, glossy white.
36. **RED-HEADED WOODPECKER.** 9½ inches. May-Sept. Winters in southern states. Head and neck entirely red, back, wings and tail black. Call note a loud "tehur-tehur". Digs nest hole in limb or stub, 10 feet or more from ground. Eggs 4-7, glossy white.
37. **DOWNY WOODPECKER, LITTLE SAPSUCKER.** 6½ inches. Resident. Mainly black above, striped with white down the middle of back, white stripe over and behind eye, a broader white stripe on sides of neck. Male with scarlet spot on back of head, white below. Tail black in middle, outer feathers white. Wings black with white spots. Digs nesting hole in dead limb, often near the ground. Note a sharp "peenk" or several of them repeated. Eggs 4-6, white. The hairy woodpecker is like the downy but larger.
38. **BELTED KINGFISHER.** 13 inches. Mar.-Nov. Winters from southern states southward. Blue above with small white spots, head crested, bill long, black, straight, white collar and throat, blue band across breast, white below. Female with some chestnut on sides and belly. Tail barred with white. Feet small. Note, a prolonged rattle. Burrows 3-8 feet into a bank to nest. Eggs 4-8, white, hatch in 16 days.
39. **YELLOW-BILLED CUCKOO, RAIN CROW.** 12 inches. May-Oct. Winters in Central and South America. Note usually "kuk-kuk-kuk". Nest a poorly built platform of stems and twigs, little hollowed, in bush, vine or tree. Eggs 3-5, pale blue. Bill long and slender. Tail bronzy or olive-gray above, white below. The black-billed cuckoo with shorter white tips on tail is about equally common.

40. **GREAT-HORNED OWL.** 18-25 inches. Resident. Large ear tufts. Mottled black, white and rusty above, below with a white collar, rest of under parts streaked and barred. Our only large owl with ear tufts. Call "to-hoot, too-hoot, too-who". Nests early, in hollow trees, open nests or old crow's nests, usually high above the ground. Eggs usually 2, pure white.
41. **SCREECH OWL.** 9 inches. Resident. With ear tufts. Either brownish gray or rust-red color, white beneath, streaked with black and with wavy cross bars. Note, a quavering wail. Nests in hollows of trees, sometimes in flicker's holes, unlined. Eggs 4-7, white.
42. **SHORT-EARED OWL.** 14-16½ inches. Resident. Ear tufts very short, hardly visible. Buff or olive brown above, streaked with brownish black, under parts lighter, streaked. Tail barred. Black around eyes. Silent. Hunts in the daytime. Lights on the ground rather than on trees. Nest on the ground in bushy or weedy place. Eggs 5-6, white.
43. **SPARROW HAWK, MOUSE HAWK.** 10-12 inches. Mar.-Nov. Winters in southern states and southward to Costa Rica. Male with top of head bluish, sometimes with rusty patch. Rusty above, barred with blackish. Head and neck with black markings. Throat white. White below, usually spotted and barred with black. Tail rusty with one broad black bar and narrow white tip. Female with more black and with rusty bars. Note, a high, sharp, "killy-killy-killy". Nests in trees, old crows' nests or flicker holes. Eggs 4-7, buffy, marked with brownish.
44. **RED-TAILED HAWK, BIG HEN HAWK, CHICKEN HAWK.** 19-25 inches. Resident. Dark brown above, somewhat mottled with gray, white below, belly streaked with black. Tail in adults rust-red, in immature birds, not red but gray with about 8 narrow black bands. Note a shrill "kee-ah" given while soaring. Nest in high tree top, built of sticks and lined with twigs. Eggs 2-4, dirty white, sometimes spotted or blotched.
45. **MOURNING DOVE, TURTLE DOVE.** 12 inches. Mar.-Oct. Winters in southern states. Pinkish-buff on head, neck and breast, black spot on side of neck, blue-gray to brownish above. Tail pointed, white-edged. Nest flimsy and flat, of twigs and straws usually on a horizontal limb, sometimes on the ground. Eggs 2, white.
46. **PRAIRIE CHICKEN, PRAIRIE HEN, PINNATED GROUSE.** 18-19 inches. Resident. Barred and checkered above and below with black, brown and gray, throat and cheeks nearly white. Sides of neck with long tufts of feathers, legs feathered to toes. Tail of 16 feathers. In the spring the male inflates his neck pouches and calls with a booming, bell-like sound that carries long distances. Nests in the grass. Eggs 10-15, yellowish or creamy or clay color, faintly speckled with brown.
47. **BOB WHITE, QUAIL.** 10½ inches. Resident. White throat and stripe above the eye, the latter edged with black, remainder of head black and brown. Generally brown above with black spots, white below with black and brown bars and spots. Note, a clear, whistled "bob-white". Nest on ground, concealed in the grass, deeply hollowed, lined with fine grass. Eggs 10-24, white.
48. **KILLDEER, KILLDEE.** 10-11 inches. Mar.-Oct. Winters in West Indies, Central and South America. Forehead, chin and collar white, below this a black collar, broadest on throat, below this again a white crescent then another black cross band. Remainder of under parts white, upper parts brown, salmon on rump. Cry,

- a shrill, "kill-dee, kill-dee". Nest a mere hollow, often in plowed ground. Eggs 3-4, buffy white, thickly spotted with black, large for size of bird.
49. **LITTLE GREEN HERON, GREEN HERON, POKE, FLY-UP-THE-CREEK.** 16-22 inches. Apr.-Sept. Head and upper parts dark green or bluish, sides of head and neck chestnut, throat and neck striped, under parts mostly gray. Head with crest which can be raised. Bill long and straight, legs and feet greenish. Call, a squawk. Nest 8-30 feet from ground, shallow, of twigs and sticks. Eggs 3-6, blue, unspotted.
50. **AMERICAN BITTERN, STAKE-DRIVER, THUNDER-PUMP, SHITE-POKE, BULL-OF-THE-BOG.** 24-34 inches. Bill 3 inches. Apr.-Nov. Buff, brown and black above, dark brown cap, throat white, under parts buff with brown stripes. Legs long, greenish. Eyes yellow. Found in marshes. Note, a peculiar bellow from which some of its names are derived. Nest usually on the ground in a marsh, built of sticks and weeds. Eggs 3-5, pale olive, drab or brown.

Where the Birds Live

Birds are creatures of the air, but many of them, as the ducks, spend most of their time on or near the water. The kingfisher perches above the water or flies up and down stream with his throaty rattle. The heron and snipe wade in the water for food and pleasure. Certain birds frequent the marshes, while others are to be met with in open fields and on the prairies. Some are on the wing a large part of the time, as the swallows and swifts, others seldom fly, except on their spring and fall migrations.

It will be helpful and interesting to study birds from the standpoint of their habitat and how they are fitted for it and for the food it affords. It is true that birds go from one place to another readily, yet it is characteristic of some birds to choose one kind of surroundings while other kinds of birds prefer different regions in which to make their homes and to find food and shelter.

Birds of the Plowed Fields

In the cultivated fields we look for the birds which get their food there, or which nest there, or which go there for concealment. The plow turns up earthworms, grubs and many other insects and these lure the robins, bluebirds, blackbirds and cowbirds, which patrol the newly turned furrows for food for themselves and their hungry nestlings. In the cornfields the crows get much of their winter feed from the waste



Fig. 12. Prairie Horned Lark (From A Review of the Ornithology of Minnesota).

grain on the ground, while in the growing season it is not unusual to find the killdeers or field sparrows brooding their eggs close to a hill of corn. The mourning dove frequents fields where it can find weed seeds or scattered grain. The red-winged and yellow-headed blackbirds often search the grain fields for a living. Where blackbirds flock in large numbers to fields in the neighborhood of their nesting places in the marshes, they may, at times, prove very destructive.

Concealment afforded by thick growths of corn or small grain often proves a refuge for quail, prairie chickens, pheasants and many other birds. The meadow has some of these same birds, but some others are to be especially sought here. The meadow-larks not only find their food of insects and seeds among clover and grass, but conceal their nests there as well. This is also true of the dickcissel, bobolink and some of the sparrows such as the field and vesper sparrows.

To meadows and pastures crows come for grasshoppers, crickets, white grubs and cutworms. On the fences may be found the kingbird which watches from a perch for flying insects, catching them in the air and then returning to his lookout. Tireless coursers of the sky, the swallows and swifts by day and the nighthawks and whippoorwills in the evening, sweep the air for the flies, gnats, midges, dragonflies, flying ants and bugs that are often so abundant, destructive and annoying.

From the air, too, swift death descends on ground-squirrel, gopher, mouse and rat in the claws and savage beaks of the sparrowhawk, henhawk and short-eared owl by day and other owls by night. In the vicinity of the osage hedge, its favorite home, the shrike finds the mice and grasshoppers of the meadow very much to its liking. Sometimes the shrike hangs the creatures it has slaughtered on barbs of wire fence or on thorns.

In orchard or woodlot are found many birds which rely upon trees for nesting places, and often for their food as well. This is true of all the woodpeckers, with the exception of the flicker which feeds largely upon the ground wherever ants are abundant. The bluebird, chickadee, nuthatch, wren, screech owl and the woodpeckers nest in holes in trees; hawks, crows and orioles build nests in the higher trees; and catbirds, kingbirds, cedar waxwings, grosbeaks, shrikes, cuckoos and mourning doves generally choose lower trees, often those of the orchard. In the shrubs and bushes are found the nests of the goldfinch, song sparrow, brown thrasher, chipping sparrow and indigo bunting.

Certain birds prefer to nest in the vicinity of water, this being the case with ducks, geese and swans, especially. Of the birds in the list on page 15, the bittern and blue heron are mainly water birds, the bittern nesting on the ground and the

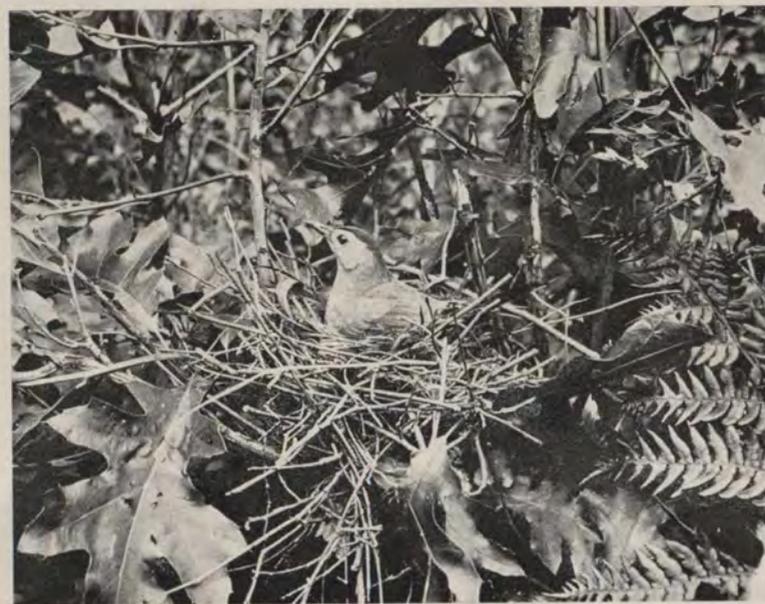


Fig. 13. Cat bird on nest (From A Review of the Ornithology of Minnesota).

heron in a tree near the water, but both get their food largely from the stream. In a lone tree over a stream, the kingfisher has his lookout perch and the stream below contains his food, while in the vertical banks along the side of the stream he digs his burrow. Swallows find the air over the water well stocked with mosquitoes and other insects and, like the kingfisher, the bank swallow excavates a hole in the bank. Some birds, as the redstart and kingbird, seem to fancy trees that overhang a stream, when choosing a nesting tree.

In the marsh among the reeds and cattails marsh wrens and red-winged and yellow-headed blackbirds often weave their nests; while the grebe, a little duck-like bird, builds a floating nest in the marsh.

Perhaps the birds which interest us most are those which appear to be attracted by the presence of man and by the protection, food, water, places of shelter and nesting conveniences which man, consciously or unconsciously, provides for them.

Birds Around the Home

Farm buildings provide nesting places for many birds. In sheds, as well as under bridges, will be found the nests of the phoebe. Rafters and beams inside of barns bear barn swallow nests and under overhanging eaves is a suitable location for the

eaves martin's jug nest of mud. The eaves martins used to nest along rocky cliffs before man's buildings tempted them. The swifts, too, have forsaken their haunts in hollow trees and now occupy the insides of chimneys. Nighthawks often nest on bare, graveled roofs of city buildings, these affording better protection, perhaps, than their former homes on the bare ground. Elm and other trees around the home are often selected by orioles for their hanging, purse-like nests.

Many Iowa shelter-belts contain the nests of colonies of black-birds, as well as the homes of numerous mourning doves and blue jays. Robins show a strong tendency to build on limbs directly over sidewalks and drives. Berry bushes, vines and shrubbery provide nesting places for catbirds, thrashers, chipping sparrows, yellow warblers and goldfinches, and the wild and cultivated fruits and insects of the garden provide many of them with food. Where hollow trees are at hand, there are likely to be chickadees, nuthatches, woodpeckers of various kinds, bluebirds, wrens and even screech owls. Many of these hole-dwellers have learned to accept man's hospitality in the form of nesting boxes; particularly true of purple martins, which appreciate the colony house type of dwelling furnished them by many people.

It is interesting to compare various kinds of birds as to color, size, shape and finish of eggs; and size, shape (shallow or deep), materials, construction and location of nest (whether placed on



Fig. 14. Nest of Meadow Lark (From A Review of the Ornithology of Minnesota).

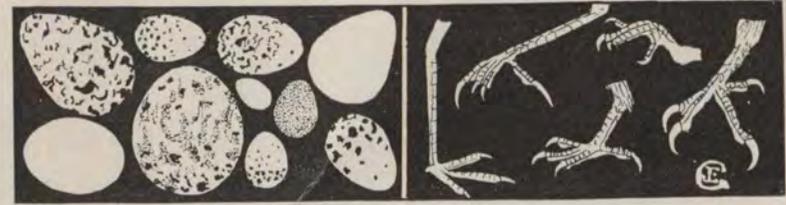


PLATE III

(Top Row) Fig. 15. Killdeer. Fig. 16. Barn Swallow. Fig. 17. Oriole. Fig. 18. Bob-white. (Center Row) Fig. 19. Hummingbird. Fig. 20. Wren. (Bottom Row) Fig. 21. Mourning Dove. Fig. 22. Sparrow Hawk. Fig. 23. Chirping Sparrow. Fig. 24. Kingbird. (Top Row) Fig. 25. Horned Lark. Fig. 26. Kingfisher. (Bottom Row) Fig. 27. Killdeer. Fig. 28. Red-tailed Hawk. Fig. 29. Downy Woodpecker.

a horizontal limb or shelf or in an upright crotch, hung from a branch or plastered against cliff or wall, placed on the ground or dug in the bank). Eggs do not always correspond to the size of the birds. Birds, whose young are hatched active, ready to run at once—such as the killdeer—lay much larger eggs for their size than do those birds whose young are helpless for a long time after hatching. Compare the eggs of the killdeer and mourning dove (figs. 15 and 21).

In shape there are also characteristic differences. Doves usually lay elliptical eggs (fig. 21) with little difference between the sizes of the two ends. Most Iowa birds' eggs have one end noticeably larger than the other as in the case of the oriole (fig. 17), the kingbird (fig. 24), etc. Sometimes the characteristic shape of the egg is rather slender as is the case with the barn swallow (fig. 16), and occasionally so plump and rounded that we call it spherical as is the egg of the sparrowhawk (fig. 22). Some eggs have sides nearly straight from large to small end; these are known as conical or pyriform eggs and may be long, like that of the killdeer (fig. 15) or short, like that of the bob-white (fig. 18).

Eggs of birds differ greatly as to color and marking. Birds which nest in holes—woodpeckers, chimney swifts, kingfishers and bank swallows—usually lay white eggs, but white eggs are also laid by the doves (fig. 21), the bob-white (fig. 18), the hummingbird

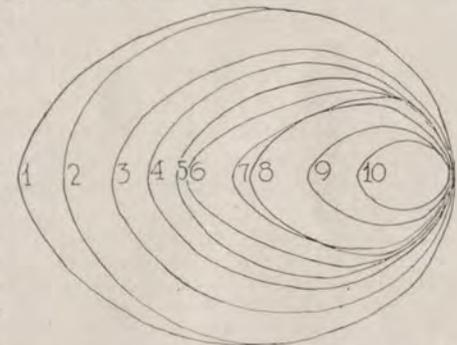


Fig. 30. Outlines of eggs (natural size). 1. Red-tailed Hawk. 2. Great-Horned Owl. 3. American Bittern. 4. Prairie Chicken. 5. Green Heron. 6. Killdeer. 7. Bob-white. 8. Mourning Dove. 9. Barn Swallow. 10. Ruby-throated Hummingbird.

(fig. 19), the phoebe and some others. Some eggs are plain, either white like those mentioned above; or blue like those of robin, catbird or heron; or brown like those of the bittern. The prairie chickens' eggs are almost plain, showing very faint speckles.

Eggs of the wren (fig. 20) and brown thrasher are covered with very fine spots and are spoken of as "speckled." Eggs of the kingbird (fig. 24) have larger markings and are called "spotted." The chipping sparrow's egg with a pale green ground color is both spotted and speckled, most of the markings being in a ring or "wreath" around the egg near its larger end. Eggs of orioles (fig. 17) and blackbirds are spotted and "scrawled," while those of the sparrowhawk (fig. 22) and crow are spotted and "blotched." Relative and actual sizes and shapes of 10 eggs are shown in (fig. 30).

It is not recommended that collections be made of birds' eggs, for one young bird is worth far more than an empty shell in a collection. Sometimes one has opportunity to examine bird eggs, however, and it usually does no harm, if they are not touched or the birds scared. It is unlawful to collect eggs of birds except for scientific purposes, and even then one must have a collector's permit.

The legs and feet of a bird are wonderfully adapted to the life led by its particular species. Fig. 27 shows the legs and feet of a shore bird, the killdeer; its long shank and very short hind toe make it well fitted for running or wading. Another running and perching bird, the horned lark (fig. 25), has an unusually long claw on the hind toe. The kingfisher (fig. 26) has a foot fitted for perching, its two middle toes are grown together. The foot of a hawk (fig. 28) has strong, curved claws fitted for holding prey while the sharp, hooked beak tears it.

A characteristic climbing foot, that of the downy woodpecker, is shown in (fig. 29). Like the chimney swift, the four claws of the downy woodpecker are spread out so as to afford the best possible hold. Some birds hop, using both feet at once, like the sparrows, while others such as crows and blackbirds usually walk, using one foot at a time.

Five general measures for encouraging birds around the home are:

1. Winter feeding and shelter.
2. Water for bathing and drinking.
3. Nesting boxes and shelters and sometimes nest materials.
4. Protection from English sparrows, cats, squirrels and the small boy who has not yet learned to appreciate live birds.
5. Planting wild fruit trees and vines for food and shelter.

WINTER FEEDING AND SHELTER

If birds are encouraged to come about the home by feeding in the severe weather of winter, they are more likely to locate

close at hand in the summer. Moreover, it is a constant source of interest to see birds at the feeding trough and to get acquainted, not only with their different likes and dislikes, but to know intimately individuals with personal peculiarities. If the feeding box or shelter is located near a window, this is often possible.

The best feed to attract nuthatches, chickadees, titmice, downy and hairy woodpeckers and blue jays is chopped meat and suet from the meat market. Juncos, cardinals and tree sparrows are fond of fruit, nuts, crumbs and seeds. The meat of a coconut will be appreciated by some of our feathered friends. Feeding trays or troughs may be attached near a window on the sheltered side of the house to allow observation while the birds are feeding. Sometimes the tray is hung on a small carrier cable so that one can pull it up to the window for refilling and then pull it out beside a tree or bush where the birds may eat with less disturbance.



Fig. 31. Downy Woodpecker family (From A Review of the Ornithology of Minnesota).

WATER FOR BATHING AND DRINKING

Water is often difficult for birds to find in winter and they sometimes suffer severely. Birds will appreciate a little thoughtfulness on the part of the person who will give them a drink. Summer heat must be very trying to them for they cannot perspire, and thus help to cool themselves, as we can. In providing a water supply, care should be taken not to have it near any place of possible concealment for cats. The water trough should be one that may be easily cleaned and it should be cleaned often. The trough should slope at the edges so that the birds may have shallow water in which to bathe; they cannot do this if the water is deep.

ASSISTANCE TO NEST BUILDERS

About 25 species of Iowa birds have been known to nest in homes provided for them by man. It is a satisfaction, almost a triumph, to find these little wild things (English sparrows not included) accepting a house built as a suitable home into which they move their furniture. It is worth while, too, for it encourages birds to remain around the home—they might go elsewhere if housekeeping opportunities are not provided them.

Limited space makes it impossible to give directions in this

bulletin for the building of bird houses. Anyone interested in building bird houses can get the new Farmers' Bulletin No. 1456, entitled "Homes for Birds," at a cost of 5 cents, from the United States Department of Agriculture, Washington, D. C. Pictures of many kinds of bird homes with directions for building them and information concerning kinds suitable for different birds are contained in it.

Some birds nest in colonies, while others must have single houses. Martins will occupy a many-roomed house, while wrens, bluebirds, chickadees, nuthatches and woodpeckers will not. Robins, thrashers and some others will occasionally occupy a bird house if it is only a sort of shed or shelter with two or three sides open, but they will not go into a hole in a box.

Unless one knows and respects the preferences of different kinds of birds, much success need not be expected. For a purple martin, the entrance should be $2\frac{1}{2}$ inches across; for a bluebird, $1\frac{1}{2}$ inches; for a chickadee, $1\frac{1}{8}$ inches and; for a wren, $\frac{7}{8}$ of an inch, or the size of a quarter. Some birds prefer their nests low, others will accept only boxes placed at a considerable height. This information should be looked for in the bulletin mentioned above. Send for it.

PROTECTION

The domestic cat destroys large numbers of song-birds, particularly when they are in the nest or just after they have left the nest and are comparatively helpless. Many nests are broken up by the cat, unless some kind of guard is fastened around the tree or pole upon which a nesting box is placed. A smooth tin band 6 inches wide fastened to the trunk of the tree or pole will accomplish this if properly placed. Cats are excellent when placed beneath the soil of the garden, but live cats are the worst menace to bird life thruout the country. Some gray and red squirrels kill birds and eat their eggs and young. For the cat and squirrel, then, the tree-guard or the shotgun; for the boy, just a chance to really know the birds and get interested in them. These are the best remedies.

PLANTING FOOD AND SHELTER

Some birds become pests during the season when small fruits are ripening. Nor is this to be wondered at. Man has destroyed the natural thickets of wild grapes, wild cherries and the many kinds of wild berries native to Iowa woods. To birds with a taste for fruit, the cultivated varieties are naturally very acceptable. Surely their services in the destruction of insects entitle the robins, cedar waxwings, and woodpeckers to some cherries, the catbird to some berries, and the rose-breasted gros-

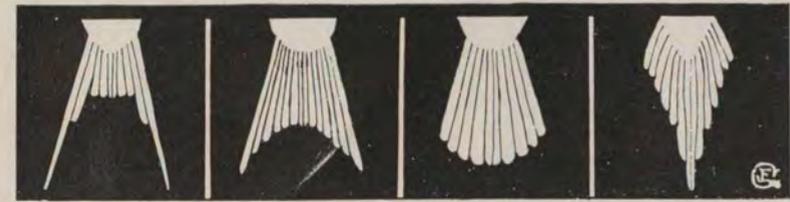


Fig. 32
Barn Swallow

Fig. 33
Purple Martin

Fig. 34
Redwing Blackbird

Fig. 35
Mourning Dove

beak to a few of the garden peas, but it is very annoying to have them take all.

Sometimes it is possible to scare them away by the use of scarecrows, pieces of bright tin or flapping rags, or by hanging little bells in the trees. Sometimes it is necessary to cover trees of ripe fruit with netting. Where mulberries, choke-cherries, elderberries, red haws, mountain ash berries, wild grapes and Virginia creeper berries are at hand the cultivated fruits will not be so subject to attack. These are natives of Iowa and can be readily grown for the purpose. Vines planted along fences are ornamental and also provide food and shelter for many birds.

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