

S

STATE LIBRARY OF PENNSYLVANIA  
main, stks 590H787  
Bird and animal paintings,



0 0001 00352867 4

PENNA STATE  
LIBRARY

590  
H787  
V.1














Digitized by the Internet Archive  
in 2019 with funding from

This project is made possible by a grant from the Institute of Museum and Library Services as administered by the Pennsylvania Department of Education through the Office of Commonwealth Libraries

# BIRD AND ANIMAL PAINTINGS

BY

R. BRUCE HORSFALL.

TEXT

CARRA E. HORSFALL

VOLUME I

COPYRIGHT 1928 BY AMERICAN NATURE ASSOCIATION, WASHINGTON, D. C.

REPRINTED 1930

PICTURES AND TEXT FROM NATURE MAGAZINE. COPYRIGHT 1926, 1927, 1928 BY  
AMERICAN NATURE ASSOCIATION

WASHINGTON, D. C.

PUBLISHED BY

NATURE MAGAZINE

WASHINGTON, D. C.



THE AMERICAN, OR BALD, EAGLE



# THESE PICTURES ARE PREPARED

for LIBRARY

TEACHERS

NATURE COUNSELORS

PARENTS

STUDENTS

CHILDREN



MANY readers, educators and students have urged the separate reproduction of the wonderful full color paintings of birds and animals appearing in Nature Magazine. In this volume, therefore, are collected a number of the subjects already published.

Later a second volume comprising other subjects will be issued.

The following specific suggestions for the use of these pictures are made:

TEACHERS will find them adapted to a variety of school uses. They may be cut and pasted on cardboard, for charts, for identification games, for Nature notebooks in the schools. They may be adapted to the study of geography and science by consideration of their regional and seasonal significance. These pictures will, themselves, suggest many other uses to the active-minded teacher.

NATURE COUNSELORS in camps, and with Boy Scout, Girl Scout and other groups will find the pictures useful in many of the same ways as will the teacher. They will find a special value in them for the making of field notebooks, enabling them to make a most effective record of their Nature experiences.

STUDENTS of natural history and science will find the pictures constantly valuable for reference and record, employing them as do the teachers and nature counselors or in other ways that individual ingenuity may suggest.

PARENTS and CHILDREN will have a mutual interest in the pictures. They can be made into invaluable scrapbooks, can serve as a fine educational force in the home and provide infinite means for handicraft, such as making decorative boxes, nursery borders and many clever things the child or his mother may invent.

250050



Facing the pictures will be found the correct scientific name of the subjects and a résumé of the salient points in the life history of either bird, mammal or insect.



## BLUEBIRD

*Sialia sialis*

Who does not love the bluebird, harbinger of spring to those of the north, companion and friend of those who live within its winter range. Bird boxes and hollow trees in orchard, grove or garden near human neighbors will be used year after year. There can never be too many homes provided and kept free from English sparrows because we need the cheerful song and helpful ways of this beautiful bird. The nesting place is lined with weed stalks and fine grasses. There are four to six pale bluish white eggs. Both birds share in feeding the young and the male cares for the first brood while the female is busy with the second set of eggs. In feeding, it is the habit of the bluebird to fly from a perch to the ground and return with grasshopper, beetle or cutworm to eat at leisure. It is not surprising, therefore, that he turns flycatcher on occasion and adds winged insects to his bill-of-fare.

## HOUSE WREN

*Troglodytes aëdon*

Year after year Jenny Wren returns to the house of her choice, be it a bird box in the apple tree, a cranny in the wall, or the pocket of the perennial scarecrow. Spring housecleaning over, she and her mate proceed to fill all available space with twigs. Somewhere within they place a lining of soft grasses, webs and feathers. Here six to ten profusely freckled eggs are laid. While Jenny is incubating, her mate perches near by, untiringly bubbling his sweet song. After the young are hatched there is little rest for either of them. Caterpillars, beetles, bugs and spiders must be supplied in astonishing numbers all the time, until the youthful wrens are ready to help in the hunt. When the wren families seek their winter homes in the south there are more wrens than houses and they become known as wood wrens because they must find shelter in holes and crannies in the trees of the forests.

## RUBY-THROATED HUMMINGBIRD

*Archilochus colubris*

The Americas are the native home of humming-birds, but of the nearly six hundred varieties, only one is found in the eastern United States. This is ruby-throat, who dashes from flower to flower seeking nectar and tiny insects. In the spring dozens of them feed about the sweet-smelling blossoms of our shade trees. The males arrive early for this festival but the demure females delay their coming a couple of weeks. The wee, dainty lichen-covered nest so closely resembles its surroundings that it is not easily discovered. The two pure white eggs are the size of tiny beans. The male leaves the care of the family to his competent mate. If harm threatens, she will fearlessly dash at the intruder and win by the very impetus of her attack. It is commonly thought that these birds are constantly on the wing, but they perch and preen as other birds do. They winter in Central and South America.

## TREE SWALLOW

*Iridoprocne bicolor*

Tree swallow, first of his tribe to return in the spring, is one of the birds which is still in the process of accommodating himself to the ways of man, and uses either boxes or holes in trees and stumps. In the grass and feather-lined interior are placed four to seven pure white eggs. Both birds share in the care of the babies. Unlike barn and cliff swallows, these birds do not nest in colonies. Since they are valuable destroyers of undesirable insects, it has been suggested that they be encouraged by placing properly built boxes near the shores of lakes and small streams. By the first of July they must all be ready for the flocking. In this they join other species of swallows feeding over the land as they move southward by day and gathering to roost in immense numbers at night. The tree swallow may delay his final departure until late October. He spends the winter in Mexico and South America.

## SCARLET TANAGER

*Piranga erythromelas*

A sudden flash of brilliant red as one turns the corner in a woody road proclaims the presence of a scarlet tanager. A nearby beech or oak probably shelters a loosely woven nest through which the eggs might be seen, if one were fortunate enough to discover it. But the bird of scarlet coat will not be near to point it out, for he stays discreetly away unless his mate is disturbed. Then he raises the alarm and comes to her assistance. In early spring these birds join blackbirds in plowed fields where they devour earthworms and beetles, but the summer fare is gathered from the treetops. Here they lessen the number of gypsy moths, bark beetles and other enemies of forest life. So, because of their usefulness as well as their beauty, we should give them unstinted protection. In late summer they fly away to spend the winter in western South America.

## MARYLAND YELLOW-THROAT

*Geothlypis trichas*

No greater thrill can be in store as you stroll along a quiet brush-bordered roadway than to glimpse that masquerader, the Maryland yellow-throat, or his cousin, the Pacific yellow-throat, as he darts in and out among the leafy branches, uttering his sharp call note. The song, in spite of its individual variation, has always similar accents and quality so that it cannot be mistaken wherever heard, east or west. His bulky nest, composed of rootlets, coarse grass and leaves with a lining of finer grass, is placed near the ground in the heart of a grass tussock or briar bush, usually in moist surroundings. The three to five brown-speckled, white eggs may, sometimes, be accompanied by an extra egg, a trifle larger than the others, placed there by the cowbird, who thus shirks her family responsibilities. The yellow-throat accepts the rôle of foster mother.





BLUEBIRD—*Sialia sialis*



TREE SWALLOW—*Iridoprocne bicolor*



HOUSE WREN—*Troglodytes aëdon*



SCARLET TANAGER—*Piranga erythromelas*



RUBY-THROATED HUMMINGBIRD—*Archilochus colubris*



MARYLAND YELLOW-THROAT—*Geothlypis trichas*



## BALTIMORE ORIOLE

*Icterus galbula*

On the outermost end of a high elm branch, swaying gently in the breeze, one of the most marvelous of bird structures challenges any enemy to do its inmates harm. Eight inches long and gourd-shaped, it is woven of plant fibers, strips of bark and other similar materials upon a suspended warp. The female does the weaving while her gay, handsome mate sings to her. She is a modern person who uses twine to strengthen her building. She lays four to six brown-penciled white eggs. It is said that her children are great cry-babies, but this cannot be for lack of a comfortable cradle. The Baltimore oriole is one of our birds that eats the cotton boll weevil, as well as the larvae of the click beetle, plant and wood lice, spiders, wasps and grasshoppers. It nests in eastern North America and spends the winter in Mexico, Central America and northern South America.

## WARBLING VIREO

*Vireosylva gilva*

The warbling vireo is a common summer resident who builds his pensile nest in the elms which border our streets, in shade trees of our parks or the fruit trees in our orchards. This nest is most particularly constructed and carefully fastened to the crotch in a branch. It is quite small and compact with little exterior decoration. There are usually four lightly speckled white eggs. Since this vireo is one of the least conspicuous of the birds who live in the treetops, he is best known by his song, a rolling warble uttered persistently, with little variation, all through the breeding season. He is tireless in his destruction of the larvae and adults of the smaller injurious insects and is especially useful in the war on the elmleaf beetles. This tiny bird wings his way far beyond the southern borders of the United States to spend the winter, but exactly where he stays is a mystery.

## CHIPPING SPARROW

*Spizella passerina*

Though the smallest, most unassuming member of his family, chipping sparrow is one of the best known. He is a well loved garden visitor whose hair-lined nest in vine or shrub shelters four or five beautiful, greenish blue, brown-speckled eggs. There are usually two broods a season, so that much benefit accrues to the gardener; for many green caterpillars and beetles are needed to feed the nestlings. Both male and female share in caring for the babies. The young birds soon learn to alight upon a weed spike, bear it to the ground and eat it clean of seeds, being especially fond of them just before they are entirely ripe. In the garden they will jump up to a cabbage leaf and rid its edge of plant lice. During the winter in the southern part of the United States, weed seeds are the diet of the whole family. The song of this sparrow is a delightfully gentle trill which endears him to all.

## ORCHARD ORIOLE

*Icterus spurius*

The orchard oriole, sometimes called basket bird, is found in eastern North America, over the central plains, south to the Gulf and throughout Mexico. In late May it fastens its feather-lined, semi-pensile nest of fresh green grass near the end of an orchard tree limb, in the tangled growth of brier and bush near some stream, or in an open upland woods. The nest is almost invisible until the grass dries and it becomes conspicuous just at the most inopportune time when there are helpless young. However, this does not lessen their numbers enough to interfere with their usefulness to the agriculturist. They are of inestimable value as destroyers of injurious insects and their larvae, especially those affecting fruit trees during nesting time. The song of this oriole is a rare delight with its full, rich tones and finished rendition. It is worth going a long distance to hear.

## BOBOLINK

*Dolichonyx oryzivorus*

Poised over the spring meadows, the bobolink pours forth his rollicking notes. Hidden somewhere in the field below is the grass-lined nest containing four to seven pale gray eggs which are blotched with brown-purple. This home is presided over by his demure mate. One not wise in the ways of the bobolink would never suspect her of being related to him at all; but, after the family is raised and they have paid their rent by destroying many injurious insects and weed seeds, he changes his gay coat for one which matches hers and joins the flocks on their way south. Here he is called rice bird and becomes plump and fat so that when he reaches his winter resort in Jamaica he is given a third name, butter bird. While there his song is mute but in April flocks of males reach Florida on their way north. They have again donned their gold and black frock and are filling the air with song.

## VESPER SPARROW

*Pooecetes gramineus*

One of the most efficient sweepers of the fields is the vesper sparrow, recognized by the white outer tail feathers which he displays as he shyly flies away over the open field ahead. Being almost entirely a ground bird he is found along roadways and in upland meadows. His nest is placed beside some clump of weeds and the four or five much speckled bluish-white eggs are incubated for ten days. There are usually two broods each season. Many dwellers of the grass, insect larvae, leaf hoppers, army worms, young grasshoppers, are devoured during the summer. In the autumn these birds move southward to the Gulf states as far west as Texas where they spend the winter. It is then that they destroy innumerable weed seeds. For all this service we are grateful, but that which most endears them to us is their evensong, that tender minor strain with which they render thanks at the vesper hour.





BALTIMORE ORIOLE—*Icterus galbula*



ORCHARD ORIOLE—*Icterus spurius*



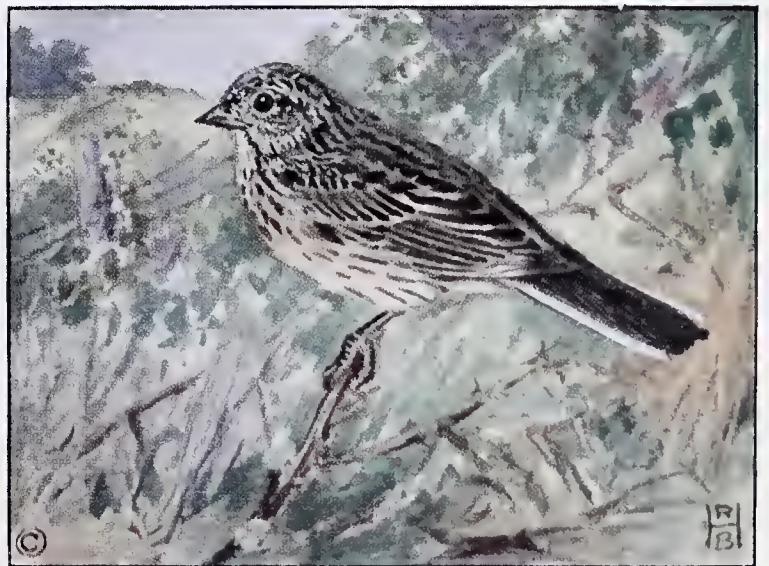
WARBLING VIREO—*Vireosylva gilva*



BOBOLINK—*Dolichonyx oryzivorus*



CHIPPING SPARROW—*Spizella passerina*



VESPER SPARROW—*Poocetes gramineus*



## MOURNING DOVE

*Zenaidura macroura carolinensis*

A minor tone does not always mean sadness. The soft, clear, penetrating notes of the mourning dove are surely his love song. In the crotch of an orchard tree or set upon the intertwining thorny stems over a rose arbor one may find the platform of twigs which serves as a nest. Here the two white eggs rest precariously. Ordinarily two or three broods are raised and while the young are in the nest the parent birds feed them by regurgitation, mixing the seeds with a fluid in their crops. Since the food of these birds is composed almost entirely of tiny seeds, they are useful to society and should be protected. They breed throughout the greater part of North America, and, in the late summer, gather in flocks to feed in grain fields. They spend the winter months in the southern states, Mexico and Central America. They are often seen enjoying dust baths in a secluded roadway.

## ROSE-BREASTED GROSBEAK

*Hedymeles ludoviciana*

When strawberries are ripe on the hillside, a joyous song, seemingly a glorified combination of robin and tanager tones, announces that rose-breasted grosbeak is here. The frail flat nest of fine twigs, roots and grasses is placed on a slender branch or crotch and contains three to five brown-blotched pale-blue eggs. Both birds share family duties and one may be surprised to see two birds so differently marked and colored brooding on the same nest. They are a useful pair for they feed their young on larvae of potato-beetles and cucumber-beetles, also cutworms, tent caterpillars and chinch bugs. For vegetable variety they take the green fruits of viburnum, elm, wild cherry and dogwood. They enjoy woodlands with plenty of undergrowth, not too far from stream or swamp land. They breed in eastern North America and spend the winter in southern Mexico and South America.

## NIGHTHAWK

*Chordeiles minor*

Far overhead three or four birds are flying erratically about, when suddenly one of them falls directly toward the ground as though a wing had crumpled. For a breath-taking moment it seems that the bird is doomed, then a hollow booming sound is heard, the line of fall curves to a horizontal and a nighthawk ascends again to join his fellows in their hunt for food. They destroy an enormous numbers of injurious insects, not the least of which are ants on the wing at breeding time, thus lessening the progeny. No nest is built by these birds. The pebbled roof of some tall building, a gravel patch on a hillside, are of equal merit in their eyes. Two is the number of the family hatched from densely blotched eggs. When resting, these birds squat lengthwise of a tree branch or the rail of a fence. They are among the last birds to come north in the spring and among the first to leave in the autumn.

## WOOD THRUSH

*Hylocichla mustelina*

Wood thrush, a native of woodlands, has learned to be at home in shady city parks, or on shrub-bordered lawns. His song has served as theme for many a gem of literature, and he still delivers it with undiminished charm and sweetness. In the early dawn he welcomes a new day and invites you to join him in the grove. There, usually above one's reach in the crotch of a sapling, may be found a nest woven of rootlets, weed stems and twigs cemented to the softer lining with a layer of mud. The three to five eggs will be light greenish-blue. The brown back of the wood thrush blends with the leaves among which he finds cutworms, beetles, caterpillars and ants. When the fruits of spice bush, viburnum, or wild cherry are ripe, he adds them to his fare. He summers in eastern North America west to the prairie region and winters in Mexico and Central America.

## MOCKINGBIRD

*Mimus polyglottos*

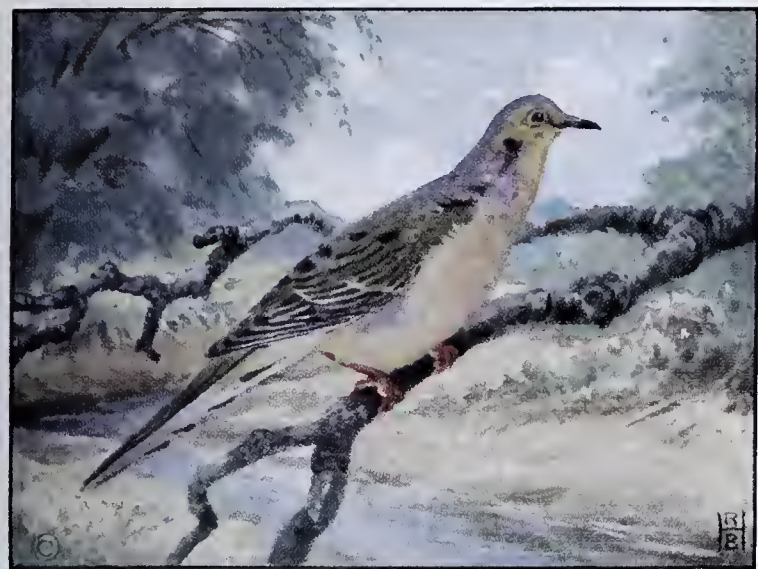
Western mockingbirds inhabit the southwestern part of the United States, their range meeting that of the mockers of the East and South somewhere west of the Mississippi. Throughout the year they sing as they eat the rice weevil, chinch bug, cottonworm and wild fruits. One has been induced to stay in an unaccustomed locality in northern California by keeping grapes on a drying table all winter. The male polices his territory, sounds alarm to all birds in the neighborhood, and is unfearing in defense of his nest, which is built of twigs, seed stalks and grasses, lined with moss and fine rootlets. There are four to six greenish-blue eggs with freckles at the larger end. Both birds share in caring for the family. However, there is no diminution in the song of the male, for not only during the days but during the nights, especially moonlight ones, his wonderful melody pours forth.

## WHIPPOORWILL

*Setochoalcis vocifera*

"Whip-poor-will, whip-poor-will, whip-poor-will"—the synchronic cadence rises and falls in the early dusk. Dusk turns to dark, soon to be pierced by moonlight. Still the wail of sound rises high in the calm still air. On the morrow one may hunt in vain for the musician, for, unless accidentally flushed from the leafy floor of the woods, he blends entirely with his surroundings. If, by chance, the female is forced to leave her two eggs, she flutters a short distance and feigns lameness to distract attention from the nest. This accomplished, she takes to flight and quietly vanishes from sight. Being entirely nocturnal in habits, whippoorwills are exceedingly useful in the destruction of moths and night-flying beetles. They are found throughout eastern North America during the summer months, but spend the winter from the southern part of the United States to Central America.





MOURNING DOVE—*Zenaidura macroura carolinensis*



WOOD THRUSH—*Hylocichla mustelina*



ROSE-BREADED GROSBREAK—*Hedymeles ludoviciana*



MOCKINGBIRD—*Mimus polyglottos*



NIGHTHAWK—*Chordeiles minor*



WHIPPOORWILL—*Setochalcis vocifera*



## BROWN THRASHER

*Toxostoma rufa*

Groves, hedgerows, upland meadows or even swamps may be the haunts chosen by the brown thrasher who places his nest near the ground, or even upon it in a dry upland thicket. He is a valiant defender of his right to seclusion and wise birds keep at a safe distance when he is angry. But his rich, full-toned evening and morning song he shares with all, from the highest branch to be found in his vicinity. There are no black marks against him in the matter of his food habits, for all day long he forages for bugs, beetles, caterpillars and the like in the undergrowth and on the ground beneath. Probably the thrashing motion of his long tail while thus engaged may be responsible for his name. His breeding range includes the country from the base of the Rocky Mountains throughout the eastern part of United States, and he spends the winter months in the southern states.

## CATBIRD

*Dumetella carolinensis*

The catbird is found in the northwestern states, southern Canada and east of the base of the Rocky Mountains. It builds its characteristic nest of twigs, leaves and grasses, lined with rootlets, in a shrubby place where it is well hidden. The deep bluish-green eggs number from three to five. The female is a most anxious and devoted mother and her mate cooperates in the care of the young, singing a low sweet song the while. This is such a quiet song that few persons ever connect it with the catbird, for the cat-call is so much more commonly heard. They also attract attention as they flit about in the hedgerows uttering their curiously imitative notes. Their food consists of insects and fruit, sometimes more than their share, but if mulberry trees are planted near orchards or berry patches, these will save the cultivated varieties, for in general, birds prefer wild fruits.

## RED-WINGED BLACKBIRD

*Agelaius phoeniceus*

The range of the red-winged blackbird is widespread and he is known locally by different names. When two years old the male appears in full plumage. His bronzy-black coat is ornamented with red epaulets, variously bordered. These he exhibits as he flutters his wings and sounds his clear "Conk-a-ree" from his sentinel perch at the edge of the marsh. The dress of his mate is streaked brownish-gray with no bright trimmings. The nest is built of swamp grasses and rushes lined with finer material and firmly fastened to the strong stems of cat-tail, tule, swamp alder or willow. There are usually five brown-penciled, bluish-white eggs. Though red-wing is censured for helping himself to grain, let us remember that seven-eighths of his food is weed seeds or insects injurious to agriculture. During the winter these blackbirds scatter in small flocks over the southern part of United States.

## YELLOW-BILLED CUCKOO

*Coccyzus americanus*

A slender dove-like form glides silently through the leafy branches. Soon a faint "cow-cow-cow-cow" is heard as the bird slips unobtrusively to the platform of loosely placed sticks which serves as a nest for the two to six pale greenish-blue eggs. American cuckoos are devoted parents and their eggs are only rarely found in the nests of other birds, as are those of some European cuckoos. The ventriloquial quality of voice is deceiving, but sometimes they may be discovered feasting upon tent caterpillars, for they destroy untold numbers of them during the season. Cuckoos range widely over the United States and southern Canada. They are of great value to orchards and groves, and also do their bit against the grasshopper pest. Some of them migrate by way of the West Indies to Central and South America as far as Ecuador, Bolivia and Argentina, where they spend the winter months.

## CARDINAL

*Cardinalis cardinalis*

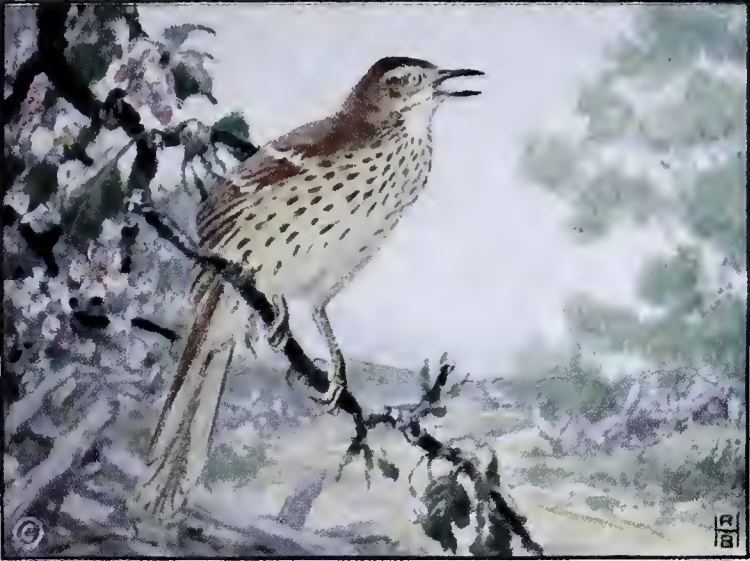
A full clear whistle resounding through the frosty air of a winter day, a flash of brilliant red against the snow-covered landscape, proclaims the presence of cardinal grosbeak who stays the year round in the land of his choice. He is an ideal spouse, guarding the nest during the absence of his mate, carrying food for the young and finally taking over their entire care when they leave the cradle. Meanwhile his mate builds a second nest in a vine or bramble bush. It is loosely built of twigs, grass stems and strips of bark. Here another set of three or four speckled eggs is incubated. All this time the male bird keeps up his cheerful song and watchful solicitude for his family. He also serves the community well by destroying some of its most injurious pests; potato beetles, rose chafers, scale insects, boll weevils. During the winter months he ekes out his livelihood with buds and weed seeds.

## KINGBIRD

*Tyrannus tyrannus*

Perched on an outstanding dead limb near his nest site, prepared for passing insects, is Sir Kingbird, one of the most common of our large flycatchers. His range extends from central Canada through all parts of the United States except the southwest. The male bird's pet aversion is the crow which he will chase from the premises, even inflicting severe punishment with his strong bill. The nest is frequently placed in an orchard tree near the end of a branch. It is made of twigs, grass and rootlets, lined with finer material, while bits of wool, newspaper and often the skin of a snake appear as decorations. There are three to five umber-spotted white eggs. Like most flycatchers the kingbird must spend the winter months in warm countries, in this case it is in southern Mexico and lands as far south as Bolivia, but he will return to his favored locality with the coming of spring.





BROWN THRASHER—*Toxostoma rufa*



YELLOW-BILLED CUCKOO—*Coccyzus americanus*



CATBIRD—*Dumetella carolinensis*



CARDINAL—*Cardinalis cardinalis*



RED-WINGED BLACKBIRD—*Agelaius phoeniceus*



KINGBIRD—*Tyrannus tyrannus*



## BLUE JAY

*Cyanocitta cristata*

A flash of blue against the white of snow-covered branches, the raucous call of *jay, jay, jay*, gives tang to a morning walk in winter. He is a most beautifully colored bird with his jaunty crest, black collar and white trimmings, and he certainly does his share to liven up the winter landscape. He loves feeding-tray fare, and carries off more than he can possibly consume at the moment. During the summer he accompanies one, flying from bush to bush along the path, calling his name at intervals to advertise his whereabouts. But when nesting season is at its height he and his mate have little to say for they do not wish their treasures discovered. He is a permanent resident through the eastern and Great Plains regions of North America. One habit should commend him to conservationists—he tucks nuts of all sorts under leaves or earth, so unwittingly plants many trees.

## CROSSBILL

*Loxia curvirostra minor*

The crossbill is most erratic in its choice of dwelling place. One year it appears here and another year in quite a distant locality. At times it will spend the winter considerably south of its normal limit, due perhaps, to the failure of the food supply. This food is the seed of conifers, and the bills of the birds are specially constructed to pry up the scales and release the seeds. These birds are not truly migrants for they seem to nest wherever they chance to be when nesting-time comes. The male does not help in nest-building but is always close at hand to encourage his mate with song, while she carries shredded bark fiber, evergreen twigs, leaves, moss and other fine material to construct the nest in some pine or fir tree about twenty feet from the ground. Here she will lay three or four pale greenish eggs with lavender stripes and spots upon them. At first the bills of the nestlings are not crossed.

## BROWN CREEPER

*Certhia familiaris*

Brown creeper is the one species of his family to be found in America. Five sub-species, almost identical in habits and characteristics, range throughout Canada and the United States and from Alaska well into Mexico. Seeking tiny creatures which live or hibernate in the bark of trees, the long slender, curved bill is used to search every crevice for hidden treasure. Someone has aptly called the path taken by the bird, as it hitches itself up and around the tree trunk, a spiral stairway. The long tail serves as a brace to aid in its progress. This bird is practically a permanent resident in much of its breeding range, therefore is exceedingly useful in ridding the trees of enemies missed by the regular summer boarders. The nest is usually placed behind a piece of loose bark and is lined with feathers and stripped bark. There are five to eight creamy, brown and lavender freckled eggs.

## SNOW BUNTING

*Plectrophenax nivalis*

When snow flies and the thermometer drops we have visitors from the north. Jolly flocks of singing snowflakes blow in with the storms to help clean up the harvest of weed and grass seeds which their migrant relatives have left behind. Their new winter feathers are edged with brown, making them inconspicuous among the dried weeds. As summer approaches these feather tips wear off or break away and leave the bird dressed in gay black and white. This is the only member of the family of finches in which white is predominant. Sometimes snow buntings remain in the northern part of the United States as late as the middle of March, but usually leave for their Arctic breeding ground when the snow begins to melt. They are found throughout the circumpolar region nesting upon the ground, where they place their four to seven pale, bluish, brown-spotted eggs in a moss-lined hollow.

## DOWNY WOODPECKER

*Dryobates pubescens*

Downy is the smallest, most common and one of the most useful woodpeckers, being of inestimable value in the destruction of the codling moth, appleborer and a large variety of leaf-inhabiting pests which infest the trees of our orchards and groves. He not only performs this service in summer but feeds upon eggs and larvae secreted in crevices during the winter. Though he ekes out a fairly good living, he will gladly visit your suet basket or search for small pieces you have pressed into the ridged bark of some of the dooryard trees. He travels from one tree to another with the characteristic jerky flight of woodpeckers. He spends the winter nights in some old nest hole or one he has made for the purpose, but when spring comes he and his mate prepare a new nest in a hole dug in dead limb where the four to six white eggs are laid. Both birds care for the young.

## STARLING

*Sturnus vulgaris*

The starling is an immigrant from across the Atlantic—a much later comer than the English sparrow—released in Central Park, New York, in 1890. It is now scattered along the Atlantic coast and west to Chicago. It is a bird of striking appearance and voice, not easily mistaken for any other variety. Being able to withstand the rigors of our northern winter, it may be seen in flocks all through that season. It is on hand to select the most desirable nesting places, supplanting bluebirds and other box and crevice-building birds. The pale bluish eggs number four to six. The young are out of the nest by the middle of May and are soon walking about seeking grubs and worms in the grass of our lawns. In summer the bill of the adult is yellow and the light spots on the tips of the feathers wear away until the birds have the appearance of being uniformly glossy black.





BLUE JAY—*Cyanocitta cristata*



SNOW BUNTING—*Plectrophenax nivalis*



CROSSBILL—*Loxia curvirostra pusilla*



DOWNY WOODPECKER—*Dryobates pubescens*



BROWN CREEPER—*Certhia familiaris*



STARLING—*Sturnus vulgaris*



## CEDAR WAXWING

*Bombycilla cedrorum*

Soft feathers lie smoothly against the body of the well-groomed cedar waxwings. Their breeding range is from central United States to the southern shores of Hudson Bay, across Canada east and west. Late in the summer they build a bulky nest well up in a tree in which three to five black-spotted, gray eggs are incubated. In winter large flocks feed upon fruits left hanging on trees and bushes. Mountain ash, dogwood and black haw are favorites and a flock of waxwings stays about until the supply is exhausted. In summer they indulge in fly-catching and will remain for hours on a bridge railing darting out over the water for passing insects. Being exceedingly fond of cherries, wild or tame, they are not popular with fruit growers, but the fact that they destroy countless numbers of canker worms and hairy caterpillars, shunned by most birds, speaks for their protection.

## WHITE-BREASTED NUTHATCH

*Sitta carolinensis*

The white-breasted nuthatch is one of the bark combers and is with us throughout the year helping to keep our deciduous trees in good shape. Up or down or sideways upon trunk or limb he probes for beetles, moths, insect larvae and eggs. Though he stays well within the woods during summertime, in winter he will visit a feeding tray for rolled oats, nuts, sunflower seeds or crumbs and suet, which he carries away to store in chinks for future use. The nuthatch nests in some cavity either near the ground or far up in a tall tree, and has been known to make use of a birdbox. This home is lined with felted hair, feathers and soft leaves. There are five to eight brown-speckled white eggs. Slender-billed nuthatch, a western cousin, is similar in habit and appearance, and together they administer first aid to the trees of their vicinity throughout temperate North America.

## TREE SPARROW

*Spizella monticola*

The tree sparrow visits the United States only during the winter, for he raises his family of four or five babies in a hair and feather-lined grass nest placed in a low bush or on the ground in the north country of Canada. He is sometimes called the snow or winter chippie, being almost as small as chipping sparrow and quite similar in color and markings. He finds abundant food in the heads and clusters of weed seeds which rise above the snow-covered land. It is in the destruction of these seeds that he is of inestimable value to the agriculturalist for literally tons of them are eaten by the great flocks of these bird visitors. They are often joined by the juncos, goldfinches, and song sparrows in their feeding expeditions. The tree sparrow has a song which resembles that of the goldfinch and he freely contributes that to the enlivenment of the season when most of our own birds are songless.

## ENGLISH SPARROW

*Passer domesticus*

The English sparrow was brought into our country in 1851 against his will but he has made the most of his opportunities. The spirit of colonization strong within him, he has moved from center to center until there is scarce a place which he may not call home. His cheeriness and care for his family, and the fact that he will live in the most densely populated city as well as in the open country lanes, speaks much for his courage. Any cranny in wall, a fold in an awning, or a bird house built for other tenants, are alike desirable to him. The white or drab eggs number four to seven. Two or more broods are raised during the season which begins early. He is an efficient member of any street-cleaning force and a factor in the destruction of the seventeen-year locusts. His chief fault is intolerance in the matter of neighbors. None are safe when his family is ready to leave the nest.

## TUFTED TITMOUSE

*Baeolophus bicolor*

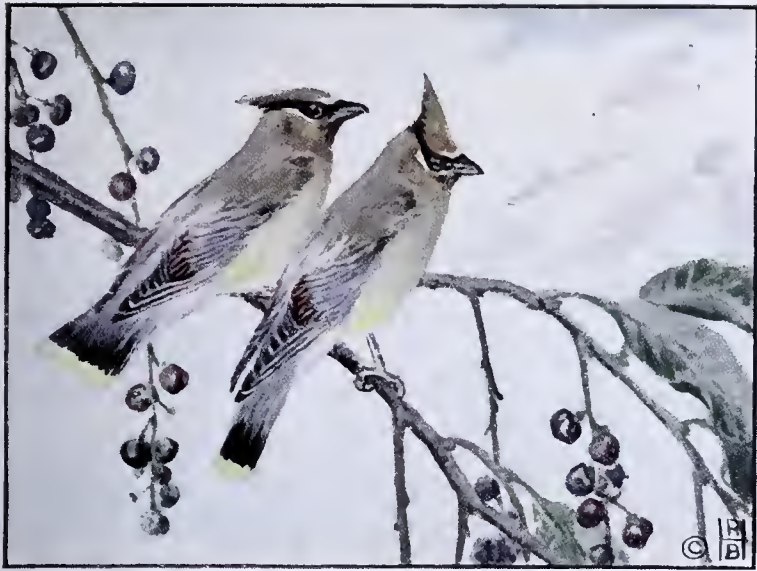
On crisp frosty mornings after a storm has left the ground white and sparkling with snow, the clear, oft-repeated, whistling call of the tufted titmouse announces the fact that he is hard at work hunting out insect eggs and such small creatures as spend the winter months hidden away in crevices. This activity is a year-round job with his tribe so that the good he and his cousins, the chickadees, do, is hard to estimate. Though they are tiny they are numerous, often there will be two broods of five to eight in a season and the whole family travels together throughout the winter. As a nest for the creamy, evenly marked eggs they line a deserted woodpecker hole or the hollow of an old stump with bark strips, leaves, moss and feathers. Tufted titmouse is a permanent resident in most of his breeding range which extends over the southern half of the United States east of the Rocky Mountains.

## SONG SPARROW

*Melospiza melodia*

The song sparrow is probably the best known member of his very large family. Rain or shine, summer or winter, he cheers us with his varied notes. Often at night he arouses enough to send an answering refrain when disturbed by owl, chat, or any night noise. He is present all over North America in one of the many subdivisions of his family, his coat varying according to the humidity of his environment; darker in the moisture-laden coast regions; lighter in the dry, arid, upland interior. Particularly fond of brushy growth, he is found along streams and marsh edges where hardhack and other spireas abound. His nest of weed stems, leaves and grasses, lined with softer material of the same sort is placed on the ground or in some low bush. There are four or five much-speckled greenish eggs. Both birds care for the young. They are of value in the destruction of insects and weed seeds.





CEDAR WAXWING—*Bombycilla cedrorum*



HOUSE OF ENGLISH SPARROW—*Passer domesticus*



WHITE-BREADED NUTHATCH—*Sitta carolinensis*



TUFTED TITMOUSE—*Baeolophus bicolor*



TREE SPARROW—*Spizella monticola*



SONG SPARROW—*Melospiza melodia*



## CHESTNUT-BACKED CHICKADEE

*Penthestes rufescens*

At one period not so long ago, these birds were relatively scarce in the Willamette Valley, but during the past few years they have been on the increase until now they outnumber the Oregon Chickadee. They prefer the more open woods and a rainy day is no deterrent to a hunt through the wet branches for insects and their eggs. They are constant patrons at the feeding shelf and are common all the year round. Their nests are built in stubs of trees well up from the ground. Hair and fur, feathers or moss compose the lining, and the eggs are white, usually unmarked but sometimes minutely spotted with reddish. Families are usually large with the chickadees, and the territory from Alaska south into California and east to Idaho is well supplied with the cheery little fellows. In the winter woods they hunt with the kinglets and bushtits. They are about 4.75 inches in length.

## CALIFORNIA PURPLE FINCH

*Carpodacus purpureus californicus*

This bird should be called the warbling finch, for no sweeter warble comes from the throat of bird. All the year round he sings forth his challenge along the Pacific coast from British Columbia to southern California. A bird of the higher altitudes in the southern part of its range, it is also common in the valleys of the north. The nest, made of loosely woven rootlets and grass, is built well out on a high branch. There are three or four greenish-blue eggs with fine dark speckles on the larger end. Theirs is the short, strong bill of the finch family and indicates that their food is largely seeds, but in the early spring they choose undeveloped ones, especially cherries while still in the bloom, and have been known almost to denude some trees of their first blossoms. The male of this species does not attain full color until the third year. The average length is 6.25 inches.

## OREGON TOWHEE

*Pipilo maculatus oregonus*

The towhee is a bird of the ground and low bushes in which it builds its nest of small sticks or stripped bark lined with grass. The four or five pale bluish-green eggs have brown or lavender speckles thickly sprinkled over the larger end. A rustling of dead leaves kicked vigorously back to disclose grubs or seeds for his lunch is a sure sign that Towhee is about, and, if you are near enough to see the red eye, no further evidence is needed. In the warmer valleys of the northwest the towhee is a permanent resident. However, those which breed in British Columbia probably spend the winter in southern California. They are shy birds and only rarely to be observed when perched upon the top of a bush singing; for the least suspicion that you are watching sends them off among the brush. The Oregon towhee differs from the towhee of the east in the white marks on the shoulders. Their average length is 7.80 inches.

## OREGON CHICKADEE

*Penthestes atricapillus occidentalis*

The Oregon chickadee often joins the chestnut-backed chickadee on the feeding-tray during the cold weather and is as fond of suet and oatmeal as the others. The families hunt together, and seven or eight young may accompany the parents. The friendly little mites will answer to your whistle, follow you from place to place, and will readily learn to eat from your hand. No amount of cold or stormy weather will drive them from their accustomed haunts. They are valuable friends of the trees, for they keep everlastingly after the eggs and larvae of injurious insects. They nest in holes in trees or stumps, lining them with moss, fur and hair. The eggs are white spotted with reddish-brown. This species is found in the northwest coast region from Sitka to northern California and is abundant throughout its range. The average length of this bird is 5 inches.

## WESTERN BLUEBIRD

*Sialia mexicana occidentalis*

The babies of this family show their thrush relationship by having spotted breasts. Fond of semi-open places, these birds will be glad to occupy a properly constructed bird-house in your garden and will build a nest in it of soft grass and bits of string. From four to six pale blue eggs will be laid, and when the babies are hatched the parent birds will keep your premises well patrolled for injurious insects of all kinds. They especially need your protection from cats at this time, for they are so intent on the business in hand that they fall an easy prey to Tabby. The chief differences between this bird and the bluebird of the east are the russet across the shoulders and the blue throat. Both are much beloved and welcome harbingers of spring. The western bluebird often remains as far north as the Columbia River throughout the winter months. The length is 7 inches.

## WESTERN EVENING GROSBEAK

*Hesperiphona vespertina montana*

If, when the maples bloom in Oregon, you hear a sound comparable to a band of baby chickens lost in the treetops, don't be alarmed, but consider yourself fortunate; for there will be a flock of evening grosbeaks busily feeding on the maple seeds which are just taking form. Bronzy gold, with a flash of pure white, marks the bird when in flight. It breeds in the higher altitudes of western United States. The nest, built rather high up in conifers, is made of small sticks, lichens and fine grasses, and will contain three or four brown-blotched greenish eggs. During the winter and early spring the birds flock to the lower areas. As its bill would indicate, its food is mainly seeds and buds of trees such as dogwood, ash and juniper. Often the whole flock feeds upon the fallen seeds and then the white wing patches are in strong contrast to the bare soil beneath the trees. Its average length is 7 inches.





CHESTNUT-BACKED CHICKADEE—*Penthestes rufescens*



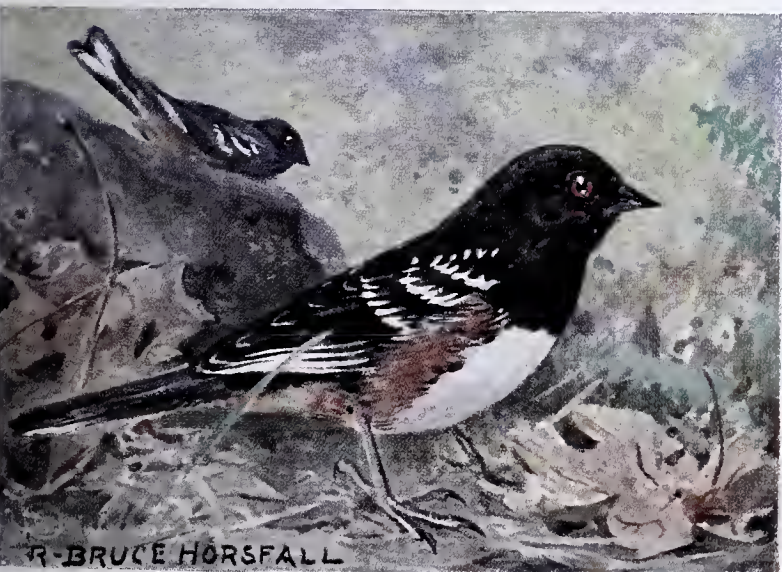
OREGON CHICKADEE—*Penthestes atricapillus occidentalis*



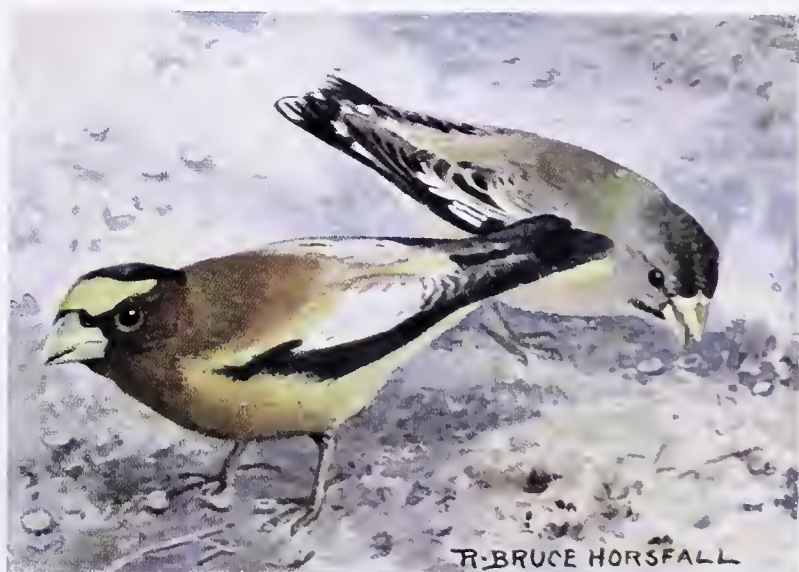
CALIFORNIA PURPLE FINCH—*Carpodacus purpureus californicus*



WESTERN BLUEBIRD—*Sialia mexicana occidentalis*



OREGON TOWHEE—*Pipilo maculatus oregonus*



WESTERN EVENING GROSBEAK—*Hesperiphona vespertina montana*

250050



## RUBY-CROWNED KINGLET

*Regulus calendula*

If one is fortunate enough to see the male of this species when he is very much excited, or when he is drying himself after a bath, one will well understand his name, for the spread crown patch looks like a brilliant ruby set in dull gray silver. The ruby-crowns are found in company with the golden-crowns during the time of flocking and, like them, feed among the branches, seeking insects and their eggs or small spiders. They add a cheerful note to a dull day by their sociable lispng chatter. Their half-hanging nests are made of bark fiber and moss, lined with hair and feathers, and are hidden in the tops of fir trees far up in the mountains. The eggs are whitish with a few brown marks at the large end. Ruby-crowns, nuthatches, chickadees, bushtits and hermit warblers are jolly companions when the young are out of the nests. The length of the bird is 3.75 inches.

## SEATTLE WREN

*Thryomanes bewickii calophonus*

Should you chance to take a path too near to the feeding ground of this wren, you may expect to be roundly scolded for your intrusion, as he brooks no interference. The nest will be built in an old stump on some brushy hillside, or in crannies around buildings, in much the same manner as that of the house wren, although woods rather than the vicinity of houses is preferred. The eggs, five to seven, are pale pinkish, finely speckled round the larger end with reddish-brown. The white stripe over the eye and the long, dark tail are good identification marks for all forms of Bewick's wren. This variety is a permanent resident within his range along the Pacific coast from Oregon to southern Vancouver Island, and sings during the entire year, making the woodland resound with his clear, ringing tones. At times his song may be heard in the night. He is about 5 inches in length.

## WESTERN MEADOWLARK

*Sturnella magna neglecta*

Wherever, west of the Mississippi River, meadows or open uplands exist, there will be heard the pure, clear tones of the varied song of the western meadowlark as he poises in mid-air or perches on fence post, telephone pole, or perhaps selects the highest tree in the neighborhood. The meadowlark is a ground nesting bird, and his roofed-over home will be hidden in some grass clump and have a long entering runway. The food for the six or seven babies consists of grubs, cutworms, grasshoppers and crickets. The meadowlark is a permanent resident except in the northern part of his range, because he is able to find sufficient food for his needs and does not mind the cold. He may be easily identified by the long bill, black collar on yellow breast, and the white outer tail feathers which are noticeable in flight. He is quite a plump bird and his tail is relatively short. His length is 9.75 inches.

## WESTERN GOLDEN-CROWNED KINGLET

*Regulus satrapa olivaceus*

The fir woods of the Pacific coast region hold no lovelier gems than the small flocks of these birds which dart about among the branches hunting insect eggs and talking in their high pitched voices. Little do they care whether they are upside down or not. It is all one with them. If the weather be fine, they keep to the tops of the trees and are well out of sight; but on a damp morning they feed among the low branches or in the brush along pathways. They have an interesting habit, common to a number of birds—that of darting out from tree or bush to catch a passing insect on the wing. Their deep cupped nests, placed well under cover near the end of a fir branch, are made of green moss lined with feathers, and contain from five to ten buffy eggs with darker speckles around the larger end. When these are hatched a lively family joins the woodland population. The average length of the bird is 3.75 inches.

## WESTERN WINTER WREN

*Nannus hiemalis pacificus*

One of the marvels of bird music is the long-continued bubbling song of the winter wren. It seems impossible that so much sound could come from so small a body. At a distance he may be mistaken for a mouse moving unobtrusively about among the decayed wood of an old ravine, but suddenly he appears at your very feet with his ridiculously short tail perked up, and gives an inquiring chirp. If there is a feather-lined nest of moss in a crevice of the old log or under the roots of an overturned tree, with finely speckled creamy-white eggs in it, he will go off quietly about his business of hunting worms and small white grubs in the treebark, soon losing himself in the dusk of the deep woods. He is in some places a permanent resident and may be seen during the winter in the shelter of deep woods or canyons always on the ground or upon fallen logs. His average length is 4 inches.

## OREGON JUNCO

*Junco hyemalis oregonus*

The flash of white outer tail feathers, as he alights on the patch of ground cleared of snow and provided with seeds and rolled oats, the pink of the bill with which he immediately begins to pick at the delicacies spread out for him, mark friend junco. He is often called snowbird because we see more of him and his friends in the winter than in the summer, when he is busy with family cares high up in the hills. The Oregon junco has a really black head and collar with dark brown back and breeds north of the United States border, thus being only a winter visitant with us. His nest is usually on the ground—a cup of dry grass and rootlets, with four or five neutral toned eggs speckled with reddish-brown. The young birds, unlike their parents, are streaked light and dark gray and have dark bills. The food of the junco is a mixture of weed seeds and insects. His average length is 5.75 inches.





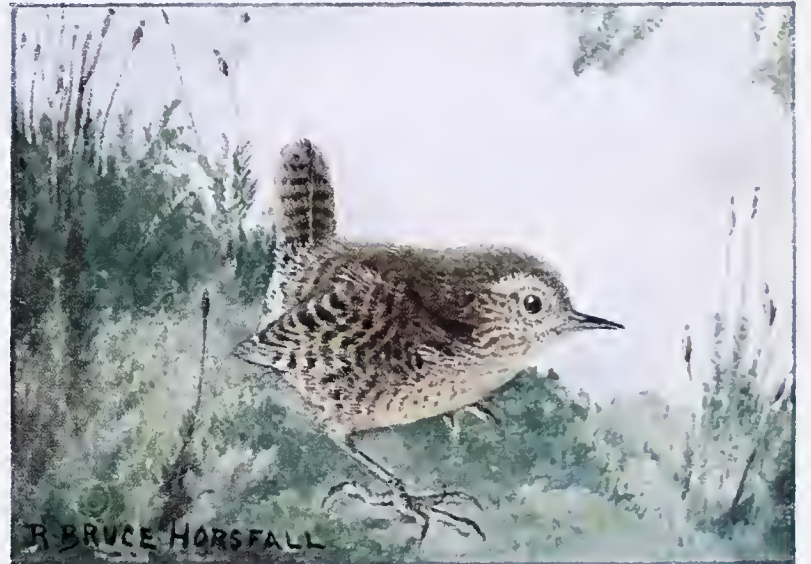
RUBY-CROWNED KINGLET—*Regulus calendula*



WESTERN GOLDEN-CROWNED KINGLET—*Regulus satrapa olivaceus*



SEATTLE WREN—*Thryomanes bewickii calophonus*



WESTERN WINTER WREN—*Nannus hiemalis pacificus*



WESTERN MEADOWLARK—*Sturnella magna neglecta*



OREGON JUNCO—*Junco hyemalis oregonus*



## BULLOCK ORIOLE

*Icterus bullocki*

The nest of the Bullock oriole, like that of the Baltimore oriole, is a carefully constructed pensile basket of vegetable fibers, twine and bits of bright colored wool lined with down, and holds three to six eggs. The same tree is used each year and six or eight nests are often seen in a cottonwood tree, showing all stages from the new home to the well frazzled old ones of previous seasons. This oriole chooses open country near the tree-grown margins of streams. It may be found, in suitable locations, through western North America north to British Columbia and east including the Rocky Mountain states. The song is not so varied as that of the eastern relative. Bullock oriole feeds largely on the injurious scale insects which create havoc in olive and other orchards. It is fond of fruit but when found in a berry patch is probably taking more green larvae than berries.

## CALIFORNIAN WOODPECKER

*Melanerpes formicivorus bairdi*

Wherever oaks are found along the Pacific coast, from Oregon southward, and east into Texas, the Californian woodpecker will be present. A notable characteristic is his habit of storing acorns in holes made in the bark of decayed limbs of trees. These nuts are so securely wedged in that it is impossible to extract them without a tool of some sort. Both the birds share in the excavation of the nest hole, usually well out on the under side of a limb of sycamore, cottonwood or live oak. Telephone poles are also commonly used. The five or six eggs are of characteristic woodpecker white. The birds return to the same neighborhood year after year, but they do not use the same hole for nesting. A new one is made near by and the male may use the last year's home as a refuge or sleeping quarters. These woodpeckers are sociable and friendly, nesting and hunting in companies.

## SAGE THRASHER

*Oroscoptes montanus*

In the sage-covered Great Basin region and the arid western plains as well as the foothill country of the southwest, dwells the sage thrasher, a singer who almost takes the palm from the eastern brown thrasher. He belongs to the same family and chooses the same sort of habitat and living quarters. Greasewood, sagebrush or sometimes a cactus near the ground serves as a location for the substantial, bulky nest of coarse thorny twigs and sagebrush lined with horsehair and soft fibers. This structure may be partly roofed over and will contain from three to five rich green-blue eggs which are spotted with reddish-brown. This bird, like its relative the mockingbird, delights to sing at night. He is as much at home running about the village streets as he is far out on the unlimited plains and deserts. He moves south and into the lower valleys to spend the winter months.

## PHAINOPEPLA

*Phainopepla nitens*

Phainopepla, formerly placed in the same family as the waxwings, is a silky flycatcher which is found only in the southwestern United States. When perched quietly in a roadside pepper tree enjoying the berries, he might be mistaken for some exotic blackbird which had developed a crest. But the moment he flies away, the large white wing-patches reveal his identity. The saucer-like nest, made of small twigs, plant fiber and down, is placed in a horizontal crotch of a pepper, mesquite or oak and is built by the male bird. During its construction, the demure, brownish female is said to be off feeding and gossiping with others in the nearby shrubbery. Two to four young are raised each season. Flocks of phainopeplas congregate in the canyons when juniper berries are ripe. A typical flycatcher character appears when the crest is lowered and some unwelcome visitor is put to rout.

## VERMILION FLYCATCHER

*Pyrocephalus rubineus mexicanus*

The garden of a famous old mission in the desert country of southern Arizona is a favorite haunt of the vermilion flycatcher, one of the brightest bits of color that one may see. Upon some suitable outlook he perches, preens his feathers and puffs up his crest. Suddenly he darts out in pursuit of winged insects, returning to enjoy his feast. Tree-arched stream beds and groves of mesquite are frequented by this bird even to the altitude of five thousand feet. His frail nest, built of twigs, fine grasses and plant down, is placed on the horizontal branch of palo verde, cottonwood or oak, six to fifty feet from the ground. The buff, blotched eggs are two or three in number. It is a matter of regret that the range of this beautiful bird is comparatively limited. His persistent call note overbalances his charming conversational twitter, and he makes himself heard even above the chorus of his neighbors.

## WATER OUZEL

*Cinclus mexicanus*

The water ouzel is the only member of the dipper family found in the United States. It frequents most mountain streams from sea level to an elevation of nearly ten thousand feet. From central Alaska to the Mexican boundary and east to the base of the Rocky Mountains he is a permanent resident in his chosen location. Weather means nothing to him for he is as jolly in winter as in summer and sings in either season as the spirit moves him. Since he is able to hunt his food under the water upon the rocks where dwell the larvae of caddis flies, damselflies and dragon flies, he finds a living at any time. The nest of moss, with a side door, is placed where spray will keep the outer walls green and fresh. Three to five white eggs change to hungry babes which keep the parent birds busy. In due time these young join their elders along the home stream to curtsy and hunt together.





BULLOCK ORIOLE—*Icterus bullocki*



PHAINOPEPLA—*Phainopepla nitens*



CALIFORNIAN WOODPECKER—*Melanerpes formicivorus bairdi*



VERMILION FLYCATCHER—*Pyrocephalus rubinus mexicanus*



SAGE THRASHER—*Oroscoptes montanus*



WATER OUZEL—*Cinclus mexicanus*



## VERDIN

*Auriparus flaviceps*

The verdin is one of our tiniest birds, and like its bush-tit cousin, has a penchant for building large houses. He selects thorn-covered twigs of desert bushes from which to construct the bulky, spherical nest with its doorway low at the side. It is usually placed in a bush or cactus plant about six feet from the ground. The interior is lined with fine grasses, down and feathers, and makes a cozy nook in which three to half a dozen wee eggs come to be baby verdins. The male, not satisfied with one nest in the family, builds another for himself, a little smaller, which he uses throughout the winter, as well as the summer. He is a jovial fellow with a song as much out of proportion to his size as is his nest. These birds are found in the mesquite country of the extreme southwestern part of the United States and south into Mexico, being permanent residents throughout their range.

## BUSH-TIT

*Psaltriparus minimus*

A builder of pendant nests is the bush-tit who weaves a nursery out of all proportion to his size. Sometimes as much as ten inches in length, it is shaped like a well-filled old-fashioned purse, with an opening at the side near the top. A plant-fiber network is carefully attached and interwoven between supporting branches. The birds bounce up and down upon this structure to stretch it into a basket, adding soft fibers and down until the whole is of the required size. Innumerable lining feathers are then carried in to make a warm nest for the wee white eggs. The male carries food to his mate during incubation. There are five to nine young. Since an important item of food is the black olive scale, bush-tits are of considerable value. When the families are grown they flock together—darting about in the low bushes, chattering as they hunt for food.

## CALIFORNIA JAY

*Aphelocoma californica*

The black marks against California jays overbalance the white ones. Fond of eggs and nestlings of wild birds, of nuts and fruit which they carry to their homes from orchards near their nests—they are to be commended for their care of their own kind and for habits of personal cleanliness. A before-breakfast cold bath is essential unless there are hungry babies. They nest in the low chaparral or scrub oaks on both slopes of the Cascades. The nest is placed upon a foundation of short interwoven branches and grasses and is made of horsehair and fine rootlets. The three to six eggs vary greatly in color and markings. As these birds band together for purposes of protection and aggression, they make their presence known by their noisy calls which not only strike terror to the hearts of their neighbors, but interfere sadly with those of us who wish to study other birds.

## SCISSOR-TAILED FLYCATCHER

*Muscivora forficata*

Striking coloration and long outer tail feathers mark the scissor-tailed flycatcher. These, together with the characteristic saw-tooth flight-path, and the penetrating call uttered at the apex of each upward dash, make any mistake in his identification unlikely. He has the renowned pugilistic qualities of the kingbird and is particular to keep his territory well patrolled, fearlessly attacking birds of much larger size than himself, alighting upon their backs and pecking viciously, screaming the while. The nest, placed in some thorny bush or small tree, is built of fine rootlets, grasses, bits of wool and feathers. The eggs are usually five in number, of clear white marked with purples and browns. Butterflies, grasshoppers, locusts and other large flying insects furnish food for these birds of the southwest prairie country. When summer cares are over they fly away to Costa Rica to spend the winter months.

## CANYON WREN

*Catherpes mexicanus conspersus*

There is no thrill quite equal to that of hearing a bird song for the first time unless it be to watch the bird as he sings. This often means a long journey into new country, but it is always worth while. This is particularly true of canyon wrens for although they sometimes build near the habitations of man, they really belong among the rocks and crags of canyons. In this location the soft-walled, moss-covered nest is placed upon a ledge or in some crevice or cranny. There are three to five dainty white eggs with purple-gray spots at the larger end. The young look much like their parents. This wren is found in some of the warmer canyons of the Sierra and the Rocky Mountains, in the Great Basin and south into Mexico. Everywhere its song is the same wonderful exhibition of joyous abandon, the quality and volume being always a marvel to the listener.

## LOUISIANA TANAGER

*Piranga ludoviciana*

Louisiana tanager is widely distributed throughout North America west of the Great Plains from Northern Alberta to our southern border. During migration it frequents lowland hills, but it nests in higher altitudes. The nest is placed at the end of a rather high branch. It is made of bark strips and grass stems, lined with rootlets and horsehairs, so concealed by foliage as to be practically invisible from below. The male does not share in incubation but feeds the brooding female, and sings to her from the top of a tall tree. The birds begin to hunt when the sunlight first strikes the treetops and continue to feed lower and lower as the insects awaken nearer the earth. Besides this food they are fond of fruit, especially cherries, wild ones preferred because they can be swallowed whole. Hence, wild fruit-bearing trees are a help to the orchardist and a satisfaction to the tanagers.





VERDIN—*Auriparus flaviceps*



SCISSOR-TAILED FLYCATCHER—*Muscivora forficata*



BUSH-TIT—*Psaltriparus minimus*



CANYON WREN—*Catherpes mexicanus conspersus*



CALIFORNIA JAY—*Aphelocoma californica*



LOUISIANA TANAGER—*Piranga ludoviciana*



## ROSY FINCH

*Leucosticte australis*

Among the highest peaks of the Cascades and Sierra Nevada dwells the leucosticte or rosy finch, bird of snows and granite ledges. His food—beetles, ants, butterflies, bees, other insects and seeds—is culled from the drifts. June in his home is much like a crisp, frosty March with us. There is a scattering growth of flattened evergreen, alpine laurel, lichens and moss, with perhaps here and there a patch of early erythroniums. It is sometime during this month that a nest of weed stems and coarse grasses, lined with finer grasses and feathers, is built in a small rocky crevice. The four or five eggs are pure white and fragile. Rosy finches are most happy and carefree, scurrying before a snow blast to find shelter beneath the overhanging edge of an ice-sheet or rock until the storm is over, when they are out basking in the sunshine again or hunting food as merrily as ever.

## ROAD-RUNNER

*Geococcyx californianus*

An unusually thrilling moment is that which marks the first sight of a road-runner in full action. His swiftness of foot is well known in the cactus-covered desert, and the chaparral of the foothill country, which he prefers to the higher altitudes sometimes visited during the summer. He is an unsocial creature and will not admit another of his kind to his chosen feeding range, yet at times he will visit the farmyard and feed with the chickens. His appetite is voracious; lizards, large beetles, centipedes, grasshoppers, mice and snakes are a few of the items of his diet. He, or she, builds a compact nest in cactus, low thorny tree or bush, of sticks with a variety of materials for lining—inner bark, grass, mesquite pods, roots and feathers. There are four to six yellowish eggs. Unfortunately this curious bird is becoming scarce due to the extension of farming into its desert habitat.

## CALIFORNIA TOWHEE

*Pipilo crissalis*

The California towhee frequents gardens and farmyards where he feeds upon insects and scratches in the straw for scattered seeds. He spends most of the time on the ground and his occasional flights are a bit awkward because of his short wings and long tail. During the nesting season he becomes shy and betakes himself to some brushy area at a distance from human habitation. Here he builds a loose, deep nest of weed stems and bark fibers lined with wool, soft grasses and horsehair. This is placed on the ground, in a bush or tree, even in a cactus plant, as high as six or ten feet. Here the three to five brown-spotted pale blue eggs are incubated and both birds are busy with the care of the young. Though thus occupied one may hear his silvery, tinkling song at intervals. This towhee is found in most of California west of the Sierra Nevada Mountains.

## CALIFORNIA THRASHER

*Toxostoma redivivum*

The California thrasher delights to perch upon the highest possible branch of bush or tree as he cleverly mimics the loveliest songsters in his vicinity. His rendition of the wren-tit's whistled scale often calls forth a reply from that bird himself. This thrasher is found in the shrubby bottom land as well as upon the mountain sides of the coast region of California south to Lower California. His long curved bill is used to excellent advantage as he flips aside twigs and leaves to dig in the uncovered earth for worms, insect larvae, beetles and other food. The nest is a platform of roots, twigs and grasses, placed on a bush not far from the ground. Both birds share in its construction and in the incubation of the three or four brown-spotted, pale greenish-blue eggs. There are two broods each season, the male bird caring for the first family while the female is sitting the second time.

## CASSIN'S KINGBIRD

*Tyrannus vociferans*

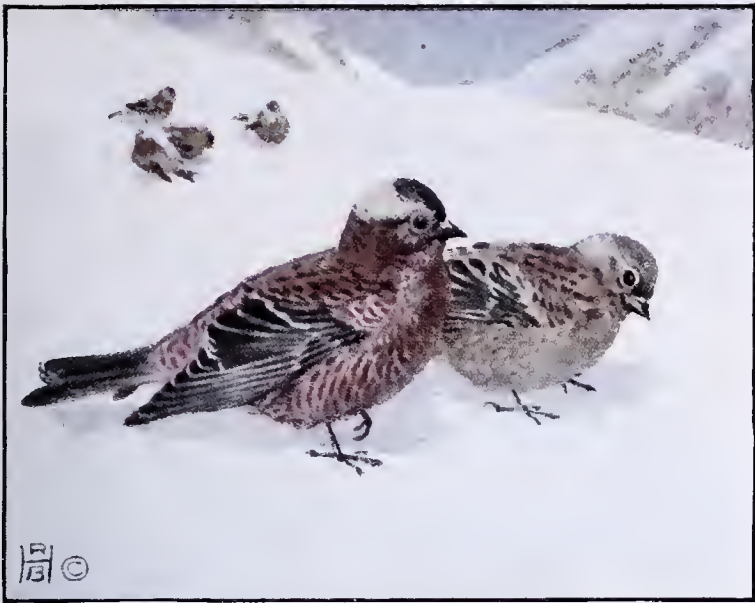
Cassin's kingbird, though a bird of the mountains, is also found nesting in the valleys and may be quite common in some neighborhoods. The breeding season is from May through July. The nest, of characteristic kingbird structure, is placed at the end of a branch well up in a sycamore, cottonwood or similar tree. It is made of plant fiber, weeds and rootlets, and lined with wool, thistledown, hair and feathers. Pieces of string, paper, and perhaps a snake skin are present as decorations. There are two to five brown-blotched, pinkish eggs. The female spends fourteen days in incubation, while the male guards the nesting territory by driving off hawks and crows. The kingbird is one of the most useful birds in its range, for it destroys many harmful insects. These are caught on the wing as the bird launches into the air from a perch upon a branch tip, whence he returns with his prey.

## WREN-TIT

*Chamaea fasciata*

There is only one family of perching birds which is peculiar to North America. This distinction belongs to the group represented by the wren-tit, found in the Pacific Coast region. His name conveys the impression that he combines characteristics of wrens and tits. This relationship is quite evident if one is fortunate enough to see him on some densely brush-covered hill along the coast which is frequented by this small, soft-plumaged bird. His short, rounded wings carry him silently from shrub to shrub while his long tail is in constant wren-like motion as he chatters and hunts busily for insects in the chaparral, scolds some intruder, or skillfully handles the descending musical scale. His nest is built of grasses, roots and bark fibers, lined with hair of cattle or horses, and placed in a low bush. There are three to five bluish-green eggs. His breeding range coincides with his limited permanent home.





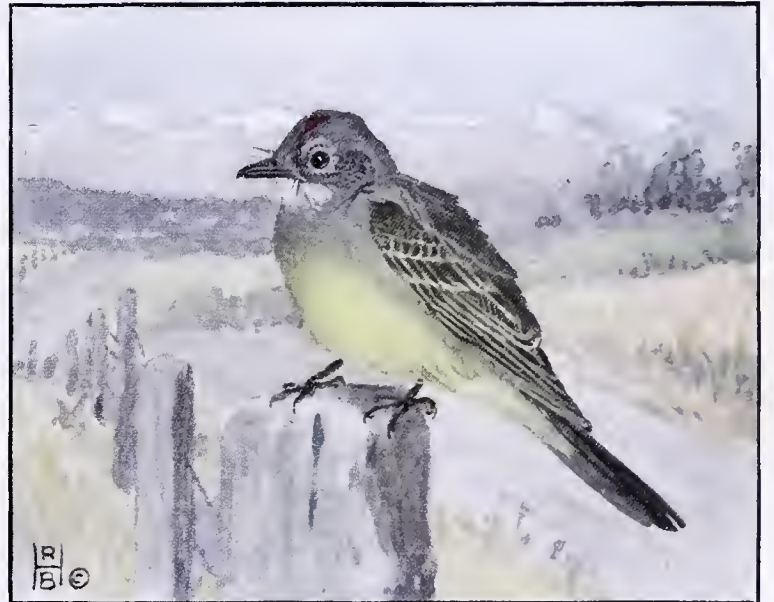
ROSY FINCH—*Leucosticte australis*



CALIFORNIA THRASHER—*Toxostoma redicivum*



ROAD-RUNNER—*Geococcyx californianus*



CASSIN'S KINGBIRD—*Tyrannus vociferans*



CALIFORNIA TOWHEE—*Pipilo crissalis*



WREN-TIT—*Chamaca fasciata*



## PILEATED WOODPECKER

*Phlaeotomus pileatus*

LENGTH. Fifteen to nineteen inches. BILL. Strong wedge-like chisel longer than head. COLOR. Slaty black, white and red. FIELD MARKS. Red crest, white line over eye, on cheek and down side of neck. White under wing and wing patches show in flight. Eyes yellow. Male has red streak below white line on cheek and a red forehead. ACTIONS. Flight slow and direct. HAUNTS. Wilder parts of heavy forest. VOICE. Similar to flicker's but louder. FOOD. Wood-boring beetles and their larvae, ants and wild fruit. NEST. Two or three feet deep in dead or living tree, twenty to fifty feet up, with fine chips in bottom. EGGS. Three to six, white. CARE OF YOUNG. Both birds share in family cares. DISTRIBUTION. Dense forests of North America from Central Canada to Gulf Coast. Becoming rare except in remote parts of range. VALUE. Exceedingly useful in protecting forest trees against devastation by larvae of wood-boring beetles which are a serious menace to great stands of timber.

## RED-BELLIED WOODPECKER

*Centurus carolinus*

LENGTH. Nine and one-half inches. BILL. Straight, blackish-gray. COLOR. Black, white and pale red. FIELD MARKS. Male, top of head and back of neck bright red; back, shoulders, rump and tail, barred black and white; under parts smoke gray tinged with red; iris red-brown to scarlet. The female has a gray cap, red about bill and at nape, with a paler wash of red on the abdomen. ACTIONS. Flight undulating. Ascends trunk of tree in a series of peculiar jerks. HAUNTS. Groves of deciduous trees usually in unbroken forests. VOICE. Harsh, metallic call. FOOD. Insect larvae, grain and fruit of weeds. Florida oranges are sometimes damaged by this bird. NEST. In hole excavated in dead tree. EGGS. Three to six, white. CARE OF YOUNG. Both birds share in this. DISTRIBUTION. Middle east and southern United States, north to Pennsylvania and southern Ontario. Common. MIGRATION. Scarcely migratory. VALUE. Destroys injurious insects.

## FLICKER

*Colaptes auratus*

LENGTH. Eleven inches. BILL. Long and strong. COLOR. Upper parts grayish-brown barred with black, under parts yellowish. FIELD MARKS. White rump, spotted breast with black crescent, red patch on back of neck. Male with black moustache on cheeks. ACTIONS. Commonly feeds on the ground and perches across limb. Flight undulating. HAUNTS. Woods, trees and lawns about our homes. VOICE. Rapid repetition of its name. FOOD. Ants, cut-worms and other insect larvae, fruit and grain. NEST. Both birds help to chisel the hole, throwing out chips with their beaks except a few left for lining. EGGS. Five to nine, white. CARE OF YOUNG. Both birds incubate and share in feeding young. DISTRIBUTION. Throughout eastern North America. Usually numerous. MIGRATION. Only northern flickers move south in the winter. VALUE. Exceedingly useful. Destroy quantities of insects by spearing them with long, hairy, barbed tongues.

## RED-HEADED WOODPECKER

*Melanerpes erythrocephalus*

LENGTH. Eight and one-half inches. BILL. Strong, chisel-like. COLOR. Black and white with red head. FIELD MARKS. Breast, rump and secondary wing feathers, white; outer wing feathers and tail, black. Head, neck and throat, red. ACTIONS. Haunts tree trunks, digging out the wood-boring larvae of beetles. Stores nuts in crevices. HAUNTS. Beech and oak woods. VOICE. Noisiest of woodpecker tribe. FOOD. Grasshoppers, locusts and other flying insects added to the usual diet of grubs. NEST. Usually a hole in a dead tree, but sometimes in a post or telephone pole. EGGS. Four to six, white. CARE OF YOUNG. Both birds share in the family cares. DISTRIBUTION. Over most of eastern United States and southeastern Canada, south to Florida and the gulf coast into Texas. Common. MIGRATION. Irregularly migratory, in northern part of range. Flock loosely, throughout the year. VALUE. Extremely useful in the destruction of countless injurious insect pests.

## HAIRY WOODPECKER

*Dryobates villosus*

LENGTH. Nine and one-half inches. BILL. Characteristic woodpecker type, grayish-black. COLOR. Black and white. FIELD MARKS. Outer tail feathers, back and rump, white; wings black with evenly placed white spottings; male has red blotch at back of crown. ACTIONS. Flies from tree to tree and hammers upon the bark to expose the hidden grubs upon which it feeds. HAUNTS. Usually in forests or dense wooded areas. VOICE. Much like that of the downy woodpecker, but louder. FOOD. Largely wood-boring larvae and tree inhabiting insects. NEST. Excavation in dead tree, well up from the ground. EGGS. Four to six, white. April or May. CARE OF YOUNG. Both birds share in care of family. DISTRIBUTION. In one of its subspecies it is found over nearly the entire tree-covered portion of the United States. Not very common. MIGRATION. Migrates from far north. VALUE. Destroys many injurious insects and larvae. Useful.

## LEWIS'S WOODPECKER

*Asyndesmus lewisi*

LENGTH. Ten to eleven inches. BILL. Long and straight. COLOR. Upper parts iridescent greenish-black, under parts red and gray. FIELD MARKS. Rosy-gray breast, white collar, red forehead and sides of head. ACTIONS. Flight heavy, regular and straight. Alights sideways on trunk of tree as often as head up; has flycatcher habit of taking insects on wing and returning to original perch, also feeds on the ground and stores nuts in cavities. Families gather in flocks. HAUNTS. Old burns in the mountains, along river courses and in open plains country. VOICE. Harsh churring sound. FOOD. Crickets, ants, wild berries, grasshoppers, larvae of beetles, pine seeds and acorns. NEST. Seldom digs own cavity, uses natural hole or one left by other bird. May be as high as a hundred feet from the ground. EGGS. Six or seven, white. CARE OF YOUNG. Both birds share in their care. DISTRIBUTION. Western United States and southwestern Canada. Fairly common in its range. MIGRATION. Local. VALUE. Useful.





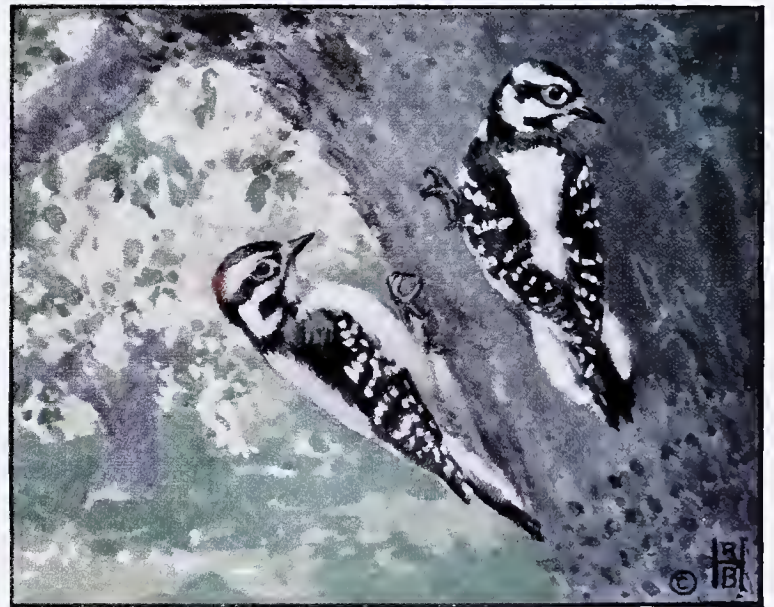
PILEATED WOODPECKER—*Phlaeotomus pileatus*



RED-HEADED WOODPECKER—*Melanerpes erythrocephalus*



RED-BELLIED WOODPECKER—*Centurus carolinus*



HAIRY WOODPECKER—*Dryobates villosus*



FLICKER—*Colaptes auratus*



LEWIS'S WOODPECKER—*Asyndesmus lewisi*



## WILLET

*Catoptrophorus semipalmatus semipalmatus*

The willet is found throughout North and South America and breeds from Virginia south to Florida and the Bahamas. It winters as far south as Brazil and Peru and is accidentally found in Europe. It is represented in the west by a slightly different form. A bird of seashore, salt and freshwater marshes, it nests near water among grass tussocks where the three or four chocolate-spotted buffy eggs are sheltered from enemies. If disturbed the birds will flutter overhead or fly off above the marsh striving to call the intruder away from their home by the constantly repeated call of *Billy-will-willet*. Although they are wading birds without webbed feet, they have been seen resting on the water in mid-ocean during the long migration flights from Canadian maritime provinces to the West Indies on the way to their winter home. The willet is becoming quite rare through overshooting.

## UPLAND PLOVER

*Bartramia longicauda*

This is one of the most useful plovers in the field of the agriculturist for it feeds upon locusts, crane-fly larvae, weevils of various sorts, and cutworms. It is found in flocks, pairs, or alone on grassy plains and meadows, rather than on the seashore. Being a shy bird it is difficult to get near it on foot, but one may easily approach it on horseback. Its nest may be on the bare ground in a bunch of grass or in a boggy meadow. The four pale olive eggs are spotted about the larger end with dark brown. This bird is difficult to distinguish in the field because its markings resemble the grass pattern. It breeds from Alaska, Canada and the plains of the United States east of the Rockies to Utah and in southern Oregon, and winters in the pampas regions of South America. In migration it occurs north to Newfoundland; occasionally in Europe and Australia.

## WILSON SNIPE

*Capella gallinago delicata*

This bird nests from the limit of tree growth in North America to central United States; winters in southern United States and Mexico south to southern Brazil. It inhabits fresh water meadows where the ground is sufficiently water-soaked to permit the use of its long sensitive bill in probing for earthworms, for crane-fly larvae, cutworms and many other injurious forms. Twilight and dark days are the preferred feeding times. The birds are not common except during migration and individuals are well protected by their markings which simulate sticks or grasses with their shadows. The nuptial song of the male is a soft *walla, walla, walla*, during a downward swooping flight. The nest is sheltered by a hillock or tuft of grass, and usually contains four olive-clay colored eggs, heavily marked with brown at the large end. The babies are able to run about immediately after hatching.

## YELLOW-LEGS

*Totanus flavipes*

Yellow-legs was formerly abundant over the whole western continent, nesting north of the United States and spending the winters in southern South America. It occurs chiefly east of the Rocky Mountains, and is found casually in Europe. An inhabitant of mud flats, marshes, either salt or fresh, or a meadow between wooded areas, it probes for small mollusks and worms, or catches minnows in the shallow pools. The simple nest, sometimes lined with grass, is usually placed so that it is protected by a clump of grass, and may either be on an upland knoll or near some body of water. There are commonly four eggs of varying shades of buff spotted with brown. During the nesting time and after the young have hatched, the male birds perch on trees, and if danger threatens, the parents lure the intruder away by screaming and flying from tree to tree away from the nest, a ruse which usually succeeds.

## GOLDEN PLOVER

*Pluvialis dominica dominica*

This is the bird which shares with the turnstone the long-flight record,—two thousand miles from its breeding ground to its winter home. It chooses the treeless tundras of Arctic America for its nesting. Here the four earth-colored eggs with their rich dark brown markings are laid in a hollow containing a few dried leaves. Marshlands, sandflats between tides, and ploughed fields supply hunting grounds over which these birds scatter to feed upon insects and larvae. These they capture by a quick stroke of their bill. In August they eat crowberries to fatten themselves for their long migratory flight to the La Plata region of South America. If conditions are favorable over the western Atlantic, the compact flock flies swiftly from Nova Scotia to northern South America. Their return is through the Mississippi Valley where they find food on their leisurely journey back to the Arctic.

## WOODCOCK

*Rubicola minor*

This curious bird is active during twilight hours. It is found in lowlands at nesting time, but later it moves to higher ground near woods. The chief requirement in feeding is that the earth be soft enough for the bird to bore with its long bill. The lower portion of the upper mandible may be moved finger-wise and so helps in taking food from the ground, while the small nostrils are at the edge of the feathers making the use of the entire bill possible. Woodcock breeds throughout its range in eastern United States north to Canada, west to the Mississippi valley, and winters in the southern states. The nest is of leaves, placed in some sheltered spot in the woods. The four grayish white eggs are spotted with reddish brown. When disturbed near its nest the bird leads the intruder away by the pretended broken-wing ruse. Its color pattern makes it nearly invisible when absolutely quiet.





WILLET—*Catoptrophorus semipalmatus semipalmatus*



YELLOW-LEGS—*Totanus flavipes*



UPLAND PLOVER—*Bartramia longicauda*



GOLDEN PLOVER—*Pluvialis dominica dominica*



WILSON SNIPE—*Capella gallinago delicata*



WOODCOCK—*Rubicola minor*



## AVOCET

*Recurvirostra americana*

The avocet is now chiefly found in the arid sections of western North America. Under protection this handsome bird would again become numerous if its home sites had not been drained. It nests west of Mississippi north into southern Canada and winters from southern California and Texas south to Guatemala. Four pointed, pale, brown-spotted eggs are laid upon the sun-baked ground and kept in place by a rim of grass and weed stems. These birds nest in colonies and when alarmed fly noisily at the intruder in a reckless attempt to drive him away. When thus in flight the short wings and square tail are noticeable. The long upcurved dark bill is deftly used in obtaining food from the muddy bottoms of ponds; it is lowered until the curved portion is well in the mud, when it is swung from side to side, thus gathering unseen larvae, shells and crustaceans. Land insects are also captured.

## BLACK-NECKED STILT

*Himantopus mexicanus*

These handsome, stately birds commonly nest in small colonies in the marshlands of western North America. Both parents share in incubation, and the young are able to run about as soon as hatched. There are usually four which have come from large pearshaped buffy eggs marked with reddish brown. The sort of nest depends upon whether it is upon dry ground or in shallow water. In the one case it will be simply a sparsely lined depression, in the other a platform of tules, or grass stems and rubbish, more frequently found about the fresh water pools than brackish ponds. Stilts breed chiefly in the Great Basin area and winter in southern United States and the northern half of South America. Essentially wading birds, they probe the muddy flats with their straight bills, or catch fish or crustaceans in the shallow water. They also feed on upland predatory beetles and grasshoppers.

## AMERICAN BLACK-BELLIED PLOVER

*Squatarola squatarola cynosurae*

This is one of the best known birds of the seashore because it is widely distributed and usually occurs in large flocks, feeding on the sand flats near the receding tide line. Almost invariably it is in company with other species and, being exceedingly wary, gives a general alarm when danger threatens. The nest, placed on bare ground, is scantily lined with broken grasses and contains three or four light, buffy, pear-shaped eggs, marked all over with dark speckles. It is likely that both birds share in incubation. This is the only true plover to have the small hind toe, which possession is one of its distinguishing characters. It breeds along the Arctic coast of America, Russia and Siberia and winters in southern United States and northern South America, Africa, India and Australia. During migration it has been known to alight upon masses of floating seaweed. Its flight is swift and graceful.

## SEMIPALMATED PLOVER

*Charadrius semipalmatus*

This dainty plover ranges along our northern coasts as well as about the shores of the larger lakes and rivers of the interior. The nest may be found either on pebbly shores or in short grass not too far from water. There are usually four drab eggs which are sparingly marked with dark brown. Both birds help in caring for them and if disturbed will pretend injury to lead the enemy away from the nest. These plovers are common along ocean beaches in flocks of their own kind or with other small beach birds. They differ from all other plovers by having half-webbed toes, designated by their name, but difficult to distinguish in the field. They live upon mollusks, small crustacea, eggs of marine animals, and upon locusts and other insects when away from the water. While feeding they scatter, but if alarmed they take wing and bunch together in flight.

## WILSON PHALAROPE

*Steganopus tricolor*

This purely American bird is a common summer resident in sloughs of the Mississippi valley from Iowa latitude to central Canada, west to northeastern California, Oregon and Washington. The males incubate the eggs and assume all care of the young while the gaily dressed females wander about carefree. The nest is a depression in soft earth, lined with grass fragments, in meadows at varying distances from water. There are three or four delicately pointed eggs of a buffy white, spotted and traced with shades of brown. Until fully fledged the young feed in marshy places, but when able to fly, they make themselves useful to the agriculturalist by eating injurious insects and their larvae, mollusks and crustaceans. The long, needle-like bill is an effective probe for these creatures of the inland fresh water areas. The red and northern phalaropes are found in the Arctic.

## RUDDY TURNSTONE

*Arenaria interpres morinella*

This bird chooses the outermost stony beaches, or sand spits which are left bared by the tide where it can turn over partly submerged stones, shells or whatever may disclose a favorite morsel of food. It is especially fond of the spawn of horseshoe crabs found along the Atlantic coast, but also eats insects, worms and small crustacea. It is found hunting alone or in small flocks. Arctic America is the breeding place for this bird which builds its nest among the pebbles near the shore. The eggs are usually four in number, clay-color with markings of light brown principally around the larger end. If disturbed when on the nest the birds will fly to some lookout point and keep perfectly quiet until danger has passed. They spend their winters from South Carolina along the Gulf Coast south to Chile and Brazil. They are rare on the Pacific Coast, where black turnstones are found in their place.





AVOCET—*Recurvirostra americana*



BLACK-NECKED STILT—*Himantopus mexicanus*



AMERICAN BLACK-BELLIED PLOVER—*Squatarola cynosuroides*



SEMPALMATED PLOVER—*Charadrius semipalmatus*



WILSON PHALAROPE—*Steganopus tricolor*



RUDDY TURNSTONE—*Arenaria interpres morinella*



## MALLARD

*Anas platyrhynchos*

The mallard is one of the largest and noisiest as well as most handsome of our ducks. He is easily domesticated and is probably the progenitor of our common breeds of tame ducks. He is common in Europe and Asia and found throughout North America. The breeding range does not extend south of central United States. A nest, in some dry tussock of weeds, is built of grass and feathery down; the six to ten eggs are pale buff. The young are able to join their parents in the water as soon as hatched. Being omnivorous, these ducks feed on animal and vegetable matter found in sloughs and ponds. In the southern rice fields, the crayfish, which abounds and does untold damage to the dykes, is a favorite morsel to the mallard and he is of great value to the rice grower for he removes a large part of this menace to the crop. Flocks spend the winter in the Great Plains and Mississippi Valley regions, and in the east and south.

## BALDPATE

*Mareca americana*

The white crown of the baldpate is its most distinguishing mark of identification. It is found from Central America to Alaska, though its breeding range is in the northern part of the Mississippi Valley and Great Plains region. The nest is built on dry ground often far from water, in a depression lined with grass and down, which surrounds the six to twelve deep cream eggs. As is usual, incubation and care of young is left to the female. By the last of August they are flocking with their parents and ready for the fall flight to the south. The winter is spent largely in inland waters and on the coasts of Atlantic and Pacific, spreading, fanwise, from Puget Sound to the Chesapeake Bay. Some move farther south into Mexico and Central America. These ducks have a striking color arrangement which is seen to excellent advantage when in flight, at which time they utter their whistled call note, *whew, whew, whew*.

## GREEN-WINGED TEAL

*Nettion carolinense*

One of the most beautiful of our ducks is the green-winged teal which is our smallest member of the duck tribe and also the swiftest on the wing. It is found from Central American to the Arctic regions and breeds over the greater part of North America north of central United States. Its nest is one of the most difficult to find for it is usually placed well away from the water at the edge of a grove or in a meadow. It is built on the ground in the upland brush-grown areas of Canada and Alaska. The five to twelve pale buffy eggs hatch into fluffy ducklings ready for the water. This teal feeds on wild fruits, insects, worms and crustaceans. It winters in that part of its breeding range where the water remains open, and south into Central America. Because of its beauty and charm, it is to be regretted that this duck is becoming so scarce that the mellow whistle of the male and the thin quack of the female is infrequently heard in the east.

## BLACK DUCK

*Anas rubripes*

Found from Labrador and Hudson Bay to Florida and Texas, this duck, known also as black mallard, is similar in flight and habits to the mallard. However, the markings on its feathers which gives the appearance of being black, and the white patches under the wing which show in flight, are distinguishing marks. One of the most numerous ducks in the eastern United States, it breeds in inland fresh water areas north from North Carolina, and also may be found in inlets along the coast. The well-concealed nest is usually on the ground but an old hawk or crow nest has, at times, been used for the six to twelve buff eggs. When incubation begins the males flock by themselves, leaving the family cares to the very efficient females. These ducks feed on seeds and plants on the water's surface; but add insect larvae, mollusks and other inhabitants of the shallow water and mud beneath, by tipping tail-up and probing with their bills.

## CINNAMON TEAL

*Querquedula cyanoptera*

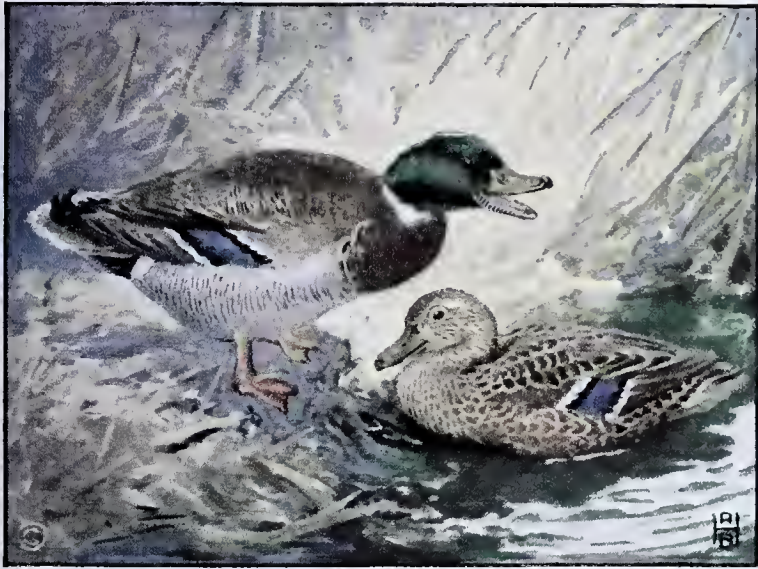
This duck with reddish plumage breeds both in North America and in the extreme southern part of South America. It is abundant west of the Rocky Mountains. The nest, built of dried grass, with gray down lining, may be at the edge of a marsh or in a sheltered depression in the ground several hundred feet away. There are six to fourteen eggs varying from white to pinkish-buff in color. The female incubates, but the male assists in caring for the downy young who are taken to the water as soon as hatched. If disturbed they vanish by diving, or if on shore disappear in the grass. The parents, meanwhile, distract attention by fluttering as though injured, thus giving the babes time to conceal themselves. These ducks are seldom found in large flocks, but commonly in pairs or families. They feed on seeds and plants of sedges and pondweeds, insects and snails. The winter is spent in southwestern North America and central South America.

## BLUE-WINGED TEAL

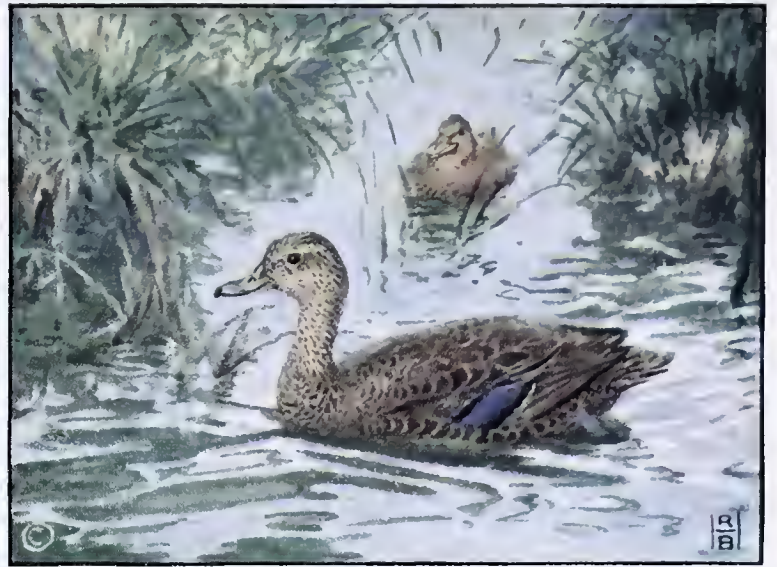
*Querquedula discors*

The blue-winged teal is exceedingly shy and is seldom seen in large open bodies of water. It frequents small ponds or sluggish streams where it finds an abundance of aquatic plants. It ranges in summer across North America from the middle of the United States throughout Canada to the arctic tundras. The nest may be among cat-tails at the edge of a slough, along a roadway, on the prairie far from water or in grassy field. It is a basket of dried grass, lined with down which is used only as a covering for the six to twelve cream colored eggs when the parent is away. The young begin to gather in flocks even before they are able to fly and are ready to leave early for their winter range in the rice fields of southern North America and in the marshes of northern South America. This teal has been called the winged bullet because of the suddenness with which it leaves the water and the direct, sustained and rapid flight of which it is capable.

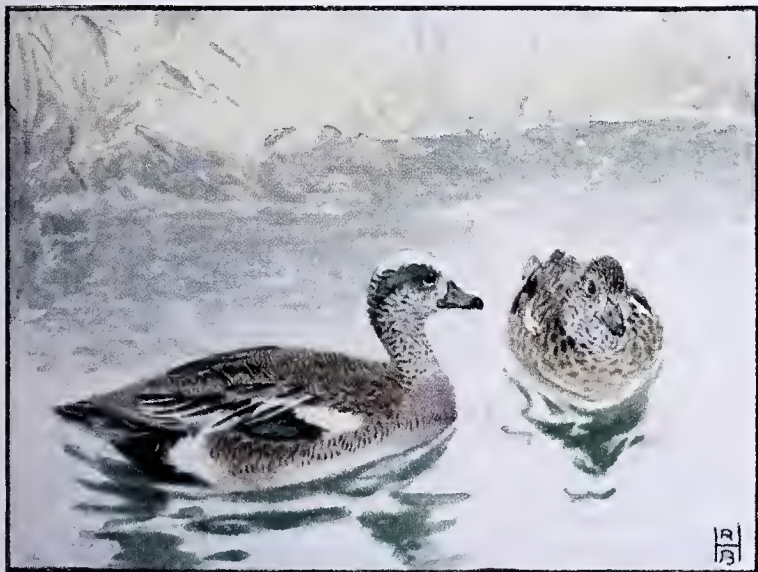




MALLARD—*Anas platyrhynchos*



BLACK DUCK—*Anas rubripes*



BALDPATE—*Mareca americana*



CINNAMON TEAL—*Querquedula cyanoptera*



GREEN-WINGED TEAL—*Nettion carolinense*



BLUE-WINGED TEAL—*Querquedula discors*



## PINTAIL

*Dafila acuta tzitzihoa*

Among the first ducks to move north in the spring are the large pintails, less well known than most of the tip-up ducks which hunt in the shallow water for seeds, plants, crustaceans and insects. They breed in northwestern United States and northward in the prairie country of Canada. The nest of grasses, lined with down, is usually placed upon the ground near water though it is sometimes found at a distance. The gray-olive eggs number five to ten and are laid so early in the season that in north-central Canada the young are fully fledged by the last of June. These ducks are among the swiftest in flight, and have slender necks, thin bodies and long wings, and are easily distinguished from other species by these characters. They are found in Europe as well as in North America, where they range from Panama to the extreme north; winter from southern Canada in the open waters south through United States, and also in Hawaiian Islands.

## REDHEAD

*Nyroca americana*

The breeding ground of the redhead is in the marshes and sloughs west of the Mississippi from Nebraska through northwestern United States and southwestern Canada. The bulky nest, placed on ground near water, or on a platform of reeds over deep water, is made of grass and rushes lined with downy feathers. The seven to fourteen eggs are yellowish white. When the young are grown these ducks congregate in immense flocks. Part of them spend the winter months in the open waters of our large inland lakes, many others migrate to the coasts of the Atlantic and the Gulf of Mexico, where they are found in company with canvas-backs and known as raft ducks, still others spend their playtime in Central America. They feed on the roots and stems of aquatic plants and on small fish, crustaceans and mollusks, which they obtain by skillful diving. This is one species of wild duck which gives promise of domestication.

## SHOVELLER

*Spatula clypeata*

One of the most widely distributed ducks is the spoon-bill. It inhabits North America, occurs in Europe and Asia, and wanders south in winter to Africa, Australia and South America. It is a fresh water duck at all seasons and is seldom seen on the coasts. It spends the winters in shallow inland waters of the southern states and Mexico. It is deliberate about its northern migration and small flocks loiter in ponds on the way to the breeding ground which may be in northern United States or southern Canada. The nest is a well-hidden depression in the ground lined with dry grass and down. The six to twelve eggs are olive gray. Care of the young is left to the female. Shovellers are surface feeding ducks as their curious bills indicate. They paddle along skimming the surface of the water, retaining food particles in the mouth while freeing the water through the sieve-like edges of the mandibles.

## GADWALL

*Chaulelasmus streperus*

The medium-sized, rather inconspicuous gadwall, like the mallard, feeds in shallow water and on land, eating acorns and grains as well as pond plants and insect larvae. It breeds throughout the great plains of United States and southwestern Canada, placing its nest in a depression in dry ground some distance from water, and lining it with weed stems, grasses and down. The eggs number seven to twelve and are light buff in color. The young are much like the brown downy ducklings of the mallards only lighter in color. Gadwalls are able to walk easily about on land and forage for food in woods and fields. They migrate in small groups, perhaps only a family or two, and spend the winter months in Mexico, and the southern states, east to the Atlantic and west to the Pacific Oceans. It is also found in the Eastern Continent and winters in Africa and India. It has been esteemed as food by many but is not commonly used in that way.

## CANVAS-BACK

*Aristonetta valisineria*

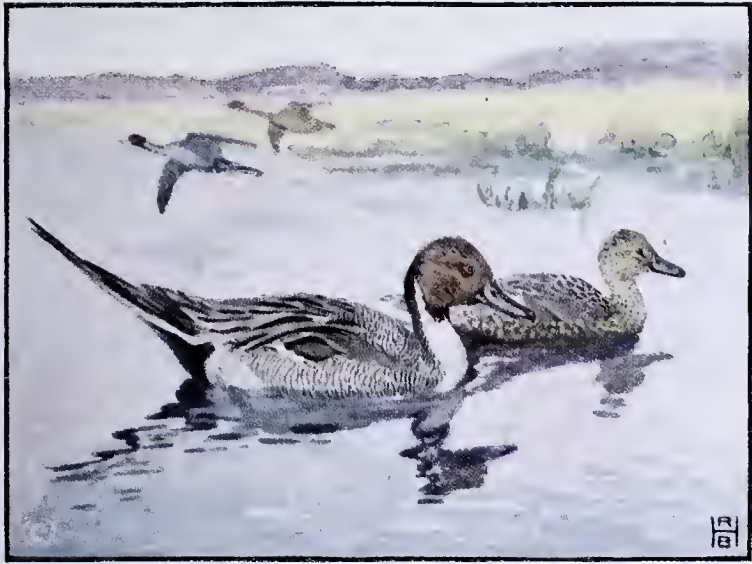
Perhaps the most famous of all our ducks is the canvas-back; for sportsmen have hunted it and epicures have feasted upon it from early times. The naturalist also finds much of interest about it. Great flocks are found on large streams, semi-brackish inlets or bays and in fresh water lakes where it gathers after nesting time is over and migration days are near. Its breeding range is from Nebraska to Alaska and the nest, usually placed on the ground in some marshy spot, is built of grass and lined with many feathers. There are six to ten greenish-buffy eggs. The chicks are yellow-olive and can be distinguished from those of other ducks by the straight line of bill and forehead, which is also one of the identification marks of the adult, together with the red head and neck and the whitish back. These ducks are swift in flight and on the water. They feed upon wild water plants obtained by diving.

## LESSER SCAUP DUCK

*Fulix affinis*

Lesser scaup or little bluebill, is abundant and found in flocks over northern United States and Canada from the Atlantic to the Pacific. Its breeding limit is central United States, and in some prairie marsh north of this a well built nest of weeds and grass, with a soft lining of feathery down, will contain six to ten grayish-olive eggs sometime during June. The downy young are rich olive brown in color. It is between two and three months before they are ready to fly. Being typical diving ducks, scaups obtain their food of water plants, insects, mollusks and crustaceans in this manner. The wide, light colored band about the black body, the black head, bluish bill and white wing bars are distinguishing field marks of the male, the white forehead and wingbars mark the brownish female. During the winter these marine ducks gather in great rafts on the waters along the coast of southeastern United States.





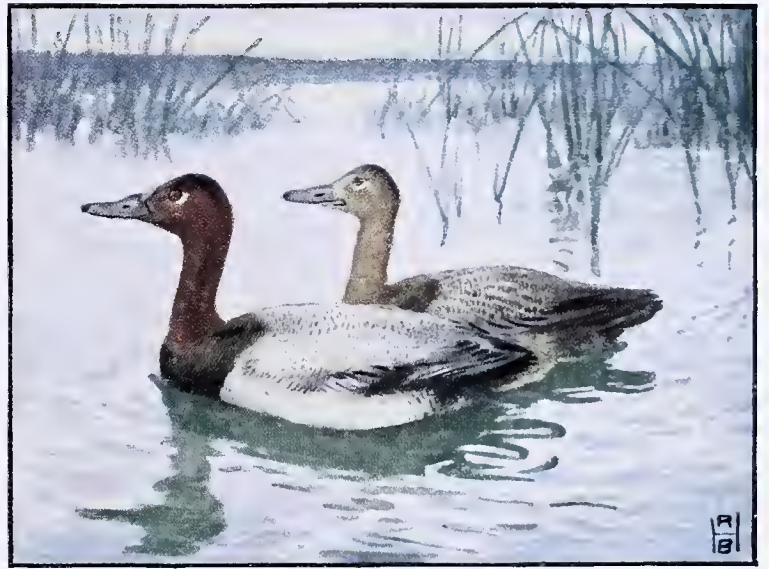
PINTAIL—*Dafila acuta tzitzihoa*



GADWALL—*Chaulelasmus streperus*



REDHEAD—*Nyroca americana*



CANVAS-BACK—*Aristonetta valisineria*



SHOVELLER—*Spatula clypeata*



LESSER SCAUP DUCK—*Fulix affinis*



## DUCK HAWK

*Falco peregrinus anatum*

The whole of continental America affords a home for this species which is the swiftest, most daring of hawks. It is the American form of the Old World peregrine falcon. The quick wing beat, unlike that of most other hawks, is an excellent field character. When hunting, it rises above its prey and drops directly down, seldom missing a catch. During the nesting season small game birds, woodpeckers and the like are taken to the eyrie, usually a ledge on some inaccessible cliff. The three or four dull white eggs are much blotched with brown. When family cares are over and the young can catch their own food, they frequent waterways inhabited by ducks and shorebirds. These they are known to kill beyond their needs for sometimes the dead are left where they fall. A destructive hawk, but interesting from its prominence in falconry. Average length: male, 16.00; female, 19.00.

## COOPER HAWK

*Accipiter cooperi*

The Cooper hawk is a larger counterpart of the sharpshin and hence is more destructive. Its swiftness and habit of flying low and irregularly make it much dreaded, and it really merits the name of "hen hawk" for it will dash into a poultry yard and carry off a good sized chicken, disregarding the presence of the owner. Its nest may be a remodeled crow's nest in some tall tree, and may serve for a number of years, being renewed each spring. The three to six eggs are pale bluish or greenish white, sometimes spotted with reddish brown. The Cooper hawk is found over the whole of temperate North America, including the greater part of Mexico. A flight character is the rounded tail which, together with the greater size of the bird, distinguishes it from the sharp-shinned hawk whose tail is square. The immature birds are generally brownish. Destructive hawk. Average length: male, 15.50; female, 19.00.

## RED-TAILED HAWK

*Buteo borealis*

This is one of the hawks erroneously called "chicken hawk." Where his preferred food of small quadrupeds abounds he is content, and will perch upon a high lookout, or soar slowly around over some rocky hillside in search of them. In adult birds the red tail is a striking field mark and is common to all subspecies found in North America, even the sooty black phase showing this character. The young resembles the adult in general coloring but the tail is without the red. The nest, used year after year, is placed thirty to seventy feet from the ground. The two to four dull white eggs are irregularly marked with brown. This bird and its smaller relative, the red-shouldered hawk, are similar in habits and, because easily observed, they are often accused of the deeds of the dashing sharp-shinned and Cooper hawks, which quickly get out of sight with their victims. Beneficial hawk. Average length, male, 20.00; female, 23.00.

## AMERICAN GOSHAWK

*Astur atricapillus*

The goshawk is the fiercest, most destructive, and most daring of all the hawks, but, because its breeding range is far north and it is fewer in number than the Cooper, the aggregate damage to poultry is less; though grouse and other game birds suffer greatly, mammals and insects are also taken. The difference between adult and young is marked: immature birds are distinctly brown above, and more strongly marked below, but are equally rapacious. Because of the coloring, the depredations of the young birds are often laid to the harmless red-tail. The nest, built of sticks and twigs lined with strips of bark, is usually high up in a conifer in the heart of a forest. The two to five eggs are white or bluish white faintly marked with pale brown. The western goshawk is more strongly marked and of a darker color. It breeds from Sitka south into California. Destructive. Average length: male, 22.00; female, 24.50.

## SHARP-SHINNED HAWK

*Accipiter velox*

This small audacious hawk is able to capture its prey on the wing even in a thicket, or to slip noiselessly upon a flock of feeding birds and carry one off. Thus it is a terror in the poultry yard and deserves the name "chicken hawk," for it can dart down and seize a chick before the mother can come to the rescue. Small rodents and insects, however, are also found to be part of its daily food. This species breeds throughout North America as far north as the limit of tree growth, and winters from central United States to Guatemala. A remodeled squirrel nest in a dense tree may be used for the four to five bluish or greenish white, brown-blotched eggs. The young differ from their parents in having vertical streaks on the breast instead of transverse bands. A good character observable in flight is the square tail. It is perhaps our most destructive hawk. Average length: male, 11.25; female, 13.50.

## AMERICAN SPARROW HAWK

*Falco sparverius*

This bird is found all over temperate North America, varying slightly according to different climatic conditions. It is the smallest and one of the most beneficial of our hawks, feeding largely on grasshoppers and other insects. It selects a high perch in the open from which to launch out over its prey, sometimes remaining poised with rapidly beating wings, before dropping lightly upon its victim. This it carries back to the perch to eat leisurely. The male and female differ somewhat in color markings, but they are seldom far apart and the cry of "Killy, killy, killy," will identify either of them. This hawk chooses some natural cavity in tree or rock, or sometimes a nest box, in which to raise its young. The three to seven eggs are creamy white thickly marked with brown. The family stays together during the season. A beneficial hawk which should be protected. Average length: male, 8.75-10.60; female, 9.50-12.00.





DUCK HAWK—*Falco peregrinus anatum*



GOSHAWK—*Astur atricapillus*



COOPER HAWK—*Accipiter cooperi*



SHARP-SHINNED HAWK—*Accipiter velox*



RED-TAILED HAWK—*Buteo borealis*



SPARROW HAWK—*Falco sparverius*



## RED-SHOULDERED HAWK

*Buteo lineatus*

This bird is quite as common as the red-tailed hawk, but because it keeps more to the wooded areas along streams it is not so well known. However, it is one of our most useful birds of prey for it is an omnivorous feeder, including reptiles, amphibians, fish, snails, crayfish, and spiders as well as injurious mammals and insects on its bill of fare. Its manner of hunting is similar to that of the red-tail and it may be seen soaring in wide circles over its feeding ground. Its nest is usually placed in the fork of a tall pine, beech, birch or elm and is a bulky affair made largely of sticks. The three to five dull white eggs are blotched with yellowish brown. The young often remain with the parents throughout the season. The bird is found over all of eastern North America. Its call sometimes sounds like that of the jay. A beneficial hawk and should be protected. Average length: male, 18.30; female, 20.35.

## ROUGH-LEGGED HAWK

*Archibuteo lagopus sancti-johannis*

As its name suggests, the leg feathers of this bird extend to the toes. It is a species which breeds in Alaska and Canada, and is only a winter visitant in the northern United States. Its feathers are fluffy-edged and thus its flight is noiseless, and its habits of hunting in the twilight makes it of special value in destroying meadow mice. It may either sit quietly on a low perch watching, or fly slowly over the ground and drop on its prey in the manner of the marsh hawk. It nests in trees or on rocky ledges. The three to five dull white eggs are sometimes marked with brown. The ferruginous rough-leg, found in Western North America, is somewhat similar but is larger; it wages endless war on the destructive ground squirrel. The amount and extent of snow determine the winter range of these birds, especially of the northern-breeding species. A beneficial hawk. Average length, male, 20.00; female, 22.00.

## SWAINSON HAWK

*Buteo swainsoni*

This is the characteristic western hawk and is the most abundant species of the prairies and the plains, choosing sage brush and bunch grass country rather than timbered mountain regions. It may select a cottonwood near some stream for its nesting site; and may have as close neighbors a family of kingbirds, which proves this hawk to be a friendly, inoffensive fellow. Its food is mainly small rodents such as striped ground squirrels and mice, varied with grasshoppers and large black crickets, hence it is a valuable aid to agriculturists. The nest is built of sticks and lined with leaves and grass. The eggs number one to four and are greenish white faintly spotted with brown. In the United States this bird is found from the Pacific to Iowa, Minnesota and Arkansas, rarely east of the Mississippi. Its greater range is from southern Canada to Argentina. A beneficial hawk. Average length: male, 19.50; female, 21.50.

## BROAD-WINGED HAWK

*Buteo platypterus*

This is a hawk of the woodland and is of local distribution. It is uncommonly sluggish in habit and may perch motionless upon some dry treetop for hours at a time. If disturbed it will make a short flight and settle again. However, if it spies some small animal, a frog, a mouse, shrew, mole or squirrel, it will dart from its vantage point upon the unsuspecting creature. Its high pitched call is much like that of the wood pewee, for which it is sometimes mistaken. Its nest, usually placed high above ground in the crotch of a tree, is loosely built of sticks and lined with moss, strips of bark, small roots and feathers. The two to five pale grayish or greenish white eggs are heavily spotted with brown. It summers mainly east of the Mississippi, and winters from Oklahoma to Venezuela. A beneficial and beautiful hawk—the policeman of the wood-lot. Average length: male, 15.89; female, 16.76.

## MARSH HAWK

*Circus hudsonius*

Marsh hawks are birds of the open country. They may perch upon hummocks of grass or fly low, in an erratic zig-zag fashion over meadows and plains searching every square foot for a possible meal. Their food consists chiefly of small mammals, though birds, snakes, frogs and sometimes poultry, have been found on their menu. During the nesting season thousands of mice are used by this species in feeding their young. The dried grass nest, built in a bunch of weeds upon the ground near a pond or marsh, may contain from two to nine dull or bluish-white eggs. Both birds care for the young and all remain together during the summer. They are readily distinguished in all plumages by the conspicuous white rump. Found throughout North America, they nest from Alaska to the middle United States, and winter from British Columbia to South America. A beneficial hawk. Average length: male, 19.00; female, 22.00.

## OSPREY

*Pandion haliaëtus carolinensis*

There seems to be but one osprey found all over the world, geographic considerations being the only basis for division into subspecies. In America they are commonly called fish hawks, which at once designates their food and choice of home. This is never far from water in which fish abound, either a shallow stream or one which affords varieties of surface swimming fish. The osprey flies slowly, high above the water, pauses to hover a moment, then plunges with folded wings directly upon its victim, which it carries head forward to a favorite perch to be eaten. The bulky nest to which the birds return year after year may be on the flat top of some eastern conifer, on a lofty pinnacle in Yellowstone Canyon, or some similar lookout. There are two to four variable eggs, usually buffy blotched with chocolate brown. These birds are sometimes colonial because of identity of needs. They mate for life. Average length: 23.10.





RED-SHOULDERED HAWK—*Buteo lineatus*



BROAD-WINGED HAWK—*Buteo platypterus*



ROUGH-LEGGED HAWK—*Archibuteo lagopus sancti-johannis*



MARSH HAWK—*Circus hudsonius*



SWAINSON HAWK—*Buteo swainsoni*



OSPREY OR FISH HAWK—*Pandion haliaëtus carolinensis*



## EASTERN WOODCHUCK

*Marmota monax*

North America has several species of marmots, but the common eastern woodchuck is known to everyone as the Ground Hog. Piles of dirt mark the openings of the burrows on grassy hillsides or open fields not too far from bordering woodlands. Within are long tunnels leading to a snug chamber lined with soft grass and leaves, where, in the late spring, three to nine blind and helpless young are born. In a few weeks they fare forth to feed on clover and other succulent plants, never going far from home, for they have many enemies and must be able instantly to pop into their holes at the sound of their watchful mother's shrill, sharp whistle. Woodchucks do not store up food, but eat heavily during the early fall and become excessively fat. In October or November they retire to their dens for a long hibernating sleep which lasts until spring. Length about twenty-three inches, weight eight pounds.

## DOUGLAS'S PINE SQUIRREL

*Sciurus douglasii*

Owing to its home environment, this squirrel is darker and browner than its relatives, for it inhabits the moist, coniferous forests west of the Cascades in the Pacific Northwest. It is a noisy little animal, scolding or singing as the mood of the moment indicates. At mating time, and again in the summer when the young are trying out their voices, the woods ring with their music. Any edible thing will do for a red squirrel's meal—seeds from conifer, oak, hazel and various other plants; roots, mushrooms, and insects. The nests most commonly observed are those bulky masses of twigs and leaves in a forking branch of some tree; these are lined with soft material and, at any time from April to October, may be the home of from three to seven young. During the winter they live upon the stores collected in the time of plenty, but will journey to a distant place, if necessary, for food. Average length fourteen inches.

## MUSKRAT

*Fiber zibethicus*

Muskrats are purely North American animals. Because of their aquatic habits they are found along streams, in lakes, ponds and marshes nearly all over the wooded part of the continent. Their long scaly tails, flattened vertically, act as rudders when the stocky animals are in the water. The young, several litters in a season, number from three to thirteen, so that there is little danger of extermination at present, though their fur has been extensively used under various trade names. The cone-shaped lodges, built of roots and stems of plants mixed with mud, dot the marshland, each with an oval chamber well above the water level, with passages leading to it from under the water. This is the usual winter home. They are mainly nocturnal in habits. Their usual diet is of roots and stems of water plants, varied with fresh-water clams. The average length is twenty-one inches, weight two pounds.

## COTTONTAIL RABBIT

*Sylvilagus floridanus*

The American Cottontail combines the characteristics of both hares and rabbits, though he is distinctly smaller than the hares, with shorter legs and smaller feet and ears. The chief distinguishing mark is the fluffy snow-white underside of the tail, always visible in retreat. Various forms are found from the deciduous forests of the east, across the grass-grown plains to the Pacific coast. Cottontail is partial to brushy borders of cultivated lands, where he may make a "form" in which to conceal himself, but he will occupy a deserted burrow in open country if necessary. He lives on vegetable food and is a pest to forage-fields and orchards, when his kind becomes too numerous. Several litters of young are born during the summer, in nests made of dead grasses warmly lined with fur from the mother's body. When caught, the young utter little cries of alarm. Average adult length eighteen inches, weight three pounds.

## TOWNSEND'S CHIPMUNK

*Eutamias townsendii*

This is the darkest of the many species of chipmunk in the western states and ranges along the Pacific coast. It is distinctly larger and stronger than its relatives. The habitat is varied, but old fences, fallen timber, brushy thickets which offer berries, seeds and nuts are favored by this alert little creature. Chipmunks carry their stores in cheek pouches to some specially selected spot, where they leisurely enjoy their meal and leave a telltale pile of shells and seed coverings. The little fellows will chatter sociably until disturbed; then they utter a sharp chirping note and vanish. Burrows with nest chambers and storerooms are their homes, whence they retire to sleep from early autumn till spring. They do not sleep so soundly as other species, and in the southern part of their range they do not hibernate. The young are born in late spring. Average adult measurement is ten inches.

## BEAVER

*Castor canadensis*

Beavers, within their range, occur from sea level to an elevation of more than 9,000 feet. They are heavy, round-bodied animals with short legs, webbed hind feet, a flat scaled tail and chisel-like teeth strong enough to cut down trees. They dig canals on which to float branches and logs for building and food purposes. Dams are constructed in streams to form ponds in which they build conical lodges, with entrances through passages below the water surface. High banks are also used in which to tunnel homes. For winter food, which consists of the bark of deciduous trees, they store freshly cut green twigs, sticks and poles in the bottom of the ponds by weighting them down with mud and stones. Most of this activity takes place at night, though they often work during the day. They probably mate for life and have from two to five young each year. Their average length is about forty-two inches.





EASTERN WOODCHUCK—*Marmota monax*



COTTONTAIL RABBIT—*Sylvilagus floridanus*



DOUGLAS'S PINE SQUIRREL—*Sciurus douglasii*



TOWNSEND'S CHIPMUNK—*Eutamias townsendii*



MUSKRAT—*Fiber zibethicus*



BEAVER—*Castor canadensis*



## BADGER

*Taxidea taxus*

The American badger is a close relative of the old-world form. Its habitat varies from pine forests or dry tropical lowlands to the northern plains, wherever there is to be found an abundance of mice, gophers, ground squirrels, prairie dogs, or other small mammals; for it is a powerful digging machine and can capture any of them at will. Although a member of the weasel family, the badger is not nearly so agile as its relatives, so must make up by strength and courage what it lacks in quickness. It is short-legged and squat, so slow-footed that a man may overtake it, but when brought to bay it fights viciously. Usually a solitary animal, it is shy and retiring in nature so that not much is known of its family life, but there are generally three or four young. The length of adults of this member of the family is about twenty-eight inches, and the weight is fifteen pounds.

## MINK

*Mustela vison*

This is one of the most widely known fur bearers of the North American weasel family. It is long-bodied and heavily proportioned, while its short legs and arched body cause it to walk slowly and clumsily; but, if it wishes to get over the ground rapidly, it moves in a series of springy bounds. However, it swims with ease and thus obtains fish, frogs, crayfish, or clams as a part of its food, supplementing the diet of small mammals, moles, mice and rats. Though largely nocturnal, it is a very restless creature and is sometimes active by day. It chooses an old muskrat hole or cranny in the rocks in which to build its nest of grass and leaves, lining it with hair, feathers and other soft material. There is a single litter of from four to twelve young, born during April or May. They remain with the mother throughout the summer, but make their own homes in the fall. Length about fifteen to twenty inches.

## STRIPED SKUNK

*Mephitis mephitis*

Striped skunk are found over much of North America, except on waterless plains or in deep forests. They favor areas of mixed woodland and fields or brushy places near water. Their homes may be in deserted burrows, hollow logs, or holes of their own digging. A nest of grass and leaves at the end of the tunnel serves as the home for four to ten young until they are old enough to follow the mother on her nightly forays for food. They feed chiefly on injurious rodents and insects. Skunks walk on the soles of their feet and, when mildly displeased, stamp on the ground with their front feet and growl. The family remains together through the winter and enters into a state of semi-hibernation for the coldest months. When this period is over the family scatters to find other fields to conquer. They average two feet in length and weigh seven to ten pounds.

## OPOSSUM

*Didelphis virginiana*

This is the only marsupial found in the United States. The long, hairless, prehensile tail, the naked ears, piglike snout, and the long, coarse hair, together with the widely spread toes, are the chief distinguishing marks. These animals love the vicinity of water and are most numerous in swamps and bottom land bordering streams. Their dens are in hollow trees, and their food consists of almost everything, animal or vegetable, which they gather on their nocturnal rounds. The young, from five to fourteen, are born in an extremely immature condition, but are able to crawl into the pouch, where they remain attached to the nipples for six or eight weeks while they are growing to be miniature editions of their mother and less dependent. Then they cling firmly to their mother's fur and are carried wherever she goes for several weeks, returning to the pouch at times. The average length is about thirty inches.

## NEW YORK WEASEL

*Mustela noveboracensis*

This weasel is one of the larger varieties which change their brown summer coats to snowy white in winter. The tip of the long tail is jet black and contrasts strongly with the winter pelage. Their flattened heads, slender necks and lithe bodies, together with keen eyesight and hearing, extraordinary celerity of movement, and courage, make it possible for them to follow their prey anywhere. Hares, cottontails, all kinds of rodents and some birds need to keep a sharp watch, both day and night, for these creatures will unhesitatingly attack an animal much larger than themselves. Burrows are found under ledges, stone walls, or in hollow trees. They have one litter of from four to twelve. The young remain with the parent until quite grown. Despite the persecution to which they expose themselves, their number is practically undiminished in most of their original area. The adult is about fifteen inches long.

## RACCOON

*Procyon lotor*

The raccoon is found only on the North American continent and is common in most wooded portions of the United States with the exception of the high mountain ranges. He is an expert tree climber and makes his home in the hollows far from the ground. The family consists of two to six young, who use the same den until grown, and even then they travel together. The raccoon is nocturnal and hunts along the banks of streams, where he finds clams, crayfish, frogs and plant food, all of which he carefully washes before eating. Raccoons are very intelligent animals and make interesting pets. Their hind feet rest flat upon the ground, while the front toes are separated so that the foot may be used as a hand. Food is oftentimes discovered by the sensitive touch of those fingers in advance of either sight or smell. The average length is thirty-two inches, weight fifteen to twenty pounds.





BADGER—*Taxidea taxus*



OPOSSUM—*Didelphis virginiana*



MINK—*Mustela vison*



NEW YORK WEASEL—*Mustela noveboracensis*



STRIPED SKUNK—*Mephitis mephitis*



RACCOON—*Procyon lotor*



## SHORT-TAILED SHREW

*Blarina brevicauda*

Despite its much smaller size, this shrew is often confused with the mole, perhaps because of the ridges left by its burrowings. Peculiar to North America, it is probably the most numerous mammal in eastern United States. It will be found wherever the ground is soft enough to push aside for the erratic runways. Shrews are omnivorous, relishing seeds, nuts and other vegetable matter, earthworms, sowbugs, insects and mice larger than themselves. They are constantly busy and store snails and insects in their underground rooms. In autumn some of them move near the dwellings of man to take advantage of food and shelter and the good mouse hunting. They move about quickly. Their senses of touch, hearing and smell are highly developed. The flexible end of the snout is in constant motion seeking food. Since they are wholly beneficial creatures it is well that there are several litters of four to six, born during the summer and fall.

## MOLE

*Scalopus aquaticus*

Much undeserved blame descends upon the mole in our garden. Destructive cutworms, grubs and earthworms are on his menu and he has few vegetarian tendencies. The death of plants above his burrow is caused by the drying air he lets in to shrivel their tiny root hairs. Thus he does unwitting damage as he tunnels for food and home. He shoves the earth ahead of him with his broad, strong feet and makes piles of dirt on top of the ground. These cause him to be confused with the gopher who eats roots and bulbs of plants. He is a rodent while the mole is an insectivore. There are usually four to six young born in March and ready to burrow their own tunnels by June. Runways near the surface are for hunting. Those at lower levels, for travel, are community roads. Moles of some species are found commonly in the eastern half of the United States and southern Canada, and the Pacific Coast region.

## POCKET GOPHER

*Geomys bursarius*

Gophers are rodents with chisel-like front teeth which they use to cut grasses, fibrous and woody roots, and tubers to fit into their cheek pouches. This material may be eaten or stored, for gophers are active throughout the year. They have many tunnels for storage and living quarters and spend most of their time underground. In uncultivated level areas they are undoubtedly of value to the land as they keep the soil stirred and bring the subsoil to the surface much as earthworms do in smaller quantities, but on steep slopes this soil is washed away and the land impoverished. In man's domain he destroys plants—root, stem and fruit. There may be as many as seven young each season. When half grown these begin burrows of their own. Gophers dig with their strong claws and powerful teeth and shove the dirt to the surface with the palms of the front feet, head and breast. They move forward or backward with equal ease.

## WHITE-FOOTED MOUSE

*Peromyscus leucopus*

This exceedingly nimble, graceful mouse may be distinguished from the house mouse by his shorter body, the fawn color on the back and the white below even to the dainty white feet for which he is named. He also has cheek pouches in which to carry grain, seeds and nuts. These he stores in hollow logs, stumps, or in the ground. His winter home is often a roofed-over bird's nest whence he sallies forth for food. His progeny are numerous as there are several litters each summer. The three to seven young are blind and helpless at birth. Many kinds of white-footed mice are found from tree limit in the north to tropic Yucatan. Dainty track patterns may be seen in the snows of winter, in the dust of the desert at dawn, or even in volcanic ash at an elevation of fifteen thousand feet, as on Mt. Orizaba in Mexico. This is the greatest elevation in North America at which a mammal has been known to exist.

## MEADOW MOUSE

*Microtus pennsylvanicus*

Probably the most abundant rodent in the world is the meadow mouse. He is found all over the northern hemisphere from Arctic tundras to the mountains of India and Mexico. Equally at home in grassy meadows or along streams, he is an excellent swimmer and diver. In England a common species is called the water vole. Our American meadow mouse makes elaborate runways, kept smooth and clear of rubbish to facilitate escape. Large underground chambers are filled with dried grass for winter shelter. Hollows nearer the surface are used as nurseries where several litters of four to eleven young are raised. In the autumn these mice come together about the farmers' stacks under which they tunnel and literally eat out the hearts. They invade orchards and gnaw bark from roots and base of tree trunks. In California they carry many raisins from drying fields, use the seeds and discard the rest. In the Arctic they store bulbous grass roots.

## BROWN LEMMING

*Lemmus trimucronatus*

Lemmings resemble heavy field mice with short tails. They are courageous and fierce but may be tamed. Their habitat is the Arctic region, where their winding, many-branched tunnels may be found everywhere, with underground rooms lined with moss and soft grass. They do not hibernate. The young number two to eight, and there are probably several litters, as young have been observed at different times during the summer. At times the increase is so great that there is not enough food for the hordes so they start on a pilgrimage, myriads of them, eating all available vegetation in their path. Sometimes these pilgrimages continue more than one season although the numbers are soon seriously depleted by innumerable enemies which travel in the same general direction. No obstacle hinders their progress, they swim streams and lakes—even the sea does not stop them and many meet their end in its depths, as do those of the old-world tales.





SHORT-TAILED SHREW—*Blarina brevicauda*



WHITE-FOOTED MOUSE—*Peromyscus leucopus*



MOLE—*Scalopus aquaticus*



MEADOW MOUSE—*Microtus pennsylvanicus*



POCKET GOPHER—*Geomys bursarius*



BROWN LEMMING—*Lemmus trimucronatus*



## GRAY FOX

*Urocyon cinereoargenteus*

RANGE. North America from the extreme southern part of Canada through United States, Mexico and Central America. COLOR. Grayish-silver above, neck and band across chest red-brown, under parts white. FIELD MARKS. Pointed ears, broad face, hair moderately long and thick, the bushy tail black-tipped and keeled vertically. LENGTH. Three feet. WEIGHT. Eight pounds. VOICE. Bark. HABITS. Climbs trees readily as a refuge or to gather fruit. Less swift and enduring than the red fox. FOOD. Rabbits, mice and other small rodents, squirrels, birds, eggs, reptiles, insects, berries, persimmons and grapes. HOME. Usually in a hollow log or tree trunk, or under a rock shelter. YOUNG. Four or five born in the spring; look like small black puppies. ABUNDANCE. Common in southern states, rare northwardly; in most sections they have become scarce due to persistent hunting. VALUE. Its fur is used.

## ARCTIC FOX

*Alopex innuitus*

RANGE. Circumpolar, above the limit of trees. COLOR. In summer it is normally dark brown above and tawny beneath, in winter the coat is pure white. FIELD MARKS. Small and delicate form with long fluffy fur. Dark color phase is known as the blue fox. LENGTH. A little over two feet. WEIGHT. Eight to ten pounds. VOICE. Weak, husky bark. HABITS. Less suspicious than southern species. Inhabits the tundras and ice-covered wastes, associating with the polar bear for discarded scraps of food. Stores food but never enough to last through the winter, so some foxes must move southward. FOOD. Birds, mice, lemmings, invertebrates and stranded marine animals. HOME. The dens usually have several entrances and are dug in sandy gravel or under a rock. YOUNG. Four to six, weighing only two and one-half ounces, born in June. ABUNDANCE. Still fairly common. VALUE. For fur.

## KIT FOX

*Vulpes velox*

RANGE. Treeless prairies and deserts of western North America from Saskatchewan plains to Texas and west into California. COLOR. Pale grayish-yellow above and white below. FIELD MARKS. Slender, stocky body, bushy, black-tipped tail, long ears and abundant fur. LENGTH. Two feet. The smallest member of the genus. WEIGHT. Four pounds. VOICE. A yap. HABITS. Digs burrow skillfully and speedily and stays rather close to home. Moves swiftly and gracefully. FOOD. Mice and other small rodents, birds and probably insects. HOME. A many-branched den as much as nine feet below the surface of the ground, lined with grass. YOUNG. Five. Both parents share in their care and have been known to attract the attention of a dog while the cubs slip back into the burrow. It is thought that this fox mates for life though it is not definitely known. ABUNDANCE. Nearly exterminated over most of its range. VALUE. Little.

## RED FOX

*Vulpes fulva*

RANGE. Most of wooded North America. COLOR. Normally yellow-red and white. FIELD MARKS. Long, bushy, white-tipped tail; erect, pointed ears; tapering nose; long, sharp, nonretractile claws; black feet and soft fur. LENGTH. Three feet. WEIGHT. Ten to twenty pounds. VOICE. Short, harsh bark. HABITS. Speedy, enduring, daring, alert, resourceful and cunning. Have regular paths along waterways, across hills and through valleys. In general they circle about the home. FOOD. Mammals and birds including poultry when within reach. HOME. A den dug by parents or a natural cavity in the earth, has a strong odor of musk. YOUNG. Four to nine born in April, cared for by both parents, male carries food to the den. Eyes of the young open when nine days old, they stay in the den three or four weeks, and with parents until late autumn, when they scatter. ABUNDANCE. Reasonably common. VALUE. Mainly for their fur.

## LITTLE SPOTTED SKUNK

*Spilogale putorius*

RANGE. Forested portions of southern and western states. COLOR. Black and white. FIELD MARKS. Spots and bands of color irregular except four white stripes from ears to center of back. Pudgy, small ears, long bushy tail. Hair long, drooping and glistening. LENGTH. Eighteen to twenty inches. WEIGHT. One and a half pounds. VOICE. Excited chipping. HABITS. Nocturnal. Animated and playful among themselves and attend to own affairs. Armed with defensive scent glands. FOOD. They are omnivorous, eating small mammals, lizards, ground-nesting birds, insects and sometimes fruit. HOME. Hole in earth under thorny vegetation, cleft in ledges or rock, hollow log or a deserted burrow. YOUNG. Two to ten in the late spring. When they are partly grown they follow their mother in single file as she fares forth, nightly, in search of food. ABUNDANCE. Numerous. VALUE. Useful destroyers of harmful mammals and insects.

## RING-TAILED CAT

*Bassariscus astutus*

RANGE. Pacific coast, north through Oregon, southwestern United States, Mexico and Lower California. At an altitude of ten thousand feet in south. COLOR. Buffy, black and white. FIELD MARKS. Rather long ears, beautifully formed head and face with large soft eyes. Slender body, short legs, long, bushy, black and white banded tail. Tracks catlike. LENGTH. Thirty inches. WEIGHT. Two and one-half pounds. VOICE. Screams when frightened or angered. HABITS. Strictly nocturnal. Restless, wanders far in search of food or to satisfy curiosity. Intelligent and gentle. FOOD. Mice and other small mammals, birds and eggs. HOME. In caves and clefts of rock, in impenetrable depths of cactus or chaparral, or in a hollow tree den. Haunt cliff dwellings and ancient ruins in Mexico. YOUNG. Three or four born in May or June. Easily tamed as household pets, good mousers. NUMBERS. Rather rare. VALUE. Fur commonly used.





GRAY FOX—*Urocyon cinereoargenteus*



RED FOX—*Vulpes fulva*



ARCTIC FOX—*Alopex innuitus*



LITTLE SPOTTED SKUNK—*Spilogale putorius*



KIT FOX—*Vulpes velox*



RING-TAILED CAT—*Bassariscus astutus*



## SEA OTTER

*Lutra lutris*

RANGE. Coasts of north Pacific. COLOR. Almost black, sprinkled with long white-tipped hairs. FIELD MARKS. Heavy body, broad webbed hind feet. Appears like a seal in the water. Extremely dense fur with silky luster. LENGTH. Four feet. WEIGHT. Thirty to forty pounds. VOICE. Bark. HABITS. Exceedingly shy, not easily observed. They live much as seals do, spend most of their time in the water. If anything attracts their attention they raise their heads high above the water with the body upright and watch steadily. Should danger threaten they dive quickly and swim to a considerable distance before they reappear. They are very playful and float upon their backs tossing a piece of kelp about. FOOD. Mainly shellfish and other invertebrates for which they dive. HOME. Among the kelp beds off the coast. YOUNG. One. ABUNDANCE. Almost extinct. VALUE. For centuries it has been highly prized for its fur.

## ARCTIC WEASEL

*Mustela arctica*

RANGE. Circumpolar. Arctic coast and tundras. COLOR. Yellowish-brown above, under parts yellow. Time of change varies with the coming of snow. In winter the fur is pure white except for the black tail tip. FIELD MARKS. Long slender body, short legs, small rounded ears and quick, alert movements. LENGTH. Fifteen inches. HABITS. Nocturnal and diurnal. Bold and fearless, with insatiable desire to kill. Trails its prey by scent and enters holes of rodents. Occasionally stands upright and looks from side to side for danger signs. FOOD. Northern hare, lemmings, ptarmigan, grouse, ducks. HOME. Digs its own burrow in the shelter of rock ledges, in stumps, hollow trees, or uses deserted burrows of other animals. YOUNG. Four to six born in April, usually remain with the female until nearly or quite grown. ABUNDANCE. Not common unless conditions are very favorable. VALUE. Have furnished famed ermine of royalty.

## WOLVERENE

*Gulo luscus*

RANGE. Arctic America south to northern United States, Rocky Mountains to Colorado. COLOR. Dark blackish-brown. Buffy along sides and face. FIELD MARKS. Extremely robust animal with moderately long fur, short legs and short bushy tail. Strong, curved, partially retractile claws. LENGTH. Three feet. WEIGHT. Twenty to twenty-five pounds. VOICE. Growls when attacked. HABITS. Clumsy, but clever, cunning and ferocious. Nocturnal. Does not hibernate. Steals meat and fish stored by trappers. FOOD. Mammals and birds. HOME. Den among rocks or a burrow. YOUNG. Two to four born in spring or early summer. Mother defends them with great ferocity. In the fall she takes them with her on the trail. ABUNDANCE. Scattered individuals. VALUE. Its fur has always been valued by Eskimos, Indians and others, especially in parkas for edge around face, as breath does not freeze readily upon it.

## OTTER

*Lutra canadensis*

RANGE. Greater part of United States, Canada and Alaska. COLOR. Dusky brown. FIELD MARKS. Broad flattened head, short nose, long lithe body, long rounded tail, short legs, webbed toes, soles of feet hairy, and under fur thick. Agile and swift in the water. LENGTH. Forty inches. WEIGHT. Twenty pounds. VOICE. Short, sharp bark. HABITS. Solitary, intelligent, shy, restless. Does not hibernate. Exceedingly playful, makes "slides" either in snow or mud banks down which it slips gracefully into the water, perhaps to dive quickly and then return to repeat the performance. FOOD. Fish, crayfish, frogs, rarely waterfowl and small mammals. HOME. Beneath tree roots in river or lake banks, burrows with many branches and entrances, one always beneath the water. YOUNG. Two to five. They stay with the mother until nearly grown. ABUNDANCE. Growing scarce. VALUE. Supplies most beautiful fur.

## AMERICAN MARTEN

*Martes americana*

RANGE. From the forested areas of Pennsylvania, Wisconsin, New Mexico, north to tree-limit, and in the mountains to timber line. COLOR. Rich brown above, underneath brownish with orange breast-spots. FIELD MARKS. Long, slender body, short legs, bushy tail, large ears and sharp nose. LENGTH. About two feet. WEIGHT. Five or six pounds. VOICE. Shrill squall, a hiss and sometimes a bark. HABITS. Solitary. It is shy, nervous and excitable; graceful, agile, an expert climber and jumps easily from branch to branch in pursuit of its prey. FOOD. Squirrels, birds, woodrats, mice, rabbits, frogs, insects and berries. HOME. In dense evergreen forests, in hollow tree, under logs, in holes in the ground, always lined with moss, leaves or grass. YOUNG. Usually three or four naked and helpless babies are born in the spring. ABUNDANCE. Scarce in eastern part of range and much reduced in numbers elsewhere. VALUE. Fur is used.

## FISHER

*Martes pennanti*

RANGE. Exclusively American. Forest-covered areas and mountain regions of northern United States and Canada. COLOR. Grayish-brown above, browner below. FIELD MARKS. Long, lithe and powerful body, short legs and head, pointed muzzle, prominent ears and bushy tail. LENGTH. Three feet. WEIGHT. Sixteen to twenty pounds. VOICE. In captivity, growls and snarls. HABITS. Nocturnal with regular range over which it hunts. Fearless and most deadly among the smaller inhabitants of its chosen range. Though a tree-dwelling animal it spends much time on the ground in deep woods sometimes near watercourses. Defends its young with great ferocity. FOOD. Fish, frogs, birds, mammals. HOME. In heavy forests. Den high up in hollow tree, in the shelter of a fallen log or in crevices in rocks. YOUNG. Two to four, born in May. ABUNDANCE. Relatively rare. VALUE. Has been highly valued for its fur.





SEA OTTER—*Lutrix lutris*



OTTER—*Lutra canadensis*



ARCTIC WEASEL—*Mustela arctica*



AMERICAN MARTEN—*Martes americana*



WOLVERENE—*Gulo luscus*



FISHER—*Martes pennanti*



## JAGUAR

*Felis onca*

This is the most powerful as well as the most beautiful of American cats. Its color and markings are similar to those of the leopard but it is a larger animal. Though greatly feared because of its strength, it is not known to attack human beings; however, it is very destructive to game birds and mammals and to domestic cattle. Found in the tropical portions of both Americas, it may wander north into Texas, New Mexico and Arizona, or south into Argentina. It frequents the low arid jungle as well as the wooded banks of streams and preys on the giant capybara. In the densest, most humid forests of South America, there occurs a melanistic phase which is very beautiful because in certain lights the spots show through the coal-black fur. This black jaguar is wrongly considered by the natives to be much more fierce than the yellow phase. The length of an adult is between nine and eleven feet.

## OCELOT

*Felis pardalis*

In the United States this animal is now found only in the lower valley of the Rio Grande in Texas; formerly it ranged as far north as Arkansas. Common in thorny, brush-covered areas in the forests of Mexico and south to Patagonia. No two animals have identical markings but the character is so distinctive that no mistake is likely. This tiger-cat climbs easily, hence preys upon perching birds, including chickens, as well as small mammals and reptiles. Its fondness for lambs and young pigs causes considerable loss to ranchmen. It travels over much territory on its nightly hunting expeditions, but spends the days quietly hidden in some sheltered place. It is heavier and more muscular than the bobcat but generally it is an inoffensive creature much less fierce than most cats. When trapped it makes little effort to escape. There are usually two kittens born in the fall. The adult length is between two and three feet.

## CANADA LYNX

*Lynx canadensis*

The large Canada lynx now found from northern tree limit throughout Canada and the Sierra Nevada and Rocky Mountains as far south as Colorado, was formerly found, also, in the northeastern states. It is probably the most beautiful of our native cats and admirably adapted to its habitat and mode of life. The short body is covered with long, thick, fluffy fur. Long legs aid it in getting over the ground rapidly and in springing upon its prey; the feet are covered above and below with fur making it possible for the animal to get about readily in winter. The broad, round track is easily followed and shows where the animal traveled from one patch of brush to another in search of squirrels, foxes, grouse or hares. The lynx fluctuates in number with that of its chief food, the varying hare. The two to five kittens, marked with dusky spots and short bands, usually remain and hunt with the mother during the first year. Adult length, three feet.

## PUMA OR MOUNTAIN LION

*Felis concolor*

The range of the cougar is greater than that of any American mammal. The severe winters of the Rocky Mountains, the arid southwestern desert, the humid forests of Central and South America—all provide a home for this creature which adapts itself to varied conditions of climate and environment. Though usually nocturnal, it may be found about during the daytime in regions where it is not constantly hunted. Like most cats it is shy, and, even though it is powerful enough to be dangerous to man, in only rare instances has it attacked human beings. It utters its weird cry as it tirelessly wanders from place to place. When it hunts, it silently and cautiously stalks its prey until near enough to leap upon it. In its den among the rocks there may be two to five pale brown kits showing the ancestral dusky body spots and dark bands on the tail. The adult body length is seven to nine feet, tail about two and one-half feet.

## YAGOUROUNDI

*Felis eyra*

The long body and tail, short legs and small flattened head give this animal an otter-like appearance. The two color phases, yellow and dark brown, for a long time led scientists to believe they were distinct species. From the dry sunny, brush-covered lowland of southern Texas, through the intervening tropical forests of Paraguay it makes its home. Being largely nocturnal and retiring in habit, little is known of its family life, though young have been seen both summer and winter. In the Pacific coast country of Mexico it is said to be found near streams and swims easily and well. Its slender body and agility of movement make possible the capture of prey in the densest of undergrowth where it feeds on birds, rabbits, mice and other small mammals. It also climbs readily and so includes perching birds as well as ground forms in its menu. It is exceedingly wary and hard to tame. Length, two and a half feet.

## BOB-CAT OR WILDCAT

*Lynx rufus*

Smaller than its close relative, the Canada lynx, this species is found over a greater area. Nova Scotia and southern British Columbia, wooded parts of the United States, except the northern border, and the high Mexican tableland are included in its range. Because of its nocturnal habits it is impossible to take a bobcat census; for only when forced by hunger will it hunt in the daytime. It is a shy, timid creature but will fight if forced to defend itself. Its stealth in hunting and the fact that it preys upon grouse, quail and other ground birds makes it undesirable in settled regions, though it still persists when there is enough woodland to afford shelter, and helps itself to the farmers' chickens and even to his lambs. Being an expert climber it sometimes selects a hollow tree for its den, though caves in the ground or in rock heaps are also used. There are several faintly-spotted kittens born each year. Adult length, two feet.





JAGUAR—*Felis onca*



PUMA OR MOUNTAIN LION—*Felis concolor*



OCELOT—*Felis pardalis*



YAGOUAROUNDI—*Felis cyra*



CANADA LYNX—*Lynx canadensis*



BOBCAT OR WILDCAT—*Lynx rufus*



## TIGER

*Felis tigris*

This is the largest and most powerful of existing cats, and is distinguished from all others by its striped coat. It is exclusively Asiatic and ranges all over the continent, the Siberian members of the family having thicker fur. It feeds upon deer, buffalo, ibex and other mammals in its range. It seizes its prey in its teeth, using its paws to hold the animal. Despite its great strength the tiger is cowardly and may even be made to drop its kill by cattle rushing at it. It has a voracious appetite and does much damage to a herd, so it is ruthlessly hunted. Due to its color and markings it is difficult to distinguish as it lies in the tall grass. It can climb trees though it does not commonly do so. It also swims, crossing good sized rivers and is known to go by night across Jahore Strait to the vicinity of Singapore, having special sandy landing places. There are two to five young born each year. The adult length is nine and one-half feet.

## LEOPARD

*Felis pardus*

The leopard ranges over the entire African continent from Cape Good Hope to Atlas Mountains and in Asia from China to the Black Sea. It is less often seen than some rarer animals because it is nocturnal and lives mainly in trees and caves. It varies greatly in size, color and markings, though the latter always have their characteristic shapes. Melanism is common especially in the highlands, the black and spotted forms being found in the same family. The leopard of cold regions is provided with thick warm fur and is paler in color. This savage animal is more feared than either lion or tiger, for if it turns man-eating there is no safety in its neighborhood. Ordinarily it feeds on cattle or dogs, and it will even take chickens from the roost. There are four or five young at a time. These look much like the parents. The length of a fully grown adult is approximately seven and one-half feet.

## CHEETAH

*Acinonyx jubatus*

The cheetah is the only living representative of this group of cats, found in a fossil form in the Siwalik deposits in the north of India. It is about the size of a leopard and its long, slender limbs enable it to run for short distances as swiftly as a horse. This, and the ease with which it may be trained to hunt for its master, as well as the structure of some of its muscles, show dog-like characters. It is naturally docile and friendly and has been used in the chase from the most ancient days. Its claws do not move back into the sheaths as do those of the lion and the tiger. It is found in countries east of the Caspian into India and is also common in Africa where, until recently, its range extended into Cape Colony. It preys on antelope and similar animals. The young differ from the adults in having long, soft brown hair, obscurely spotted. The full grown animal has a body length of four to five feet, with a tail from two to three feet long.

## LION

*Felis leo*

The mane and tail tufts of the male lion distinguish this animal from other species of cats. It roams over the plains of Africa, India and parts of western Asia, and was formerly found in Europe. Unlike the majority of cats, the lion does not climb. It feeds on zebras, buffaloes, and other animals which it hunts at night. It is usually not dangerous in the daytime if it is not disturbed. It is perhaps the best known of wild cats for it has long been kept in zoological parks where it can easily be observed. Fortunately it thrives and breeds freely in captivity; normally one to four cubs make a family. The young are maneless, marked with little bars on the side of the body and a black mark along the middle of the back. The mane of the male does not begin to grow until he is three years old and does not attain its full magnificent growth and beauty until the animal is six years of age. The length of the adult is nine and one-half feet.

## SNOW LEOPARD

*Felis uncia*

In captivity this animal is the gentlest of the large carnivores, being quiet, sleepy and much like an overgrown domestic cat. Accustomed to a cold climate it does not thrive in the temperature of an ordinary lion house. It is covered with dense, woolly fur, has a wonderful long, fluffy tail and sometimes a short mane. The head is comparatively small. Its large feet are well padded for walking on snow. As its name indicates the color is white with snow-shadow gray toning, the black or dark gray markings stand out beautifully on this background. It is at home in the mountains of Central Asia and in the Himalayas from nine thousand to eighteen thousand feet altitude, rarely found below snow line. It frequents the home territory of the ibex, mountain sheep and goats, and feeds upon them as well as domestic sheep and dogs. It has not been known to attack man. The body length is four and one-half feet, that of the tail is three feet.

## CAFFRE CAT

*Felis caffra*

This wild cat, common all over Africa, is much like our present race of domestic cats in appearance and has many similar characteristics. It is much stronger, with the body and legs proportionately longer and the tail shorter and thicker, but it is probably one of the ancestral strains from which our modern cat has sprung. Its color is variable and shows most of the phases usually found among the tame cats of today. The markings are sparse and would not account for our present day tabby-cat but, since the caffre cat of today breeds freely with domestic cats, it is likely that the tabby markings may have come about by intermingling with the European wild cat. The caffre cat is largely nocturnal in habit and preys upon game birds, poultry, hares, rabbits and other small mammals which abound in the African wilds or are found about the scattered native villages. This and closely allied species are found over all of Africa.

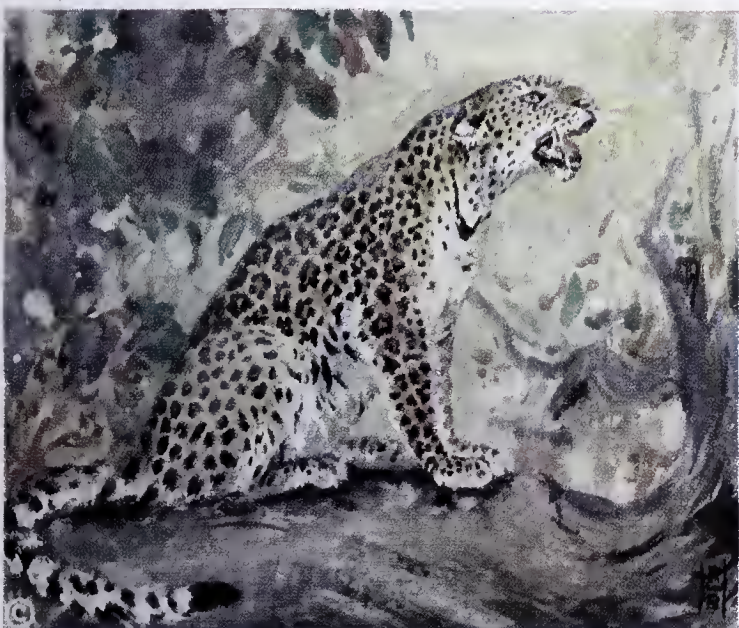




TIGER—*Felis tigris*



LION—*Felis leo*



LEOPARD—*Felis pardus*



SNOW LEOPARD—*Felis uncia*



CHEETAH—*Acinonyx jubatus*



CAFFRE CAT—*Felis caffra*



## POLAR BEAR

*Thalarctos maritimus*

The circumpolar ice pack is the home of the great white bear of the north, seldom found far from its southern borders unless caught by some sudden unexpected change in the limit of the ice. They are tireless swimmers and rarely visit land during the summer, but wander over the ice pack and swim in the open water, feeding on seal and young walrus which they kill with a blow of the paw. In winter the female polar bear seeks some sheltered cavern among the snowdrifts where one or two furless and helpless young are born. These grow fast enough so that they are able to follow her when the ice breaks up in the spring. She cares for them until they are well grown and, when necessary, protects them against harm with her own body. This species of bear inhabits such inaccessible territory that it has been able, better than many species, to hold its own against man.

## GRIZZLY BEAR

*Ursus horribilis*

The fierce grizzly of western North America is rapidly disappearing; some species have become extinct within the last quarter century. However, in protected park areas, a few still come to the garbage dumps at twilight, and in the wilder ranges still persist in stalking and killing cattle to supplement their diet of grubs, rodents, acorns and wild fruit. Their long, slender, slightly curved claws serve well in digging the bulbs of glacier lillies, apparently a favorite delicacy, as large torn-up patches are often found. Grizzly bears are intelligent and fearless in combating foes, but gallop off awkwardly if disturbed by an unusual sound. They are nocturnal in habit and hibernate during the winter months in a den in the ground or some natural cavern. One to four small naked young, born in mid-winter, remain with the mother during the summer and hibernate with her the following winter.

## SPECTACLED BEAR

*Tremarctos ornatus*

The spectacled bear is the smallest and least known bear of the western hemisphere. Its range is in South America on both slopes of the Andes through Columbia, Bolivia and Peru. Several years ago one of them was brought to this country and kept for a time in Bronx Zoological Park in New York City. There have also been three of them in the Zoological Park at Lima, Peru. Aside from the fact that its native home is the rough, rugged hill country of the Pacific side of our southern continent where the chief vegetation is cactus and other desert plants, and that it probably feeds upon the smaller animals and possibly some of the fruits of the region, little is known of its life history. The peculiar white marking between and over the eyes together with the continuance of the white throat into lines beneath the eyes produces a peculiar facial expression and gives point to its name.

## ALASKA BROWN BEAR

*Ursus gyas*

The largest bear, as well as the largest living carnivore, is the Alaska brown, found only on the coast and islands of Alaska. Individuals vary much in color, the darker phases might thus be confused with the largest grizzlies which share their range. However, they are even more shy than grizzlies and run at the merest scent of human-kind. The two can be definitely distinguished by the much shorter, thicker, more strongly curved front claws of the Alaska brown. Steep mountain slopes and rolling tundras provide good hunting—marmots, ground squirrels, and many mice are dug from their burrows, while lowland sedges and fish from the streams are relished in their seasons. When winter comes these bears seek dry hillside dens where they hibernate until April or May. During this period the two or three young are born. Adults often weigh more than fifteen hundred pounds.

## BLACK BEAR

*Ursus americanus*

The two color phases of the black bear were a puzzle until the fact was established that both cinnamon and black may occur in the same family. These bears climb easily so may be seen chasing each other up tree trunks or resting upon limbs high over head. They are omnivorous and everything in the way of food is welcome; nuts, fruit and wild honey; small mammals, ants, other insects and their larvae found by turning over rocks and logs. Though normally nocturnal, they wander about by day where undisturbed. Winter months are spent in dens of their own digging or in hollow tree or cave, and here one to four young are born. These are the size of a halfgrown kitten. It is a month before the eyes open and two or three before they can follow the mother. Despite unlimited killing, the black bear is still a characteristic feature of our wilder woods from Maine to Mexico.

## GLACIER BEAR

*Ursus emmonsii*

The range of the glacier bear is restricted to a limited area in Alaska about the Glacier Bay region, northwest to the Mt. St. Elias range and a short distance inland. Its home is literally among the glaciers and its food consists of mice, marmots, ground squirrels and other small mammals which it digs from burrows upon the mountain slopes above and between these glaciers. During the salmon run when thousands of them come up the streams to spawn, this bear adds fish to his diet and during the summer he eats berries. Because of the remote and limited region in which it is found, little is known of the life history of this, the smallest North American bear. The hibernation period is more than half a year due to the long and stormy winter. The glacier bear is considered by some to be a color phase of the black bear—brought about, perhaps, by extreme isolation and unusual environmental conditions.





POLAR BEAR—*Thalarctos maritimus*



ALASKA BROWN BEAR—*Ursus gyas*



GRIZZLY BEAR—*Ursus horribilis*



BLACK BEAR—*Ursus americanus*



SPECTACLED BEAR—*Tremarctos ornatus*



GLACIER BEAR—*Ursus emmonsii*



## TIGER SWALLOW-TAIL BUTTERFLY

*Papilio turnus*

This is the best known of our butterflies as it flies about city parks as well as country lanes. Its shape is typical of papilios. The larva feeds on the leaves of wild cherry, mulberry and other trees, and is a curious looking creature. Spots on the thorax have the appearance of two immense eyes when the head is drawn back. Two fleshy horns just above the head, usually withdrawn, may be pushed out, and emit an odor to discourage its enemies. The pupa is attached by the tail to the side of a branch and is held upward at an angle by a girdle around the middle. The girdle is spun and so placed by the larva before the metamorphosis. The butterfly spends the winter in the pupal state and emerges in the spring as soon as the food trees send out their leaves. The dark female form found in the southern part of the United States is the one described by Linnaeus and named *glaucus*. Its wing expanse is four inches.

## DRAGON FLY

*Anax junius*

Hovering over marshy meadows, wings glistening in the sunlight, you may find this giant fly so unjustly called a dragon. He may be a dragon to the insects caught in the basket made by his bowed out legs and the ventral side of his thorax, for these he eats. The female hovers over the water, and drops the tip of her abdomen just below the surface to deposit singly gelatin-coated eggs. The gelatin soon dissolves and the eggs fall to the bottom to hatch, in due time, into broad flat larvae which may be found later upon the stems of water plants waging war upon all other larvae. As they grow they shed their outer coat, wing pads appear and when the time comes for the final change, the larva crawls up on to a stem of water grass and for the last time the skin splits down the back. Out comes *Anax junius* to continue to work havoc among the pestiferous mosquitoes. The spread across the wings is four inches.

## ROUND HEADED KATYDID

*Amblycorypha oblongifolia*

One of the many species commonly known as katydid is the oblong-winged katydid which usually occurs on shrubbery and may be found among the flowers of Compositae, especially in damp places along fence rows and the edges of woods. The quick shuffling sound which it makes with its wing-covers, only slightly resembles the "Katydid" or "Katydidn't" of its relative the true katydid whose home is in the tree tops. When Madam Round Headed Katydid is ready for egg laying she leaves the vegetation which she frequents and seeks a suitable place among the dead leaves on the ground, where she drills a hole with her ovipositor for the reception of each egg or cluster of eggs. After a period of time the young hatch out and spend their lives in eating and growing; moulting when their jackets become too snug for them and in due season reach maturity. It is two and one-half inches long.

## MONARCH BUTTERFLY

*Anosia plexippus*

Autumn days are flocking days for monarch butterflies, as they gather to go south for the winter. In the spring they straggle back when the milkweed plant is ready to receive one or two beautiful ridged eggs, and to act as host for the zebra-striped larva, which has an acrid taste not relished by birds. The pupa, a beautiful, pale green, gold-spotted jewel, is suspended from a mat of web on the underside of a leaf, where it gradually changes to mottled brown as the butterfly wings become visible within the thin walls. This species of butterfly has become nearly cosmopolitan because of its strength in flight and habit of migration. Flocks of countless thousands have been observed far out at sea, and along the Atlantic Coast they collect in great numbers upon slender tree branches, giving the appearance of long festoons. Its wing spread is four and one-half inches.

## GIANT CRANE-FLY

*Holorusia rubiginosa*

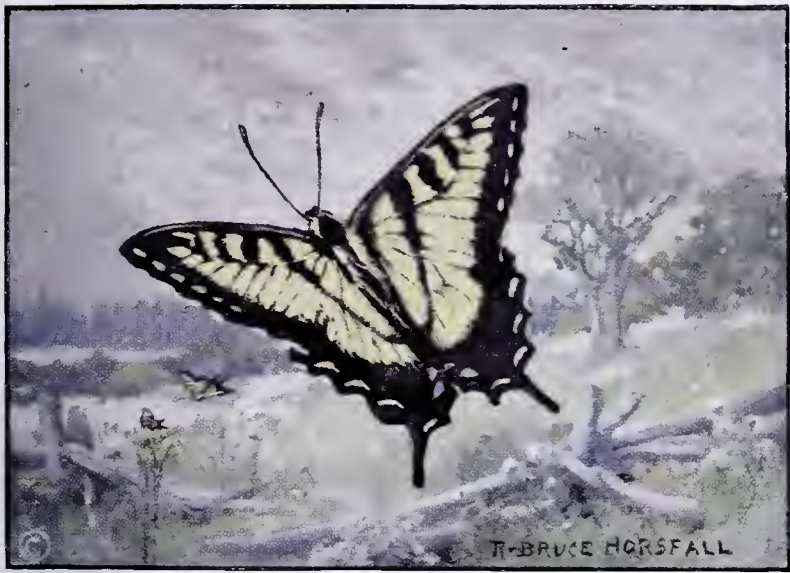
Crane-flies most often attract our attention when we find them battering themselves against a window in a frantic effort to escape. They usually fly about where there is decaying vegetation together with plenty of mud, over moist lawns and near streams, for they lay their eggs in the water, on decayed plants, or sometimes among the roots of grasses. The larvae are cylindrical, leathery, and worm-like. That of the giant crane-fly feeds on vegetable matter found in mud at the bottom of a very shallow pond. When it has grown to an inch or more in length it changes into the chrysalis state, in which it remains for about a week. It then works its way to the surface and, braced by the bristles on the posterior end of each segment, the skin splits down the back and the adult fly escapes. The wing expanse is two inches and the fragile legs are each approximately as long as this entire expanse.

## HONEY FLY OR DRONE FLY

*Eristalis tenax*

The drone flies resemble the honey bee so much that they are also known as honey flies. However they are real flies, having only two wings. They frequent the late summer flowers which are profuse bearers of pollen and seem to use this as their food. The most striking difference in the appearance of the two is the absence of the hairs on the abdomen of the fly. The larva, known as the rat-tailed maggot, is found in the ooze at the bottom of quiet water. The tail is its breathing apparatus and it can lengthen or shorten it telescope fashion in order to reach the air at the surface of the water. When the time comes to assume the pupal form, the larva leaves the water, and at the end of about ten days the adult honey fly comes forth. It was originally an old world species but has become cosmopolitan. Its near relatives known as the hover-flies are enemies of the troublesome aphids. It is one-half inch long.





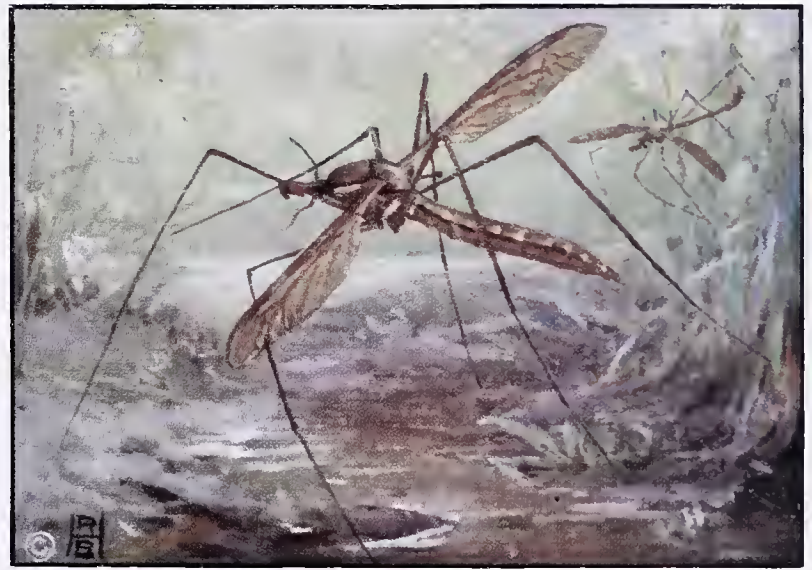
TIGER SWALLOW TAIL BUTTERFLY—*Papilio turnus*



MONARCH BUTTERFLY—*Anosia plexippus*



DRAGON FLY—*Anax junius*



GIANT CRANE FLY—*Holorusia rubiginosa*



KATYDID—*Amblycorypha oblongifolia*



DRONEFLY—*Eristalis tenax*



## CECROPIA MOTH

*Samia cecropia*

This is the largest of our moths, and is found in woods and swamps in the early summer. The moths do not eat during their short life, their mission is to mate and lay their eggs upon one of a number of trees upon which the larvae may feed. When the larvae hatch out they are tiny black creatures, but after a number of moults the full-grown larva is about four inches long, bluish green in color, having six tubercles on each segment, those on the sides being blue, while the top pair are yellow. The thorax bears two pairs of red tubercles. He is rather a fearsome creature to find on a tree, but he will soon spin his large cocoon and fasten it to a branch, being careful not to include any leaves. It has a tough, leathery covering much wrinkled and is of a dull silky fawn color when finished. In this the chrysalis will spend the winter. The wing spread is five to six and one-half inches.

## CICADA, LOCUST

*Tibicen sayi*

This insect which is commonly called a locust is really a cicada. Only the male sings. The music box is to be found within the anterior segments of the abdomen. It is only during the warm part of the day that he favors us with his strident song. The eggs are laid in the tender tips of tree branches, where they hatch out and soon the larvae fall to the ground. Several years are spent in the ground, sucking juices from the tender tree rootlets. The forelegs become strong and are used for digging the way through the earth. Toward the end of larval life rudiments of wings appear and grow until time for emergence. It then digs its way to the surface of the ground, crawls upon the stem of a plant or on a tree trunk, splits its skin and the adult is able to come out. Only two or three weeks of life is his after this final change. The wing spread is approximately three inches.

## PAPER HORNET, BALD-FACED HORNET

*Vespa maculata*

The paper hornet is one of our efficient fly-traps. When the fly is caught *Vespa* hangs by her hind legs, nips off the wings and carries the body home to the babies. Young queens hibernate and in the spring start new colonies. A suitable place for a nest is selected and there the queen glues a half-inch stem of waterproof paper made of wood pulp and saliva. The lower end of this stem is widened into a hollow ball with a hole at the bottom to serve as a door. Within, suspended from the roof, she makes an inverted saucer-shaped comb and in each paper cell places an egg. When the first brood is hatched, they enlarge the nest and add new floors, while the queen stays indoors and lays eggs. Late in the season she lays eggs which will become males and queens. The workers also care for the colony by carrying food to the new members during their growing period. The hornet is approximately an inch long.

## LUNA MOTH

*Actias luna*

Lunas are probably our most beautiful moths. They are nocturnal, flitting about among the trees of walnut, hickory and oak, upon the upper leaf surfaces and tender twigs of which they lay their eggs. The caterpillar, when it has attained its full growth, measures three inches, and is a clear green with yellowish markings. The tubercles vary in color, and the back of the larva becomes pinkish as the time for pupation draws near. It spins a thin papery cocoon, usually between leaves, and remains hidden on the ground until time to emerge. There are two broods during the season. The early one remains only a short time in the cocoon, while the caterpillars hatched in the late summer spend the winter months in this state. The Lunas which come out in the early spring, usually, have a narrow purple border about their wings. The wing spread is four to five inches.

## BLACK CRICKET

*Gryllus*

This big black cricket is to be found in many places, in the fields, about buildings in the country and sometimes in the house. He is not, however, the "Cricket on the Hearth," for that is a brown English species. Our black crickets hop or walk about rapidly and are omnivorous feeders. At birth the young closely resemble the adult. Eggs are laid in holes in the ground made by the sharp-pointed ovipositors. If these are laid in the fall, the young do not hatch until the following year, but those laid earlier hatch into individuals which spend the winter as almost mature nymphs. There is an ear cavity in each front leg. The song is produced by the rapid rubbing of the file on the under side of one wing-cover on the roughened upper surface of the other, and may be heard for a long distance. The males are the musicians of the family. The size varies with age but the adult is an inch or more in length.

## BUMBLE-BEE

*Bombus pennsylvanicus*

Intermediate between the honey-storing and the solitary bees, come the bumble-bees, which live in small colonies. The community consists of males, females and workers. The home is usually in some deserted mouse nest or similar place filled with fibrous material within which the queen builds a platform of pollen moistened with honey and there lays about a dozen eggs, over which she constructs a dome of wax. Near this she places a cell which she fills with honey to use as food while she incubates her eggs. The young grow to adult form in about twenty-two days. The first bees to hatch are workers, which soon begin to help in the care of the colony. The life of the community comes to an end with the summer and the future of the species depends upon the young females, which hibernate through the winter. The pollinating of the red clover depends upon bumble-bees. No bumble-bees, no clover.





CECROPIA MOTH—*Samia cecropia*



LUNA MOTH—*Actias luna*



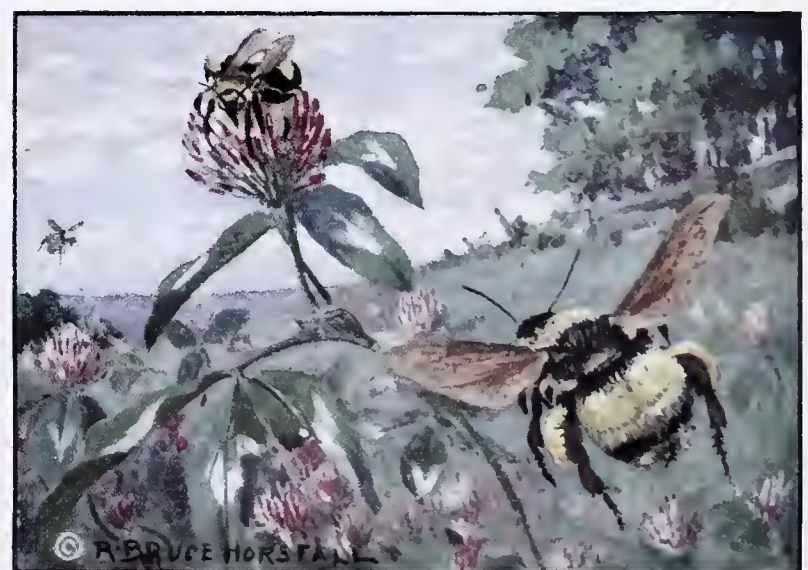
LOCUST—*Tibicen sayi*



CRICKET—*Gryllus*



PAPERHORNET—*Vespa maculata*



BUMBLEBEE—*Bombus pennsylvanicus*



# INDEX TO LIST OF SUBJECTS

*Even pages indicate text, odd pages indicate pictures.*

American eagle . . . . .	Frontispiece	Rough-legged . . . . .	36-37	Purple finch, California . . . . .	14-15
Avocet . . . . .	28-29	Sharp-shinned . . . . .	34-35	Rabbit, cottontail . . . . .	38-39
Badger . . . . .	40-41	Sparrow . . . . .	34-35	Raccoon . . . . .	40-41
Bears		Swainson . . . . .	36-37	Ring-tailed cat . . . . .	44-45
Alaskan brown . . . . .	52-53	Hummingbird, ruby-throated	2- 3	Road-runner . . . . .	22-23
Black . . . . .	52-53	Insects		Rosy finch . . . . .	22-23
Glacier . . . . .	52-53	Bumblebee . . . . .	56-57	Shrew, short-tailed . . . . .	42-43
Grizzly . . . . .	52-53	Butterflies		Skunks	
Polar . . . . .	52-53	Monarch . . . . .	54-55	Little spotted . . . . .	44-45
Spectacled . . . . .	52-53	Tiger swallow-tail . . . . .	54-55	Striped . . . . .	40-41
Beaver . . . . .	38-39	Cricket . . . . .	56-57	Snow bunting . . . . .	10-11
Blackbird, red-winged . . . . .	8- 9	Dragonfly . . . . .	54-55	Sparrows	
Bluebird . . . . .	2- 3	Dronefly . . . . .	54-55	Chipping . . . . .	4- 5
Bluebird, western . . . . .	14-15	Giant crane-fly . . . . .	54-55	English . . . . .	12-13
Bobcat or Wildcat . . . . .	48-49	Katydid . . . . .	54-55	Song . . . . .	12-13
Bobolink . . . . .	4- 5	Locust . . . . .	56-57	Tree . . . . .	12-13
Brown creeper . . . . .	10-11	Moths		Vesper . . . . .	4- 5
Bush-tit . . . . .	20-21	Cecropia . . . . .	56-57	Squirrel, Douglas's pine . . . . .	38-39
Caffre cat . . . . .	50-51	Luna . . . . .	56-57	Starling . . . . .	10-11
Cardinal . . . . .	8- 9	Paperhornet . . . . .	56-57	Stilt, black-necked . . . . .	28-29
Catbird . . . . .	8- 9	Jaguar . . . . .	48-49	Swallow, tree . . . . .	2- 3
Cedar waxwing . . . . .	12-13	Jays		Tanagers	
Cheetah . . . . .	50-51	Blue . . . . .	10-11	Louisiana . . . . .	20-21
Chickadees		California . . . . .	20-21	Scarlet . . . . .	2- 3
Chestnut-backed . . . . .	14-15	Junco, Oregon . . . . .	16-17	Thrashers	
Oregon . . . . .	14-15	Kingbird . . . . .	8- 9	Brown . . . . .	8- 9
Chipmunk, Townsend's . . . . .	38-39	Kingbird, Cassin's . . . . .	22-23	California . . . . .	22-23
Crossbill . . . . .	10-11	Kinglets		Sage . . . . .	18-19
Cuckoo, yellow-billed . . . . .	8- 9	Golden-crowned . . . . .	16-17	Tiger . . . . .	50-51
Ducks		Ruby-crowned . . . . .	16-17	Towhees	
Baldpate . . . . .	30-31	Lemming, brown . . . . .	42-43	California . . . . .	22-23
Black . . . . .	30-31	Leopard . . . . .	50-51	Oregon . . . . .	14-15
Blue-winged teal . . . . .	30-31	Leopard, snow . . . . .	50-51	Tufted titmouse . . . . .	12-13
Canvas-back . . . . .	32-33	Lion . . . . .	50-51	Turnstone, ruddy . . . . .	28-29
Cinnamon teal . . . . .	30-31	Lynx, Canada . . . . .	48-49	Verdin . . . . .	20-21
Gadwall . . . . .	32-33	Marten, American . . . . .	46-47	Vireo, warbling . . . . .	4- 5
Green-winged teal . . . . .	30-31	Maryland yellowthroat . . . . .	2- 3	Water ouzel . . . . .	18-19
Lesser scaup . . . . .	32-33	Meadowlark, western . . . . .	16-17	Weasels	
Mallard . . . . .	30-31	Mice		Arctic . . . . .	46-47
Pintail . . . . .	32-33	Meadow . . . . .	42-43	New York . . . . .	40-41
Redhead . . . . .	32-33	White-footed . . . . .	42-43	Whippoorwill . . . . .	6- 7
Shoveller . . . . .	32-33	Mink . . . . .	40-41	Willet . . . . .	26-27
Fisher . . . . .	46-47	Mockingbird . . . . .	6- 7	Wilson snipe . . . . .	26-27
Foxes		Mole . . . . .	42-43	Wolverine . . . . .	46-47
Arctic . . . . .	44-45	Mourning dove . . . . .	6- 7	Woodchuck, eastern . . . . .	38-39
Gray . . . . .	44-45	Muskrat . . . . .	38-39	Woodcock . . . . .	26-27
Kit . . . . .	44-45	Nighthawk . . . . .	6- 7	Woodpeckers	
Red . . . . .	44-45	Nuthatch, white-breasted . . . . .	12-13	Californian . . . . .	18-19
Flycatchers		Ocelot . . . . .	48-49	Downy . . . . .	10-11
Scissor-tailed . . . . .	20-21	Opossum . . . . .	40-41	Flicker . . . . .	24-25
Vermilion . . . . .	18-19	Orioles		Hairy . . . . .	24-25
Gopher, pocket . . . . .	42-43	Baltimore . . . . .	4- 5	Lewis's . . . . .	24-25
Grosbeaks		Bullock . . . . .	18-19	Pileated . . . . .	24-25
Rose-breasted . . . . .	6- 7	Orchard . . . . .	4- 5	Red-bellied . . . . .	24-25
Western evening . . . . .	14-15	Otter . . . . .	46-47	Red-headed . . . . .	24-25
Hawks		Otter, sea . . . . .	46-47	Wood thrush . . . . .	6- 7
Broad-winged . . . . .	36-37	Phainopepla . . . . .	18-19	Wrens	
Cooper . . . . .	34-35	Phalarope, Wilson . . . . .	28-29	Canyon . . . . .	20-21
Duck . . . . .	34-35	Plovers		House . . . . .	2- 3
Fish, or Osprey . . . . .	36-37	Black-bellied . . . . .	28-29	Seattle . . . . .	16-17
Goshawk . . . . .	34-35	Golden . . . . .	26-27	Western winter . . . . .	16-17
Marsh . . . . .	36-37	Semipalmated . . . . .	28-29	Wren-tit . . . . .	22-23
Red-shouldered . . . . .	36-37	Upland . . . . .	26-27	Yagouaroundi . . . . .	48-49
Red-tailed . . . . .	34-35	Puma or Mountain lion . . . . .	48-49	Yellow-legs . . . . .	26-27























