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Nebraska 4-H Bird Club Manual : Extension Circular 5-01-2 1950

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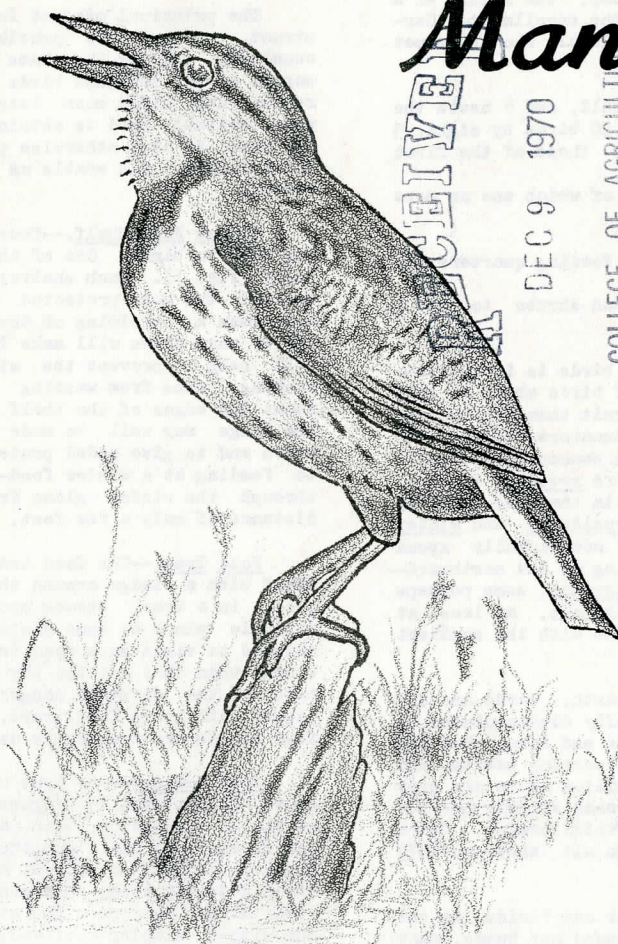
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E.C. 5-01-2

November 1950

E. C. 5-01-2

Nebraska 4-H Bird Club Manual



Manual

COOPERATIVE

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COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS.
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE, AND THE UNITED
STATES DEPARTMENT OF AGRICULTURE COOPERATING, W. U. LAMBERT,
DIRECTOR, LINCOLN.

C.1

By C. A. Sooter*

The material in this circular has been prepared to aid Nebraska 4-H bird clubs. It contains an outline of activities suitable for each month and descriptions of 110 birds. The illustrations of the birds have been arranged so that identifications can be aided by comparisons in addition to general descriptions. The objectives of the club are:

- To learn the economic value of birds through a study of food habits.
- To become familiar with Nebraska laws that protect birds.
- To learn to appreciate birds and encourage bird life on the farm.
- To learn to describe and identify birds so that they may be recognized by others.

A charter will be issued when the standard requirements as outlined in the program are met, with local leader and officers functioning. A seal is issued for the charter when the program of the year has been completed, including: at least six meetings, a judging contest, a public demonstration, an exhibit of products, an achievement day, the filing of a final report by at least 60 per cent of the enrollment. Certificates are awarded annually to individuals who have met these requirements:

Identified 30 birds by sight, 10 by call, and 6 nests the first year; the second year, identified 20 birds by sight, 5 by call, and 4 nests, all in addition to those of the first year.

Attended at least four bird hikes, of which one or more were in the early morning (each year).

Built a bird house (each year).

Made a bird lunch counter or built feeding quarters for game birds (each year).

Made a bird bath or planted trees and shrubs to make a cover for birds (each year).

The best time to begin the study of birds is in the late fall or winter. There are fewer kinds of birds about at this time, the leafless trees and shrubs permit them to be seen more easily, and there are but few immature birds with puzzling plumage to be encountered at this season of the year. Most of the birds to be seen in November are resident species, that is, kinds of birds that are present in the same locality the year round. Some may be winter residents and winter visitors--birds that either regularly or occasionally spend all or part of the winter with us, summering to the northward--and possibly a few kinds of late fall migrants, some perhaps delayed in their migration. Our chief interest, at least at the beginning of our bird studies, will be with the resident birds.

Like the peoples that inhabit the earth, birds are divided into families. Each family is chiefly distinguished by the characteristics of its body structure and form, but the families differ also in the size, food, nesting habits, and migration of their members. In these families there are many varieties (species and subspecies), and each variety has its own particular markings that enable its identification. There are 59 families found in the state. In all there are 479 varieties.

As we go about our work in the gardens and fields, in the orchards and woods, and among the trees around our homes, many of us fail to realize how much there is to be learned about the birds that live there. Hundreds of them cross our paths, perhaps unnoticed, every day during the spring and summer seasons, and many remain with us through the fall and winter. They are our friends and are worthy of consideration. Birds and flowers add tremendously to the joy of living and to the atmosphere of culture of any home. To have birds we must make our home surroundings attractive to them. This we can do by providing nesting places and planting the fruit-bearing shrubs and trees that not only provide nesting places but are a source of food. Most animals like to secure their food close at hand and birds are no exception. For example, a mulberry tree in the orchard will go a long way toward saving a cherry crop from fruit-eating birds. Table 1 (page 6) will give you some helpful suggestions for attracting birds.

The first meeting of the Club should, if possible, be held during the month of November. The first thing to do in organizing a 4-H Bird Club is to elect the officers who are to serve during the year. One of these should be a president, whose duty it is to preside at the club meetings. There may also be elected a vice president, to take charge of the club meetings at such times as the president cannot attend. There should be a secretary, who will keep a record of what is done at the meetings and conduct any necessary correspondence in the name of the club. If there are to be any club dues, a treasurer should also be elected to take care of the money and to keep accounts.

At the first meeting of the club, each member should write down a list of all the different kinds of birds that he or she knows by name. The members may then compare their lists and determine how many kinds of birds are known by name. Each member should save his own list of names, and as he learns to recognize those which he now knows only by name, he may check them on his list. And when he learns to recognize and name birds not on his list, he may add them. The list at the end of the year will constitute the "Year Bird List" of the individual member. From that time on, as new birds are added, the list becomes a "Life Bird List".

The principal project for the month of November is to construct, put up, and provision some kind of a bird "lunch counter". During the late fall and winter the natural food supply of our resident birds is at its lowest point. For that reason many birds soon learn to visit regularly all places where suitable food is obtainable. Birds visiting food put out for them, if also otherwise protected, usually become very tame and friendly, and enable us to study them and understand them better.

Window Food-Shelf.--There are numerous devices for offering food to birds. One of the most popular is the window food-shelf (Fig. 1). Such shelves are usually placed under the outside of the most protected and sheltered window of the house. Sometimes a shielding of the shelf with evergreen branches on one or more sides will make it more attractive to the birds and will help to prevent the wind from blowing away the food, or dashing rains from washing it off the shelf. A raised ledge about the edges of the shelf also offers protection of the food. The ledge may well be made much higher at the more exposed north end to give added protection. After becoming accustomed to feeding at a window food-shelf, the birds may be observed through the window glass from the inside of the house at a distance of only a few feet.

Food Tray.--The food tray (Fig. 2) is a round or square shelf with a ledge around the edge and mounted on the top of a pole, in a tree, strung upon a wire or other support, in a suitable place at some distance from the window. Birds may be induced to visit such food trays placed some distance from the window when they are too shy to visit a window food-shelf. Because of the constant danger that bird food will be blown or washed off these food trays, more substantially constructed food houses are frequently used.

Food Houses.--One type of food house is the pivoted food house illustrated in Figure 3. This oblong-shaped house is closed at the bottom, top, and the narrow sides, with glass in one of the long sides and the other long side wholly open. The house is mounted on a pivot and provided with large wind vanes, which keep the long, open side through which the birds enter to feed, always away from the wind. Another type of food house is one with a sloping roof and glass sides (Fig. 4), mounted on the end of a pole.

Food Hoppers.--Food hoppers, which are commonly used also, may be simply cages of 1/2-inch-mesh wire in which suet can be placed, attached to a tree or post. Plain seed hoppers, the food hoppers commonly used for feeding chicks, or elaborately constructed hoppers such as the one shown in Figure 5 may be used. A simple bird-food larder can be made by removing the meat from a coconut through a small hole in one end, or similarly emptying a tin can through an opening in one end, filling the cavity with chopped suet, peanut butter, nut meats, other such bird food, and suspending it from a convenient limb by a wire. Such a food larder is not affected by the weather.

*Manual originally prepared by M. H. Swenk, revised in 1947.

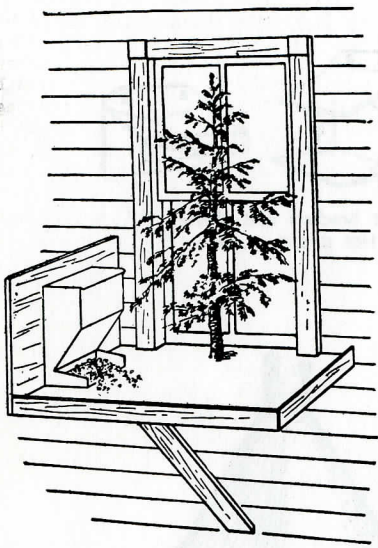


FIG. 1.—Food shelf.
(Farmers' Bul. 912, Revised 1931, U. S. D. A.)

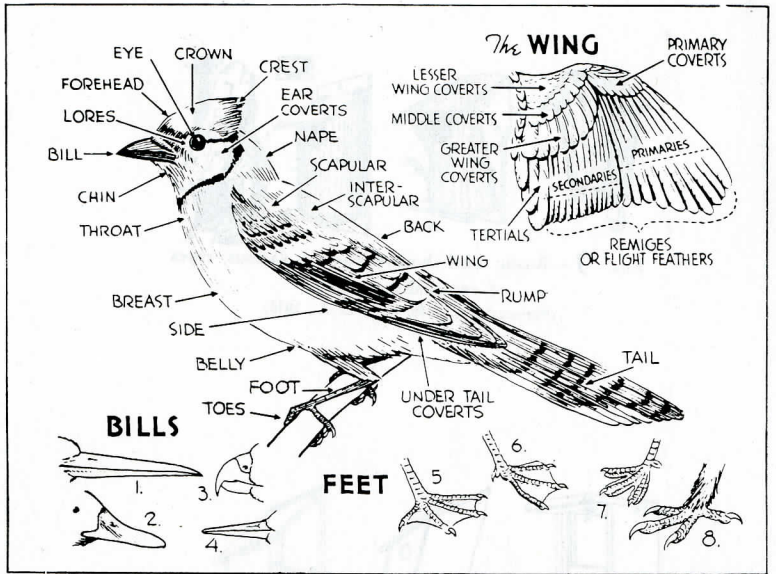


FIG. 6 —Outside parts of a bird.
Types of bills and feet: (1) shore bird's bill, (2) waterfowl type, (3) bird-of-prey type, (4) wood-pecker type, (5) completely webbed foot (pelican), (6) webbed (duck), (7) lobed (grebe, coot), and (8) bird of prey.

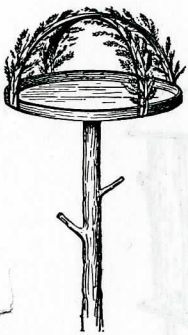


FIG. 2.—Food tray.
(Farmers' Bul. 912, Revised 1931, U. S. D. A.)

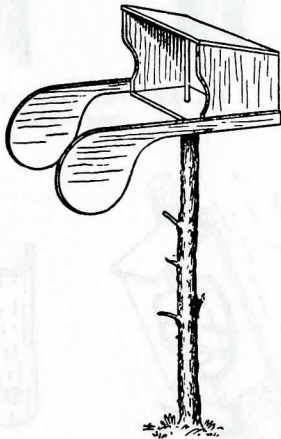


FIG. 3.—Food house on pivot.
(Farmers' Bul. 912, Revised 1931, U. S. D. A.)

Nome of Bird	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Robin																												
Western Meadowlark																												
Canada Goose																												
Common Bluebird																												

FIG. 7 —Migration calendar.

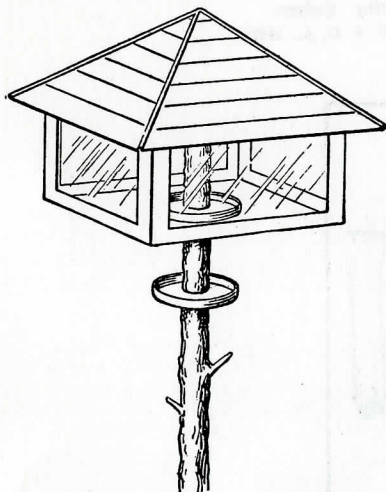


FIG. 4.—Roofed food house.
(Farmers' Bul. 912, Revised 1931, U. S. D. A.)

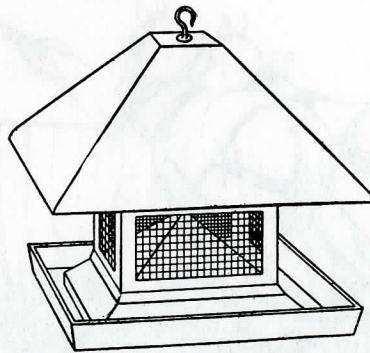


FIG. 5.—Food hopper, detachable roof.
(Farmers' Bul. 912, Revised 1931, U. S. D. A.)

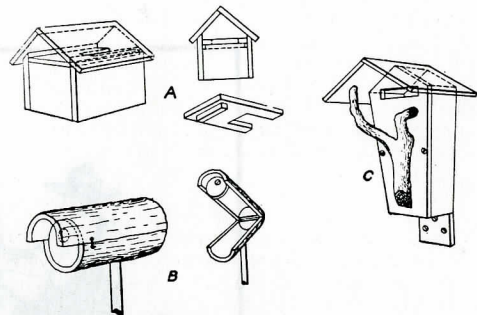


FIG. 8.—Nest boxes suitable for wrens. In A the bird enters under the roof and goes down below through notch in removable board. The slot in C permits bird to carry in cumbersome material more easily. All three offer protection from enemies.

(Farmers' Bul. 1456, U. S. D. A., 1930)

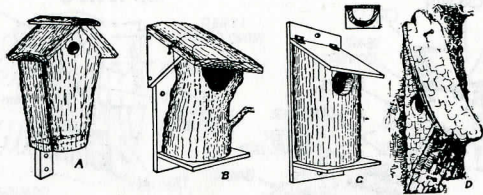


FIG. 9—Rustic bird houses having various types of removable sections.
(Farmers' Bul. 1456, U. S. D. A., 1930)

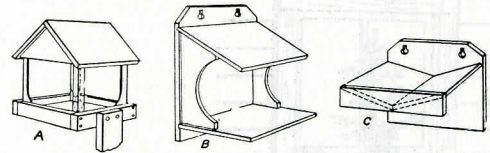


FIG. 11—Nest brackets and shelves.
(Farmers' Bul. 1456, U. S. D. A., 1930)

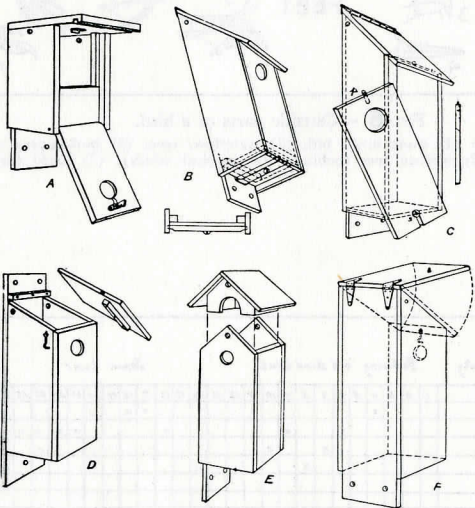


FIG. 10—Accessible nest boxes. A, hinged front held by a catch; B, removable bottom held by cleat; C, swinging front held by removable pin; D and E, removable tops; F, hinged top.
(Farmers' Bul. 1456, U. S. D. A., 1930)

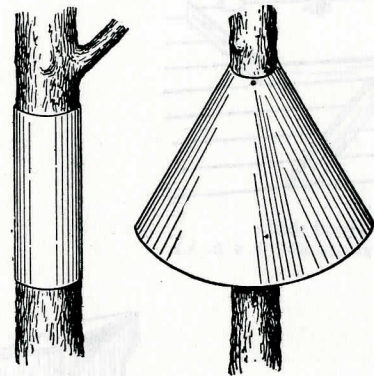


FIG. 12—Tree guards made of sheet metal.

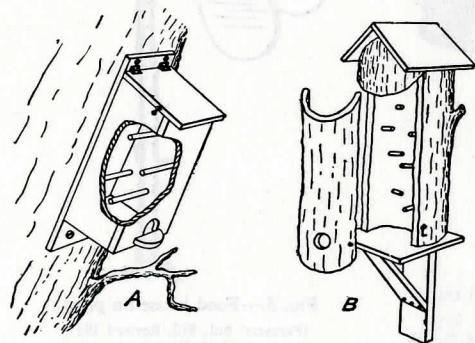


FIG. 13—Roosting shelters.
(Farmers' Bul. 1456, U. S. D. A., 1930)

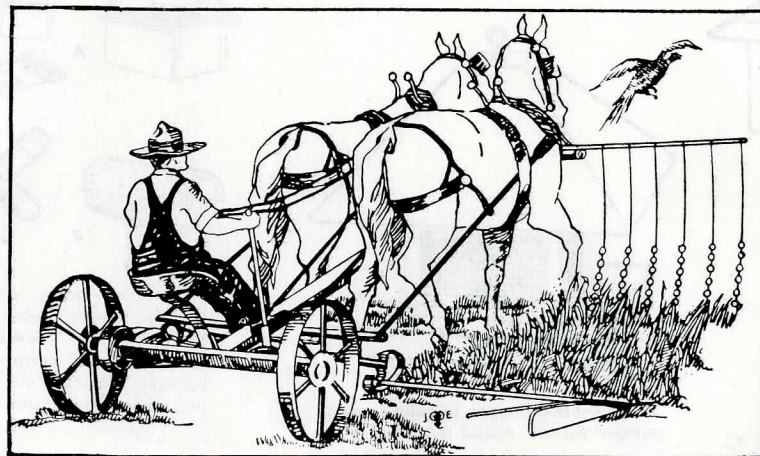


FIG. 14—Protective device for flushing birds (American Wildlife Institute).

Food baskets of any desired size may be made of 1/2-inch netting and hung up or fastened to the trunk of a tree. Game birds like bob-white quail, prairie chickens, pheasants, and ground-feeding horned larks, or sparrows, may be provided with feeding places by erecting low hutches or using the protection of corn shocks under which food may be scattered. The opening could be to the south.

Suitable Foods.---Suet is one of the best winter bird foods. Hairy and downy woodpeckers, blackcapped chickadees, and whitebreasted nuthatches are attracted by it. The slate-colored junco and blackcapped chickadees are very fond of peanut butter. Cardinals like sunflower seeds. Hemp seed, millet seed, pumpkin or squash seeds, whole or rolled oats, wheat, cracked corn, popcorn, rice (raw or boiled), screenings (a cheap waste product of grain mills), buckwheat, bread or cracker crumbs, peanuts, and various other nut meats including coconut meat, pork rinds, cooked meats, diced apples, and other fruits are all good foods that appeal to birds.

Birds of the Month.---During November, try to identify the Hairy Woodpecker, Downy Woodpecker, Blackcapped Chickadee, White-breasted Nuthatch, and Slate-colored Junco. These are common birds of the woods and weed thickets at this season, and may be among those attracted to your bird "lunch counter".

December

During December and January it will be interesting to decorate a Christmas tree for the birds, take a bird hike, learn how to describe a bird properly, and make a study of Nebraska laws that concern our birds of prey. The bird hike should take place during the Christmas holidays, but it is described under the month of January.

At the last meeting of the club you started your individual bird list, which is a beginning toward your "Year Bird List", and also your "Life Bird List". You might also compile a composite "Club Bird List". As you become more skillful in finding birds new to you, there will be some kinds that you will not be able to identify promptly, and probably some that you will need the help of others in identifying. Do not trust your memory as to what the bird that you saw looked like. Write a description of it while you are looking at it, or immediately thereafter, for reference in identifying the bird later from the books.

How to Make Notes and Descriptions.---To observe accurately and make adequate notes of a bird's appearance, you should know the correct names for the different parts of a bird's body. Study the diagram (Fig. 6), which shows the names of the different parts of a bird, until you can remember and name every part. Use these names in making notes or describing a bird. Be sure to note size, coloring, and general shape--whether long and slender or plump--and any characteristics, such as crest, type of feet, beak or tail, which make the bird under observation different from many other birds. It is important to know whether the bird was seen on the prairie, in the woods, along a stream, on a lake, or in a marsh; and whether it frequents tree tops, underbrush, buildings, or lonely country places. Also note the time of day--morning, night, afternoon. If you are always sure to date your notes, you need not mention the season, but it is sometimes interesting and important to know the kind of day, whether cloudy, sunny, rainy, cool, or hot, on which you saw a particular bird. If you hear the bird sing, try to describe the call. If possible, note the type of food it eats. Note whether it walks, runs, or hops, and the manner of its flight. Birds have characteristic ways of flying; for instance, a goldfinch flies swiftly with many small dips and often utters a musical chirp as it goes upward; brown thrashers fly in straight lines; mourning doves start up with a whirl of wings; owls fly quietly; swallows like to make large swooping circles; some kinds of hawks soar high in the sky upon wings extended but relaxed; the wings of crows beat the air.

Find out as much as you can from first-hand observation about a bird's habits. Make notes as soon as you have observed anything distinctive about a bird. If you trust your memory, you will find that you have forgotten some things completely when you try to write them down later. It is better to have more notes than are necessary for filling out your record book than too few.

When you find a bird's nest, try to make sure what kind of bird owns it. Observe it carefully and compare it with other birds' nests. You will find that certain birds always build on the ground; others never do; some build in bushes and shrubs; some only in the highest branches of trees; and still others, like the red-winged blackbirds, fasten tall grasses together and build two feet or more from the ground. Some birds nest in colonies, but more prefer to live like farmers, at considerable distance from one another.

There are a few birds, like the cowbirds, which do not bother to build nests but sneak into other birds' nests to lay their eggs and impose upon the stranger the responsibility for bringing up their young. Table 2 (Page 8) contains a list of birds that nest in houses built for them. The materials used for nest-building vary too, with the kind of bird. A goldfinch, for instance, selects the finest grasses of which to weave his cup-shaped nest and lines it with thistle-down. A crow uses sticks and coarse materials; a cliff swallow moulds a nest of mud, daubing patches of mud under the eaves of a barn and shaping a cup which it lines with feathers. The Baltimore oriole weaves a bag and suspends it from the highest branches of a tree. The downy woodpecker is neither a mason nor a weaver; it is a carpenter and carves out a hole in a tree. In your study of birds and bird nests you will be able to add many interesting items to this list.

At your December meeting, each member should write from memory a description of four selected birds, agreed upon in advance, using some of the names given in the diagram in preparing these descriptions. Then read all descriptions to other members of the club for corrections and suggestions. In case of any doubt about the coloration of any part mentioned in anyone's description, the bird books should be consulted.

Birds' Christmas Tree.---Another major project for December will be for the club members to decorate a live Christmas tree, and provide food for the birds upon it. A small evergreen tree will be best, but, if none of these is available, any other small tree will do. The decorations may include strings of popcorn and colored winter berries of any available sort. If winter berries are gathered, great care should be taken to see that the roots, stems, or branches of the shrubs or vines are not injured in any way. Strands of tinsel and small colored electric lights may be used if available, but these are not necessary. Bird-food trays, hoppers, larders, or baskets of some sort should be hung in the tree and provisioned with appropriate food.

Remember the Game Birds Too.---When the snow lies heavy on the ground during December or any following months of the winter, each 4-H Club member should see to it that grain is provided for the bob-white quails, prairie chickens, sharp-tailed grouse, or ring-necked pheasants on his farm. When food is hard to find, quails often leave the fields and come near farm buildings for shelter and food. Corn and small grain scattered under the shelter of corn shocks or the undergrowth in the orchard or grove will attract them.

Birds of the Month.---During the month of December, if you do not already know them, try to identify the Bob-white Quail, the Yellow-shafted Flicker or Red-shafted Flicker, or both, the Horned Lark, and the Crow.

January

Sometime during the Christmas holidays the club should go on a bird hike. If more convenient, this may be done in December instead of early in January. The main project for January will be a study of Nebraska birds of prey, their habits, their economic value, and the laws concerning them.

Bird Hike.---A holiday-season bird census should be made on this hike. Every kind of bird seen should be listed, and also the number of individual birds of each kind. Can you explain why some kinds of birds are more numerous than others? Large flocks of such birds as horned larks or crows should be estimated as carefully as possible if the number cannot be accurately counted. At the end of the hike the number of kinds of birds seen and the total number of individual birds seen should be recorded, along with a memorandum as to the exact hours of the day spent in the field on the hike, the places visited, the total distance covered, the temperature at noon, the direction

TABLE 1—How to attract birds—preference of birds among tree and shrub fruits that may be grown in Nebraska.

Common Name	Kinds of birds that are most fond of the fruit
Juniper (cedar)	Yellow-shafted flicker, starling, evening grosbeak, pine grosbeak, purple finch, cedar waxwing, myrtle warbler, mockingbird, robin, eastern bluebird.
Smilax	Cardinal, mockingbird, brown thrasher, catbird, robin.
Hackberry	Yellow-bellied sapsucker, yellow-shafted flicker, starling, cardinal, cedar waxwing, mocking bird, brown thrasher, robin, eastern bluebird.
Mulberry	Yellow-billed cuckoo, red-headed woodpecker, red-bellied woodpecker, downy woodpecker, kingbird, starling, Baltimore oriole, orchard oriole, cardinal, purple finch, scarlet tanager, cedar waxwing, red-eyed vireo, yellow warbler, mockingbird, catbird, wood thrush, robin.
Strawberry	Towhee, catbird, brown thrasher, wood thrush, robin.
Raspberry, blackberry	Bob-white, red-headed woodpecker, yellow-shafted flicker, kingbird, starling, Baltimore oriole, orchard oriole, pine grosbeak, song sparrow, fox sparrow, white-throated sparrow, towhee, cardinal, rose-breasted grosbeak, black-headed grosbeak, cedar waxwing, red-eyed vireo, mockingbird, catbird, brown thrasher, tufted titmouse, wood thrush, robin, eastern bluebird.
Rose	Sharp-tailed grouse, prairie chicken, bob-white.
Mountain ash	Red-headed woodpecker, Baltimore oriole, evening grosbeak, pine grosbeak, cedar waxwing, Bohemian waxwing, catbird, brown thrasher, robin.
Red Haw	Pine grosbeak, purple finch, robin.
Dwarf apples	Ring-necked pheasant, red crossbill, pine grosbeak, purple finch, cedar waxwing, mockingbird, robin.
Juneberry	Yellow-shafted flicker, Baltimore oriole, cedar waxwing, catbird, robin.
Wild cherries (sand cherry, wild plum, chokecherry)	Bob-white, mourning dove, red-headed woodpecker, yellow-shafted flicker, kingbird, starling, Bullock oriole, Baltimore oriole, orchard oriole, evening grosbeak, purple finch, rose-breasted grosbeak, black-headed grosbeak, western tanager, red-eyed vireo, cedar waxwing, mockingbird, catbird, brown thrasher, wood thrush, robin, eastern bluebird.
Sumac	Bob-white, downy woodpecker, red-bellied woodpecker, red-shafted flicker, yellow-shafted flicker, phoebe, starling, goldfinch, towhee, white-eyed vireo, Audubon warbler, mockingbird, catbird, brown thrasher, Carolina wren, black-capped chickadee, robin, eastern bluebird.
Buckthorn	Mockingbird, catbird, brown thrasher, robin.
Wild grape	Bob-white, red-bellied woodpecker, red-shafted flicker, yellow-shafted flicker, kingbird, starling, cardinal, cedar waxwing, mockingbird, catbird, brown thrasher, wood thrush, robin, western bluebird, eastern bluebird.
Virginia creeper	Red-headed woodpecker, red-bellied woodpecker, yellow-bellied sapsucker, yellow-shafted flicker, starling, evening grosbeak, purple finch, scarlet tanager, red-eyed vireo, mockingbird, brown thrasher, tufted titmouse, robin, eastern bluebird.
Buffaloberry	Sharp-tailed grouse, pine grosbeak.
Russian olive	Sharp-tailed grouse, prairie chicken, cedar waxwing, catbird, robin.
Dogwood	Bob-white, downy woodpecker, yellow-shafted flicker, kingbird, starling, evening grosbeak, pine grosbeak, purple finch, white-throated sparrow, song sparrow, cardinal, cedar waxwing, warbling vireo, red-eyed vireo, catbird, brown thrasher, wood thrush, robin, eastern bluebird.
Elderberry	Red-headed woodpecker, yellow-shafted flicker, eastern kingbird, Arkansas kingbird, starling, white-crowned sparrow, rose-breasted grosbeak, black-headed grosbeak, red-eyed vireo, mockingbird, catbird, brown thrasher, robin, western bluebird, eastern bluebird.
Buck bush (Coralberry)	Sharp-tailed grouse, evening grosbeak, pine grosbeak.
Honeysuckle	Bob-white, pine grosbeak, white-throated sparrow, catbird, brown thrasher, robin.

This list is by no means complete but contains many of the commoner bird-food plants. Information is adapted from Farmers' Bulletin 912 (Revised 1931), How to Attract Birds in the East Central States, U. S. Department of Agriculture

and strength of the wind, the amount of cloudiness, and the amount of snow, if any, on the ground. The complete record of this hike should form a part of the Club report at the end of the year.

Birds of Prey.—The principal project for the month of January will be to obtain a better knowledge of the habits and economic value of our Nebraska birds of prey. We have in Nebraska 33 distinct species of birds of prey, consisting of two species of vultures, 19 species of hawks, and 12 species of owls.

Vultures are represented in Nebraska by the Turkey Vulture and the Black Vulture. Our most common one is the Turkey Vulture, found in small numbers in both eastern and western Nebraska. The Black Vulture with us is but a rare straggler from the South. Vultures feed upon carrion.

Hawks include the Osprey or Fish Hawk, which feeds almost entirely upon coarse fish and is uncommon in Nebraska. The Swallow-tailed Kite and Mississippi Kite are now both very rare stragglers from the South in Nebraska. The Goshawk is an uncommon but destructive visitor in Nebraska in some winters. The Bald Eagle, Duck Hawk, and Pigeon Hawk are uncommon, even as migrants, throughout the state. The Red-shouldered Hawk and the Broad-winged Hawk are found, rather uncommonly, in eastern Nebraska. The Ferruginous Rough-legged Hawk and Prairie Falcon are found in small numbers in western Nebraska only, except during migration. The Golden Eagle wanders over most of Nebraska during the fall and winter, coming into the state from farther west. The American Rough-legged Hawk is a very common hawk visitor from the North during the winter. Our most common hawks are the Cooper Hawk, Red-tailed Hawk, Marsh Hawk, and Sparrow Hawk. The Sharp-shinned Hawk and the Swainson Hawk are common in the state during the periods of migration.

Owls are fairly numerous. Our twelve distinct species of owls include several common ones, such as the Barn Owl, Long-eared Owl, Short-eared Owl, Great Horned Owl, Barred Owl, Screech Owl, and Burrowing Owl. The Long-eared Owl, Great Horned Owl, and Barred Owl prefer heavy woodlands. The Screech Owl also lives only where there are trees. The Barn Owl lives in clay banks and old buildings. The Short-eared Owl lives in open fields, preferably low grasslands. The Burrowing Owl is found living in burrows on our western plains and prairies. The Great Gray Owl, Saw-whet Owl, Richardson Owl, and Hawk Owl are all rare or very rare winter visitors from the North. The big Snowy Owl, another northern winter visitor, sometimes comes in considerable numbers.

What Birds of Prey Eat.—Table 3 is based upon the examination of more than 6,500 stomachs of species of hawks and owls that occur in Nebraska. All of the 31 distinct species of Nebraska hawks and owls are included in the table except the entirely fish-eating Osprey and the very rare Richardson Owl, which feeds on mice, small birds, and insects in the Canadian forests, and only very rarely comes as far south as Nebraska. In this table, the first column shows the total number of stomachs of each kind of hawk or owl that have been examined; the second column shows the number of these stomachs that contained destructive rodents, such as mice, rats, ground squirrels, prairie dogs, pocket gophers, and other kinds of mammals; the third column shows the number of stomachs that contained poultry or game birds; the fourth column shows the number of stomachs that contained remains of other kinds of birds; the fifth column shows the number of stomachs that contained remains of snakes, frogs, toads, salamanders, fish, and back-boned animals other than mammals or birds; the sixth column shows the number of stomachs containing insects; the seventh column shows the number of stomachs containing other kinds of food than that already classified in the preceding five columns; and the last column shows the number of stomachs that were found to be empty. The figures regarding the food of the hawks were taken from a book published by the National Association of Audubon Societies, called the Hawks of North America, by John B. May, while the figures regarding the food of the owls were taken from a report on the Hawks and Owls of the United States by Dr. A. K. Fisher, published by the United States Department of Agriculture. These are high authorities, and the figures are entirely reliable.

Economic Value of Birds of Prey.—Study this table very carefully. Then list the different kinds of hawks and owls into three groups as follows:

1. Those that you think are destructive and harmful enough that they should not receive any protection under the Nebraska law.

2. Those that you feel are somewhat injurious, but in which you think the evidence shows that their useful destruction of harmful rodents and insects outweighs their harmful traits.

3. Those that you think are largely beneficial, or that the evidence shows are practically wholly beneficial, and should unquestionably receive full protection under the Nebraska law.

You will find that many kinds will go rather easily into Group 1 or Group 3, but that it will be harder to place those that should go into Group 2.

Nebraska Laws.—According to the present Nebraska law, passed by the Fifty-second Session of the Nebraska legislature in 1937, it is unlawful for any person to attempt to shoot, kill, destroy, or catch, any song, insectivorous or non-game bird, other than an English Sparrow, Blue Jay, Crow, Cooper Hawk, Sharp-shinned hawk, Goshawk, European Starling, Bronzed Grackle, or Magpie. Nearly every other state, like Nebraska, denies its protection to the Cooper Hawk, Sharp-shinned Hawk, and Goshawk. Do you think the Nebraska law as it now stands reflects the best results of a scientific study of the food habits of our hawks?

Birds of the Month.—During the month of January, try to identify two hawks and two owls. We suggest that probably the Cooper Hawk and the American Rough-legged Hawk, for the hawks, and the Screech Owl and Great Horned Owl, for the owls, may most readily be identified during this month.

February

During the month of February the earliest bird migrants return to us from the South. In Nebraska, the first migrants among the song birds to return are usually the Robin, Western Meadowlark, Bluebird, and Red-winged Blackbird, all of which have normally put in an appearance before the end of February. During this month start your bird migration calendar for the year. This is to be done as follows:

Preparing a Migration Calendar.—Secure several sheets of good quality unlined white paper of the regular business letter size (8½ x 11 inches). Rule these pages as shown in Figure 7. The squares are one-fourth inch in size. This size of square leaves a ¾-inch space at the left side of the page for the name-of-bird column and a one-inch margin at the top for: (1) your locality, (2) the name of your 4-H Bird Club, (3) your own name, and (4) the month and the year. Make up at least one sheet for each month in this way. You now have the blank sheets for a bird migration calendar.

How to Keep Migration Data.—The day that you see your first migratory bird, write in the name of the bird and place a check mark under the number corresponding to that date. For example, suppose the first bird you saw was a Robin, and that you saw it on February 4; then your first entry on the calendar would be "Robin", and your first check mark would be in the "4" column. If you saw a robin the next day, you would place another check mark under "5" and so on through the month, continually adding the birds as you see them and checking each day thereafter that each kind of bird is seen until the birds become common. At the end of February, start another sheet for the March birds, and so on through the whole migration season.

Migration Data Collected by the Nebraska Ornithologists' Union.—Study the two migration tables given on the following pages. Table 4 gives the first or earliest dates of arrival of 36 common Nebraska birds, all of which are included in this outline of study, for the vicinities of Omaha, Lincoln, Fairbury, Superior, Red Cloud, Hastings, and North Platte, and also the average first date of arrival for Nebraska as a whole. These dates are based upon an 11-year cooperative bird-migration study made by members of the Nebraska Ornithologists' Union living at these places. The Nebraska Ornithologists' Union is the state bird organization for grown-ups. You will be eligible to become a member of this state organization, if you should desire, when you have creditably finished this 4-H Club bird study course and have reached the age of 16 years. Table 5 gives the average dates of arrival of these same 36

TABLE 2—Forty-eight species of birds in the United States are known to have nested in bird boxes or on supporting devices; dimensions of nesting boxes and the height at which they should be placed above the ground are given for 17 Nebraska birds.¹

Bird's Name	Floor of cavity	Depth of cavity	Entrance above floor	Diameter of entrance	Height above ground
	Inches	Inches	Inches	Inches	Feet
Bluebird	5x 5	8	6	1½	5-10
Robin	6x 8	8 one or more sides	open		6-15
Chickadee	4x 4	8-10	6- 8	1½	6-15
Nuthatch	4x 4	8-10	6- 8	1¼	12-20
House wren.....	4x 4	6- 8	1- 6	¾	6-10
Barn swallow.....	6x 6	6 one or more sides	open		8-12
Purple martin.....	6x 6	6	1	2½	15-20
Song sparrow.....	6x 6	6 all sides	open		1- 3
Phoebe	6x 6	6 one or more sides	open		8-12
Flicker	7x 7	16-18	14-16	2½	6-20
Red-headed woodpecker.....	6x 6	12-15	9-12	2	12-20
Downy woodpecker.....	4x 4	8-10	6- 8	1¼	6-20
Hairy woodpecker.....	6x 6	12-15	9-12	1½	12-20
Screech owl.....	8x 8	12-15	9-12	3	10-30
Barn owl.....	10x18	15-18	4	6	12-18
Sparrow hawk.....	8x 8	12-15	9-12	3	10-30
Wood duck.....	10x18	10-15	3	6	4-20

¹ From Farmers' Bul. 1456, U. S. D. A. 1930.

TABLE 3—Food Habits of 29 Species of Nebraska Hawks and Owls.

Name of Hawk or Owl	No. Examined	Mam- mals	Poultry or Game	Other Birds	Other Verte- brates	Insects	Mis- cella- neous	Empty
Swallowed-tailed Kite.....	30	0	0	0	12	30	0	0
Mississippi Kite.....	28	0	0	0	0	28	0	0
Goshawk	881	233	447	49	2	3	8	168
Sharp-shinned Hawk.....	1030+	28	16+	844	0	45	0	106+
Cooper Hawk.....	422	65	78	146	6	5	10	129
Red-tailed Hawk.....	1013+	857	112	85	118	92	40	146
Red-shouldered Hawk.....	444	287	7	25	127	54	38	38
Broad-winged Hawk.....	254	95	0	17	85	114	25	20
Swainson Hawk.....	44	10	1	1	6	31	0	3
American Rough-legged Hawk	202+	221	1	9	8	19	3	21+
Ferruginous Rough- legged Hawk.....	24	21	1	1	2	2	0	0
Golden Eagle.....	80	60	7	7	1	1	5	5
Bald Eagle.....	80	9	12	0	35	0	15	11
Marsh Hawk.....	418	259	10	176	27	11	1	26
Prairie Falcon.....	40	13	11	13	0	5	0	6
Duck Hawk.....	102	3	11	70	0	12	0	9
Pigeon Hawk.....	184	8	3	141	3	68	1	19
Sparrow Hawk.....	427	147	0	69	13	269	30	29
Barn Owl.....	39	34	1	2	0	4	0	0
Screech Owl.....	255	102	1	38	7	100	25	43
Great Horned Owl.....	127	78	31	8	1	10	1	17
Snowy Owl.....	38	20	2	9	0	0	0	12
Barred Owl.....	109	64	5	13	7	14	11	20
Long-eared Owl.....	107	89	1	15	0	1	0	15
Short-eared Owl.....	101	84	0	11	0	7	0	14
Saw-whet Owl.....	22	17	0	1	0	1	0	3
Great Gray Owl.....	9	11	0	1	0	0	0	0
Hawk Owl.....	1	1	0	0	0	0	0	0
Burrowing Owl.....	32	3	0	0	3	30	4	1

TABLE 4—First Dates of Arrival of 36 Common Nebraska Birds.

NAME OF BIRD	OMAHA	LINCOLN	FAIRBURY	SUPERIOR	RED CLOUD	HASTINGS	NORTH PLATTE	NEBRASKA AVERAGE
Robin	Feb. 1	Feb. 4	Feb. 1	Feb. 1	Feb. 4	Feb. 10	.....	Feb. 4
Western Meadowlark	Feb. 2	Feb. 3	Feb. 1	Feb. 7	Feb. 2	Feb. 20	Feb. 10	Feb. 6
Canada Goose	Feb. 4	Feb. 27	Feb. 8	Feb. 8	Feb. 8	Feb. 12	Jan. 22	Feb. 8
Pintail Duck	Feb. 24	Feb. 5	Feb. 6	Mar. 16	Feb. 3	Feb. 2	Feb. 11	Feb. 14
Mallard Duck	Feb. 24	Feb. 2	Feb. 26	Mar. 16	Feb. 8	Feb. 2	Feb. 3	Feb. 16
Common Bluebird	Feb. 22	Feb. 6	Feb. 3	Feb. 15	Feb. 12	Feb. 20	Mar. 16	Feb. 17
Red-winged Blackbird	Feb. 21	Feb. 22	Feb. 8	Feb. 21	Feb. 5	Feb. 8	Mar. 3	Feb. 17
Mourning Dove	Mar. 23	Mar. 12	Mar. 14	Feb. 15	Feb. 2	Mar. 11	Mar. 24	Mar. 6
Bronzed Grackle	Mar. 15	Mar. 13	Feb. 28	Mar. 2	Feb. 20	Mar. 5	Mar. 26	Mar. 8
Blue-winged Teal Duck	Mar. 14	Mar. 17	Mar. 9	Mar. 23	Feb. 24	Feb. 26	Mar. 17	Mar. 11
Eastern Phoebe	Mar. 18	Mar. 11	Mar. 9	Mar. 14	Mar. 13	Feb. 22	Apr. 20	Mar. 16
Eastern Meadowlark	Mar. 12	Mar. 9	Mar. 2	Apr. 6	Mar. 20	Mar. 13	Apr. 27	Mar. 17
Loggerhead Shrike	Mar. 25	Mar. 15	Mar. 2	Mar. 15	Mar. 19	Mar. 9	Apr. 6	Mar. 17
Cedar Waxwing	Mar. 7	Mar. 4	Mar. 3	Mar. 29	Mar. 3	Mar. 6	Feb. 14	Mar. 20
Eastern Towhee	Mar. 15	Mar. 13	Mar. 12	Mar. 10	Apr. 5	Apr. 10	.....	Mar. 21
Field Sparrow	Mar. 7	Mar. 13	Mar. 13	Apr. 5	Apr. 28	Mar. 24	Mar. 12	Mar. 23
Purple Martin	Mar. 10	Mar. 20	Mar. 2	Mar. 24	Mar. 25	Apr. 5	May 12	Mar. 27
Chipping Sparrow	Mar. 23	Mar. 28	Apr. 1	Apr. 19	Mar. 6	Apr. 11	May 5	Apr. 4
Franklin Gull	Apr. 11	Mar. 2	Mar. 27	Apr. 13	Apr. 9	Apr. 10	Apr. 19	Apr. 4
Mockingbird	May 1	Apr. 6	Apr. 4	Mar. 29	Apr. 3	Apr. 6	May 1	Apr. 11
Brown Thrasher	Apr. 11	Apr. 8	Mar. 30	Apr. 16	Apr. 16	Apr. 10	May 3	Apr. 13
House Wren	Apr. 14	Apr. 13	Apr. 13	Apr. 4	Apr. 18	Apr. 11	Apr. 23	Apr. 14
Blue Jay	.....	Mar. 28	Apr. 17	Apr. 16	Apr. 19	Apr. 14	Apr. 30	Apr. 16
Red-headed Woodpecker	Apr. 18	Apr. 4	Apr. 15	Apr. 20	Apr. 4	Apr. 18	May 9	Apr. 17
Barn Swallow	Apr. 12	Apr. 15	Apr. 20	Apr. 18	Apr. 17	Apr. 10	May 1	Apr. 18
Lark Sparrow	Apr. 27	Apr. 18	Apr. 6	Apr. 19	Apr. 18	Apr. 1	May 5	Apr. 19
Eastern Kingbird	May 1	Apr. 25	Apr. 20	Apr. 12	Apr. 28	Apr. 4	Apr. 24	Apr. 21
Arkansas Kingbird	Apr. 27	Apr. 29	Apr. 26	Apr. 24	Apr. 24	Apr. 13	May 3	Apr. 25
Baltimore Oriole	Apr. 25	Apr. 25	Apr. 26	Apr. 24	Apr. 23	Apr. 27	May 8	Apr. 27
Black Tern	May 3	May 5	May 10	Apr. 28	Apr. 16	Apr. 30	Apr. 15	Apr. 28
Rose-breasted Grosbeak	Apr. 29	Apr. 24	Apr. 17	Apr. 26	May 1	Apr. 23	May 21	Apr. 29
Catbird	May 3	Apr. 25	Apr. 24	Apr. 24	May 4	May 3	May 20	May 2
Bobolink	May 3	May 3	May 1	May 5	May 2	May 1	May 11	May 4
Ruby-throated Hummingbird	May 15	May 8	Apr. 27	May 5	Apr. 28	May 10	.....	May 8
Bobolink	May 16	May 8	May 12	May 7	May 20	May 3	May 6	May 10
Yellow-billed Cuckoo	May 15	May 12	May 6	May 4	May 10	May 6	June 5	May 13

TABLE 5—Average Dates of Arrival of 36 Common Nebraska Birds.

NAME OF BIRD	OMAHA	LINCOLN	FAIRBURY	SUPERIOR	RED CLOUD	HASTINGS	NORTH PLATTE	NEBRASKA AVERAGE
Robin	Feb. 21	Feb. 19	Feb. 10	Feb. 14	Feb. 21	Feb. 20	.....	Feb. 16
Western Meadowlark	Feb. 24	Feb. 17	Feb. 19	Feb. 16	Feb. 20	Mar. 4	Feb. 10	Feb. 18
Pintail Duck	Mar. 14	Feb. 23	Feb. 20	Mar. 18	Feb. 16	Feb. 21	Feb. 11	Feb. 26
Canada Goose	Mar. 8	Mar. 10	Mar. 10	Mar. 2	Feb. 27	Mar. 13	Jan. 29	Mar. 2
Common Bluebird	Mar. 2	Mar. 6	Feb. 16	Feb. 24	Mar. 9	Mar. 7	Mar. 21	Mar. 4
Red-winged Blackbird	Mar. 7	Mar. 16	Mar. 1	Feb. 27	Mar. 4	Feb. 26	Mar. 4	Mar. 4
Mallard Duck	Mar. 27	Mar. 6	Mar. 19	Mar. 27	Feb. 22	Feb. 26	Feb. 3	Mar. 7
Bronzed Grackle	Mar. 24	Mar. 25	Mar. 9	Mar. 8	Mar. 7	Mar. 19	Mar. 29	Mar. 17
Mourning Dove	Apr. 2	Mar. 23	Mar. 23	Mar. 8	Mar. 21	Mar. 22	Apr. 2	Mar. 27
Blue-winged Teal Duck	Apr. 7	Apr. 9	Mar. 29	Mar. 29	Mar. 6	Apr. 2	Mar. 28	Mar. 29
Eastern Phoebe	Apr. 2	Mar. 27	Mar. 16	Mar. 18	Apr. 5	Mar. 20	Apr. 20	Mar. 29
Eastern Meadowlark	Mar. 31	Apr. 2	Mar. 24	Apr. 12	Mar. 20	Apr. 7	Mar. 28	Mar. 31
Loggerhead Shrike	Apr. 26	Apr. 1	Mar. 22	Mar. 19	Apr. 8	Mar. 26	Apr. 6	Apr. 2
Cedar Waxwing	Apr. 12	Apr. 3	Mar. 3	Mar. 29	Mar. 22	Mar. 27	Apr. 19	Apr. 4
Eastern Towhee	Mar. 27	Apr. 13	Mar. 29	Apr. 3	Apr. 24	Apr. 20	.....	Apr. 8
Field Sparrow	Mar. 27	Apr. 5	Mar. 31	Apr. 16	Apr. 26	Apr. 14	Apr. 4	Apr. 9
Purple Martin	Mar. 27	Mar. 29	Apr. 3	Apr. 6	Apr. 5	May 1	May 22	Apr. 1
Chipping Sparrow	Apr. 8	Apr. 8	Apr. 11	Apr. 22	Apr. 11	Apr. 20	May 7	Apr. 18
Franklin Gull	Apr. 27	Apr. 15	Apr. 16	Apr. 16	Apr. 21	Apr. 18	Apr. 19	Apr. 1
Brown Thrasher	Apr. 20	Apr. 17	Apr. 17	Apr. 19	Apr. 23	Apr. 20	May 3	Apr. 21
House Wren	Apr. 22	Apr. 22	Apr. 18	Apr. 16	Apr. 23	Apr. 21	Apr. 2	Apr. 21
Mockingbird	May 10	Apr. 25	Apr. 12	Apr. 7	Apr. 22	Apr. 14	May 8	Apr. 23
Blue Jay	Apr. 24	Apr. 23	Apr. 23	Apr. 20	Apr. 25	Apr. 22	Apr. 30	Apr. 24
Lark Sparrow	May 9	May 1	Apr. 16	Apr. 24	Apr. 27	Apr. 24	May 6	Apr. 28
Eastern Kingbird	May 6	May 1	Apr. 27	Apr. 22	Apr. 30	Apr. 25	Apr. 30	Apr. 30
Barn Swallow	May 2	Apr. 28	Apr. 30	Apr. 27	Apr. 29	Apr. 26	May 9	May 1
Baltimore Oriole	May 5	May 1	Apr. 30	Apr. 27	May 2	Apr. 30	May 10	May 2
Arkansas Kingbird	May 13	May 9	Apr. 30	Apr. 25	May 1	Apr. 29	May 5	May 3
Red-headed Woodpecker	May 1	May 5	May 5	Apr. 29	May 8	May 3	May 11	May 4
Rose-breasted Grosbeak	May 5	Apr. 30	May 2	May 1	May 8	May 3	May 21	May 6
Catbird	May 5	May 7	May 8	May 7	May 9	May 9	May 13	May 8
Black Tern	May 16	May 12	May 17	May 10	May 4	May 15	Apr. 30	May 10
Dickcissel	May 13	May 9	May 6	Apr. 29	May 11	May 12	May 20	May 10
Bobolink	May 19	May 12	May 18	May 7	May 23	May 16	May 7	May 15
Ruby-throated Hummingbird	May 22	May 20	May 16	May 10	May 16	May 8	.....	May 15
Yellow-billed Cuckoo	May 21	May 23	May 18	May 15	May 18	May 18	June 5	May 21

common Nebraska birds for the same localities. You will note that these average dates are usually considerably later than the known first dates of arrival for any locality. Study especially closely the dates given for the locality nearest to your location, and through the migration season compare the dates of first arrival that you secure with those given in the first table.

Read About Migration.--During February, consult the library and read all of the material that you can get and have time for on the subject of bird migration. Try to learn what are believed to be the causes of bird migration, the different routes taken by various species of birds, and so on.

Birds of the Month.--During February, identify the Robin, Bluebird, Western Meadowlark, and Red-winged Blackbird.

March

With birds returning, ready to set up housekeeping, every club member who has sharp eyes and a keen, sympathetic interest in their domestic affairs, will want to build a bird house. There is no better way to learn to know birds than to erect a few houses and successfully "let" them during the summer.

In providing nesting places for birds, several things must be considered. It should be planned to meet the needs of the kind of bird for which it is built. Abundant food and water should be near. And it should be set in a place that is safe from prowling cats and other bird enemies. A house cannot be considered a success unless it is occupied at least once during the breeding season.

Bird Population in the United States.--Bird houses, except for such gregarious species as martins and swallows that seem to enjoy one another's society, should not be placed too closely together. The average number of birds over the United States is a little more than one pair per acre. Of course, in places where food and water are plentiful there are more than this. In some of our parks the number has been increased as much as four hundred times this many, and in residential districts it may easily be increased to 10 pairs per acre. Such increases are secured by providing protection from enemies, building houses for nesting and roosting, and increasing the food supply in winter and supplying water throughout the year.

Why Increase Bird Population.--There are authentic records in the United States and in Europe of instances where insect depredations have been avoided or reduced by an increase in the bird population of a region. Farmers' Bulletin 1456, "Homes for Birds", and Farmers' Bulletin 506, "Food of Some Well-Known Birds", published by the U. S. Department of Agriculture, will give you interesting information on the subject.

Building a Bird House.--A well-built bird house must be rain-proof and cool. It should be durable. And it should be so built that it can be cleaned and disinfected after a pair of birds have used it for rearing a family. Like poultry, birds are subject to diseases, and an unsanitary bird house endangers the life of the nestlings.

Although various materials may be used, none is better than wood, Cypress, pine, and yellow poplar are especially good woods to use because they are easy to work. The bird house may be painted or varnished, or better yet it may be left to weather. Attractive houses may be made from bark. Take care to see that the roof does not leak and that ventilation holes bored in the bottom of the box will permit any water that should gain entrance to drain out. Likewise, small holes just under the eaves will ventilate the house without creating a draft. Perches before the entry have been found to be of more assistance to bird enemies than to the birds themselves. Sometimes a smooth, metal ring around the entrance, placed on the inside of the house, will make it safe from the attacks of such gnawing enemies as squirrels.

Table 2 will give you the correct dimensions of houses for various types of birds, together with the size of the entrance and the correct height above the ground at which to place them, Figures 8, 9, and 10 give you suggestions for types of houses, and also illustrate ways of building houses so that a portion may be removed to permit observation of the nest and cleaning. Houses built to permit observation should be fitted with a pane

of glass inside the portion that can be lifted. This makes it possible to look at the nest without disturbing it or causing a draft which might injure the nestlings.

The robin, barn swallow, song sparrow, and the phoebe ordinarily do not build in houses, but sometimes appreciate brackets or shelves such as shown in Figure 11.

Protection Against Invaders.--Cats, squirrels, mice, English sparrows, starlings, blue jays, red-headed woodpeckers, bronzed grackles, magpies, and crows are among the chief enemies of the birds we wish to protect and encourage. Three guards such as those shown in Figure 12 will help to protect bird nests and houses from cats and squirrels. A far-overhanging and sloping roof close over the nest often is adequate protection against cats. With birds smaller than enemy birds, the size of entrance can often be used as a measure of protection. Sometimes it is practicable to use a vermin-proof fence to protect birds. Such fences must have a mesh of not more than an inch and a half, should be about six feet high, and should have an outward overhang of two feet at the top.

Roosting Shelters.--After the breeding season, bird houses may continue to be of use to birds. Often they are used to sleep in at night or as places of shelter from storms. Houses may be built especially to fill this need of the birds. Roosting shelters like those shown in Figure 13 serve several birds, and may be made considerably larger than the ordinary bird house. Perches are inserted, and these should be so placed that none is directly over another. The entrance to the nesting house is usually placed nearer the roof than the floor. In the roosting shelters, the entrance may be placed close to the floor. To be useful to the greatest number of birds, such houses may be placed from 8 to 10 feet from the ground, with a southerly exposure for the entrances. If they are placed in sheltered spots and are protected by metal guards, they will be of most use. Even hollow trees may be fitted with perches and divided into compartments. Such shelters are often occupied by a number of different species of birds.

Sanitation.--Bird houses and roosting shelters should be built so that they can be kept clean, and they should be regularly inspected. Carbon bisulphide, carbon tetrachloride, sulphur, ordinary smoke, or the like may be used to stupefy such intruders as mud-daubers, paper-wasps, and bees, and they can then be destroyed. Houses infested with fleas or bird lice may be treated with liberal applications of derris powder, pyrethrum powder, or sodium fluoride powder, while being used by birds, but care should be taken not to injure nestlings nor to disturb the birds so often that the parents will desert the nest. A good rule to follow is never to interfere with a bird's domestic affairs unless it is in evident distress. After the nestlings have gone, the old nest should be burned and the interior of the house sprayed with DDT to destroy pests.

Take Second Bird Hike.--Sometime toward the close of the month, the early bird migrants will begin to appear in force. Take a second bird hike and list the kinds of birds that you see and the number of individuals of each kind.

Birds of the Month.--During this month, make a special study of the Song Sparrow, Mourning Dove, Bronzed Grackle, and Loggerhead Shrike.

April

During this month, the major projects will be the building of a bird bath, the planting of trees or shrubs that are attractive to birds, the study of nest-building and rearing of young, and the usual study of special birds of the month.

Observing Nesting Habits.--From now on, you will find that birds are building nests and rearing families. Begin making as intensive studies of bird habits as you have time. If you keep a notebook of your daily observations you will find that it will become a complete record of the life of various families of birds during the summer. It will tell you when the birds arrive, when and where they nested, of what the nest was made, when the eggs were laid, how many and what color they were, which bird sat upon the eggs, when the nestlings hatched, how they were fed, and how often and upon what kind of food. It will be well worth while to count the number of trips for food each parent makes in a given length of time. From this you can estimate the amount of food supplied per day. As the nestlings grow older, do the number of trips for food increase?

Your notebook will enable you to check back and find how old the nestlings were when they first left the nest, how long they returned at night, and how long they were dependent upon the parents for food. You should make note of the difference between the plumage of the young birds and the mature parents.

When studying birds, move quietly and do nothing to excite their suspicions of your good intentions. A pair of field glasses is very helpful, but one can learn a great deal about birds without one. If you can afford to buy a pair, satisfactory glasses may be secured at from \$5.00 to \$15.00.

Ornithologists sometimes arrange blinds or hiding places from which they can quietly and unobtrusively watch the rearing of some especially interesting bird. You may find that you can watch the affairs of some bird from an upstairs window, from a tree, or from the roof of another building. Your hiding place should be large enough so that you can watch comfortably and make notes, near enough to the nest to permit easy observation, and yet far enough away so that the birds are not disturbed.

Sometimes it is possible to establish friendlier relations with birds by imitating their calls. This is amusing, and it may be definitely of value in securing information about birds.

When birds are building nests, they do not scorn a little help from human sources. Short pieces of string, ravelings, or bits of cloth will often be picked up by birds, to be used in the nest. Sometimes colored strings produce brightly colored nests of orioles or other birds. Excelsior, cotton, straw, hair, and hay are also used. Wire holders such as those used for suet in the winter may be used to display certain nesting materials. Robins, phoebes, and swallows appreciate a spot of soil made muddy by pouring water on it, for these birds use mud to plaster their nests. They are especially appreciative of such assistance in dry weather. Very likely you can think of a number of ways to help the birds with their domestic affairs. You must, however, use good judgment in the things you do to help, because if you do not, you are likely to frighten them away instead of attracting them.

Building a Bird Bath.--Before you build a bird bath, make a survey of your neighborhood or of some nearby town and see how many bird baths have already been built. Find out which ones have been most attractive to birds, and pattern yours after the type that is most used. Look also for natural places where birds drink and bathe and see what characteristics these places have which you may duplicate.

Birds prefer a bath that is not easily reached by cats and other enemies. Also they like a bath that is not too deep. Shallow sloping baths (about two inches deep at the deepest place) kept filled with water throughout the year and placed at some distance from the ground (three to six feet) in an open space seem to be most popular. You are likely to find that such bird baths are more popular than those in unprotected natural places. If there are trees with low branches a few feet from the bath, birds seem to enjoy sunning themselves on the branches after basking and use such branches as places to wait their turns at the bath.

The bird bath need not be elaborate. A discarded bread pan or shallow wash pan may be repaired so that it doesn't leak and placed on a tree stump that is banded with metal. Concrete pedestals with shallow basins on top are sometimes made.

You will find that some birds like a dust bath just as much as a chicken does.

Arbor Day.--The usual celebration of Arbor Day consists of planting trees or shrubs. This year choose trees that are particularly attractive to birds. Table 5 lists a number of kinds of plants that attract various kinds of birds. Study this table and make a choice of trees and shrubs to plant on Arbor Day.

Some birds prefer to nest in dense thickets, and shrubs and vines may be so arranged as to provide ideal nesting conditions for these birds. Barberry, sumac, and plum, for instance may be used with such vines as the spiny smilax, which will afford additional protection.

Birds of the Month.--The Phoebe, Purple Martin, Cedar Waxwing, Eastern Towhee, and Field Sparrow are birds that should receive special attention during this month. The Cedar Waxwing

mostly passes through Nebraska during this month, on its way northward to its summer home, but a very few remain in the state to nest in highly suitable locations.

May

During May, June, and July you will be very busy identifying as many birds as you can and learning to recognize them by their appearance, their habits, their flight, and their calls. Your notebook during these months should be growing rapidly, and it may be well for you to read again the paragraphs on notes and descriptions in December meeting and on the bird hike in January. Read over your notes from time to time and ask yourself whether you have included all the information that was available to you at the time of taking them. Remember that at the end of the year you will wish to check over your notes and choose the most interesting experience as the material for a story.

Morning Bird Hike.--During this month plan to make an early morning bird hike. You may like to have a picnic breakfast on this day. If you have a kodak or camera, try to get some interesting bird pictures. If you start before dawn it will be interesting to note which is the first bird to sing in the morning, and which follows. Continue to look for birds until noon, and at the end of the hike compare your lists and see how many different kinds of birds have been seen during the morning.

Bird Enemies.--Begin to organize the information you have gathered about bird enemies. Make a list of the kinds of enemies you have observed and try to find ways to prevent them from destroying birds. Review the section on "protection against invaders" in March study, and try to add to this information. If you can, collect data on the amount of damage done to birds by various enemies. Information available indicates that probably 70 per cent or more of the nests of song and insectivorous birds are destroyed in the United States in one way or another. On the ordinary American farm, more than 50 per cent of the upland game-bird nests are destroyed.

So far as stray or unowned cats are concerned, the most effective remedy is to kill them. It is unfortunately true, however, that it is often impossible to dispose of all cats and retain friendly relations with your neighbors. It is a kindness--both to the birds and to the victims--to kill stray cats. Such animals have a lean and hungry life at best, and they are the ones that cause most injury to birds. The greatest depredations of cats that have owners are probably at night and in the early morning. It is quite possible to prevent a great deal of such injury by keeping the cats locked up in some building at night, not letting them out until the chores are done next morning. If locked up in granaries or barns, they are encouraged to keep down the rat and mouse population and thus their value to the owners may be increased. Every effort should be made to keep cats away from those parts of the farm where birds are nesting. Control the cats that belong to your own family, and if you approach your neighbors wisely on the subject, you may persuade them to do likewise. Dogs also should be controlled, but do not forget that dogs are comparatively harmless.

The numbers of such birds as the English Sparrow and probably also the European Starling should be regulated, for both of these birds are capable of becoming so numerous as to prevent more desirable species from living in the same region. Persistently destroying their nests will prevent their increase in numbers.

Be Sure You Are Right.--Before deliberately killing any bird or animal, be sure that it is making a pest of itself. Inform yourself about its food habits and make sure that it is not doing enough good to make up for its faults.

Birds of the Month.--The Franklin Gull, Mockingbird, House Wren, Brown Thrasher, and Chipping Sparrow are birds that should be especially studied this month.

June

In addition to a study of certain birds, June may be devoted to learning bird songs and studying and protecting the nests of prairie birds.

Learn to Recognize Twenty Birds by Their Songs.--The singing of birds is at its height in June. This is a good month to learn to know twenty different birds by their songs. Try to associate every bird call, note, and song that you hear with the bird that makes it, and try to remember this association. Most birds have several calls. Some birds, like the Cardinal, have many different calls, but each call is so characteristic of the bird that you are not likely to fail to recognize it as his own. In other cases you will be surprised to find that a beautiful singer can also utter harsh and unlovely notes. Try to learn which calls are made for sheer love of singing, which are uttered when the bird is frightened or hurt, which when angered, and which are notes of warning.

Nests on the Ground.--Visit meadows and alfalfa fields, looking for nests of birds that live in these places. Before it is time to mow the hay, locate as many such nests as you can and devise some way of protecting them. Meadowlarks, horned larks, dickcissels, quails, and bobolinks are all birds that render enough service to the farmer to make it worth his while to leave their nests undisturbed in a patch of alfalfa or prairie grasses when he cuts the field. Remember that when one of these birds builds a nest, he has, according to statistics, only about one chance in two to rear his family.

These birds of the open fields are sometimes injured bodily when mowing time comes. This may be prevented by attaching a guard to the mowing machine which flushes the birds from the grass before the sickle reaches them (see Figure 14). This device will not only flush the bird but it will give the farmer ample time to lift the cutting bar over the nest and leave a small patch of uncut hay around it. If not protected, many birds' nests are destroyed at the first cutting of alfalfa or clover. In view of the hazards in the lives of upland birds, it is necessary to do all that one can to protect and encourage them.

Birds of the Month.--The Black Tern, Eastern Kingbird, Arkansas Kingbird, Barn Swallow, and Catbird should be carefully studied this month.

July

By midsummer the birds are busily engaged in rearing families. Some will already have reared one brood and are making preparations for a second. This will give you an opportunity to check your earlier observations on nesting habits and to get more complete information on questions and problems that interest you.

Club Nest Collection.--During the season so far, you will have discovered where several kinds of birds have built their nests. Of course, you will not have disturbed these nests in any way as long as the birds were using them. But when the young birds have deserted the nests, and the old birds are not paying any attention to them any more, it is permissible to collect the old birds' nests and study them. Describe the construction of each kind of nest that you collect in this way. Keep a nest thus collected of each kind of bird and thus build up a Club birds' nest collection which may be kept in the district school house where everyone in the community may use it for reference.

Knowing Birds' Eggs.--Never disturb a bird's nest with eggs in it, but visits to the nest when the bird is away will permit you to look at the eggs. Never handle the eggs. Birds are cautious and sensitive and will frequently desert a nest that has been molested. But you can look at the eggs, note their color and markings, their size, and the number. You can always supplement such first-hand information with pictures and books. Try to know about the size, shape, and coloration of the eggs of ten different kinds of birds. Keep a list of the kinds of eggs you have seen, and in your list briefly and accurately describe the eggs.

Birds of the Month.--July is a good month to make a special study of the Rose-breasted Grosbeak, Baltimore Oriole, Lark Sparrow, Dickcissel, and Bobolink. Check back on your migration calendar and see when you first saw them, and compare this with Table 5.

With August, the end of summer is drawing near. This is a proper time to review your year's work, organize your notebook, complete migration data on summer residents, and take another bird hike.

Dates of Departure.--Some of the birds that have raised their young are now more or less quietly preparing to leave for the South. Some species tend to flock together, and practically all of them are eating as much as they can to store up food for the long flight ahead. Watch and try to discover when each kind of bird leaves. Get out your migration calendar, to which you probably paid little attention during the middle of the summer, and note down the birds you see each day. Sooner or later a time will come when several days will pass without your seeing, for instance, a single Robin. The last date on which you saw a Robin marks the time of its fall migration. By comparing dates when last seen with arrival dates you can determine how long the summer residents are with us.

Nebraska lies in the path of two of the main "flyways" used by migrating waterfowl and other birds. These are the Mississippi flyway and the central flyway. One can gain a fairly wide acquaintance with many strange birds by keeping on the alert during the spring and fall migration seasons. Scientists have learned through banding the legs of wild birds which have been caught and freed, and through other means, that the migration habits of different bird species vary. The Arctic Tern holds the record for long distance, flying 11,000 miles twice a year from Pole to Pole. Other birds, like the Robin, may spend three months in their journey from Colorado to Alaska. And the Bobolink leaves the grasslands of Argentina in February, dallies through Florida, and arrives in British Columbia in May.

Organize Your Notes.--During the spring you noted how the resident birds of the winter were increased by new birds arriving from the South. Go over your notebook and arrange the birds that you have identified this year in the order of their arrival, with the dates of their arrival.

Bird Hike.--Toward the end of the month take another bird hike. As usual, list all the birds you see. Can you recognize the young birds in their youthful plumage? Try to find out how long it is before they assume the coloring that is characteristic of mature birds. Which parent do they resemble most in their immature plumage?

Birds of the Month.--The Turkey Vulture, Red-headed Woodpecker, Red-bellied Woodpecker, Yellow-billed Cuckoo, and Red-eyed Vireo are birds that can best be studied during this month. More often than at any other time of the year you will hear the calls of the Cuckoo during this month, and likewise the Red-headed Woodpecker flashes from tree to tree and makes known his presence by beating a lively tattoo on any sounding board he can find.

September

Besides studying the special birds of the month, study Nebraska game laws and have a debate in your club.

Nebraska Game Laws.--From your County Agent or your local Conservation Officer, secure copies of the Game, Fish and Park Laws and Regulations of the State of Nebraska, published by the Game, Forestation, and Parks Commission whose offices are in the State House at Lincoln, Nebraska. The Commission publishes other information of interest which you may secure by request. Be familiar with the game, fish, and park laws and regulations. Learn what kinds of birds are not protected, and why. Learn which game birds have an open season and which have not, and why; and learn the dates of the open season on those that have them. Similarly, study the bird laws of the Federal Government, especially as related to game birds. From the County Agent or by writing to the United States Department of Agriculture, Washington, D. C., you may find where to secure a pamphlet on game laws of all states. Compare Nebraska laws with those of neighboring states.

The Game Forestation and Parks Commission has a game of servation officer near you who would be glad to meet with your club. Many clubs are using these officers sometime every year.

If you are not your club is the loser. If you do not know your officer write their state office in the Capitol Building in Lincoln. Suggest that you would like to meet him to discuss state game laws, arrange for a demonstration or show some conservation pictures. He will help you make a very interesting program.

In 1933, after years of drouth and overshooting of wild ducks and geese, the Chief of the U. S. Bureau of Biological Survey was convinced that these birds were doomed unless given help. Four years later, thanks to a national program of water-fowl restoration, he reported that these birds had increased to a point where they will not become extinct so long as proper restrictions upon hunting are maintained. Not only the ducks and geese profited from the program; a great many jobless Americans were put to work, and many dams and ditches were built. The dams and ditches aid in the control of waters, lessening the danger of floods, loss of property, and life, and lessening also the threats of erosion.

Organize a Debate.--After you have made a study of the game laws of the state, let the members of your Club prepare a debate in an attempt to determine whether or not certain kinds of birds should be protected. Or the Club may prefer to prepare a court trial at which some such bird as Jack Crow shall be the plaintiff, pleading for protection. Certain club members may speak in his defense and others may prosecute him. Others may be members of the jury, and perhaps the Club Leader can act as the Judge. In preparation, the various club members will wish to read as much as they can on the character of the bird on trial. Also use the information gained through your own observations during the year.

Birds of the Month.--Blue-winged Teal, Ruby-throated Hummingbird, Nighthawk, Ruby-crowned Kinglet, Goldfinch, and Blue Jay should receive special study this month.

October

Closing the Year's Work.--Go over your notebooks and get them in final good form. Prepare a report on your bird observations made during the year. Complete your year's work by writing a story telling of your most interesting experience during the year with some kind of wild bird.

Winter Habits of Game Birds.--Study the wintering habits of our game birds. Learn how to prepare shelters so that winter storms with heavy snows will not cover them.

One of the best ways of supplying food for birds in the winter is to place shocks or bundles of corn upright in protected places such as thickets, around hay and straw stacks, or in fence corners. As the snow becomes deeper during the winter, ears of corn at the higher levels become available to the birds, and the supply is maintained pretty well throughout the winter. If the snowfall should be light, the stalks may be broken over so that the birds can reach the grain. Straw stacks that contain grain may be opened and reopened from time to time, to provide a food supply.

Corn shocks may be set up and opened tepee fashion, or low hutches may be built and supplied with food. Corn, buckwheat, rye, wheat, barley, sorghum seed, sunflower seeds, soybeans, millet seed, popcorn, and cowpeas, are all foods that can be used. Corn on the ear, sorghum seeds in the heads, and sunflower seeds in the heads are as acceptable as shelled grain, if not more so. Feed may be spread upon the snow in protected places, if the snow has a hard crust.

Feeding stations for game birds should be placed as near as possible to the natural protective cover in which the birds spend their time. A field of corn that is near a thicket will give much more help to birds than one which is far removed from trees or brush. If it is necessary to feed far from a natural woodland or thicket, a protective cover for the birds may be made by piling brush over and around the feeding hutch. For quail, food should not be placed more than 75 yards from some kind of protective cover. Pheasants, prairie chickens, and sharp-tailed grouse usually range farther for their food. Where quail are abundant, it is well to provide one feeding station for each 40 acres. For prairie chickens, provide one station for every 5 or 10 sections (that is, every 5 or 10 square miles).

The feeding stations should be inspected regularly. Watch carefully for signs of enemies and when their tracks are present, move the shelter to another place and try to destroy the predators.

Birds of the Month.--The Mallard, Pintail, Redhead, and Canvasback ducks should be studied this month, along with the Canada Goose, the Greater Prairie Chicken, and the Ring-necked Pheasant.

PLATE 1

GREAT BLUE HERON

A common summer resident that is sometimes called "crane" and often seen wading about marshes. It is 42 to 52 inches long and stands about 4 feet tall.

Appearance.--A large bird with upper parts bluish gray, shoulders black with white stripes, top of head white and bordered by black and with black crest, under parts streaked with black and white. Its long legs, long neck, sharp pointed bill, and flight with drawn in neck, mark it as a Heron. Its long hind toe marks in the mud differ from the very short or no hind toe marks of the Sandhill Crane.

Voice.--A series of low, hoarse croaks.

Nest.--Usually a wide platform of sticks in tall swamp trees that contain 3 to 6 dull greenish blue eggs.

Food.--Consists mainly of small animals such as fishes, snakes, small mammals, lizards, crawfishes, mollusks, frogs, grasshoppers and other insects.

AMERICAN BITTERN

A member of the heron family and is a common migrant throughout the state. Breeds where conditions are favorable, most commonly in the sandhills area. It is sometimes called "thunder pumper" or "stake driver", and is 23 to 34 inches long.

Appearance.--A stocky brown bird frequently flushed in marshes. The upper parts are broadly striped with dusky on buff and the throat and under parts are creamy buff, striped with brown. The crown, streak along jaw and wing tips are blackish. The dark wing tips contrasting with the brownish body distinguish it from the brown young Night Heron. In flight its wings are straighter and wing beat faster than the Night Heron. It rarely perches.

Voice.--A pumping "song" that is usually heard in marshes in the spring and is rendered as a deep ump-up, ump-up, ump-up. When flushed it utters a rapid kok-kok-kok.

Nest.--On the ground, usually in marshes and made of grass or sticks. Contains 3 to 6 brownish drab eggs.

Food.--About the same as Great Blue Heron above.

SANDHILL CRANE

A fairly common migrant through the sandhill area. A very large slate gray bird that is 40 to 48 inches long.

Appearance.--The whole plumage is slate gray or light brownish with wings darker, cheeks and throat lighter, crown and lores naked except for few black bristles. Hind toe short. A very large long-legged, long-necked, gray bird with a bald red forehead. Flies with its neck extended and legs trailing. Wings are held straighter in flight than those of the Herons.

Voice.--A deep, trumpet-like rolling k-r-r-r-oo.

Nest.--A wide platform of flags and rushes in a marsh that contains 2 buffy and brownish eggs.

Food.--Seeds, roots and other parts of water plants, grain of various kinds, various berries, tadpoles, small fishes, lizards, snakes, rats, mice, worms and insects.

AMERICAN MERGANSER

A common migrant and winter visitor that is sometimes called "fish duck" or "sawbill".

Appearance.--Mergansers are rakish, long-bodied birds. The male is white with a black back and a green black head; bill and feet orange; breast tinged with peach colored bloom. The female is largely gray with a crested rufous red head, red bill, orange feet, and large square white wing patch.

Nest.--In hollow trees, holes in cliffs, or on ground, lined with down. Contains 9 to 12 pale buffy eggs.

Food.--Duck and geese Mergansers feed almost entirely on fish, with a few mollusks and similar food being taken. In contrast the other ducks eat mainly vegetable material consisting of seeds, vegetation and rootstocks of marsh and aquatic plants. The animal material (such as insects, mollusks, crustaceans) ranges from one-third of the food taken by Shoveller ducks to a very small percentage by Gadwalls and Baldpates. Geese feed almost entirely on vegetable material consisting of marsh vegetation and roots, grasses and grains. The young of both geese and common ducks take more insects and similar animal food than do their parents.

RING-NECKED DUCK

A common migrant and rare breeder in the sandhills. Sometimes called "ring-bill duck".

Appearance.--Appears like a black backed Scaup. Head, fore parts, and back, black; sides, light gray with conspicuous white mark in front of wing; bill crossed by two white rings. In flight, the only black backed duck having a broad gray wing-stripe. A close range examination is necessary to find chestnut ring encircling the neck. Female differs from female Scaup in having a gray wing-stripe, white eye-ring, and a ring on the bill; from female Redhead in being smaller, a darker back and the conspicuous rings about the eye and on the bill.

Nest.--Placed at edges of marshes, ponds and slough and constructed of available material. Normally 8 to 12 eggs.

Food.--See American Merganser.

LESSER SCAUP DUCK

An abundant migrant through the State. A medium sized duck sometimes called "bluebill".

Appearance.--At a distance on the water Scaup ducks appear "black at both ends and white in the middle". The bill is short and wide, bluish with black tip. The male's head black glossed with purple; shoulders, rump and chest black, belly white, margined with light grayish along sides. The female is brown with broad white wing stripe and a well-defined white area at base of bill. Feet are light gray blue to dusky greenish.

Nest.--On the ground near marshy areas of grasses and sedges and lined with down. Normally 9 to 12 eggs. No nests reported in Nebraska.

Food.--See American Merganser.

PLATE 2

MALLARD

These ducks are about 23 inches long.

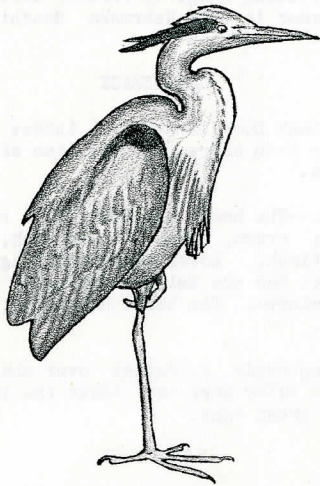
Appearance.--Feet pink and bill yellow. The male has a green head and neck glossed with violet. Wings with a violet bar bordered with black and white. Rest of wings, back, and sides are gray, the sides finely barred. Belly white, breast chestnut. Rump and tail coverts black with tail feather whitish. Female mottled grayish brown with violet bar on wings.

Nest.--Common in sandhill region. Nests lined with down, built in depressions in high grass near water; 6 to 10 pale olive eggs.

PINTAIL

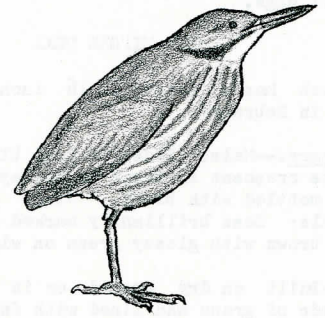
The Pintail male is 28 inches long; the female about 6 inches shorter.

Appearance.--Head brown glossed with violet on the cheeks. The back of the long, slender neck is blackish. The front of the neck, stripes up the back of the head and under parts are white. Back and wings are brownish gray, with gray bands narrowly bordered with white on the wings. Central feathers are very long and narrow, black. The female is duller colored mottled brown, blackish, and buff, with white throat.

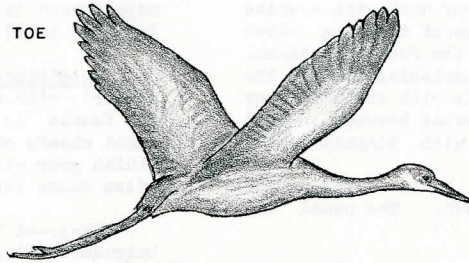


GREAT BLUE HERON

FLIES WITH NECK PULLED IN. LONG HIND TOE

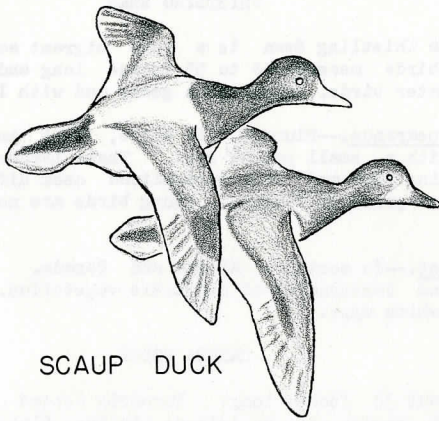


AMERICAN BITTERN

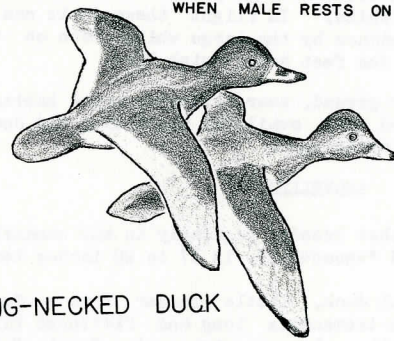


SANDHILL CRANE

FLIES WITH NECK EXTENDED. SHORT HIND TOE

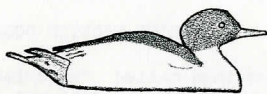


SCAUP DUCK

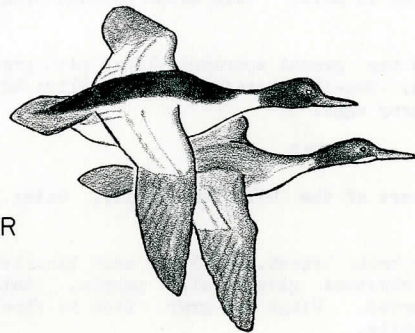


WHITE MARK SHOWS IN FRONT OF WING
WHEN MALE RESTS ON WATER

RING-NECKED DUCK



AMERICAN MERGANSER



Nest.--The Pintail breeds commonly in Nebraska mostly farther north. Nests are built in concealed depressions on the ground, lined with grass and feathers; 7 to 10 pale green to olive buff eggs.

BLUE-WINGED TEAL

This duck has a length of 16 inches and is one of the most common in Nebraska.

Appearance.--Male: Sides of head blue gray with a purple gloss. White crescent in front of the eye. Crown dark brown. Back brown mottled with black. Wings gray blue marked with green. Female: Less brilliantly marked than the male. Mostly gray and brown with glossy green on wings.

Nest.--Built on dry ground or in reeds or grass in marshes; made of grass and lined with feathers; 8 to 12 pale buffy eggs. Common in the sandhill region.

GADWALL

A common migrant and nests commonly in the sandhills. It is 19 to 21 inches long and sometimes called "gray duck".

Appearance.--The male is a slender gray duck with a white belly and a white patch on the hind edge of the wing which shows up plainly in flight. On the water the feathers conceal the white wing patch and the best distinguishing mark is the black tail coverts, which contrast sharply with the pale gray of the wing coverts. The female is somewhat browner. Both sexes have bright orange yellow feet with blackish webs.

Nest.--On dry ground in a shallow hollow lined with material of the immediate vicinity and down. The usual set contains 10 to 11 dull creamy white eggs.

BALDPATE

A common migrant in Nebraska (about 18 to 22 inches long) is sometimes called "Widgeon".

Appearance.--The male is mainly brownish with gray head and white crown (which gives it its name); patch on side of head glossy green; patch on fore part of wing white; bill blue with black tip. Female brown with gray head and neck; belly and fore part of wing white. In flight these ducks can be recognized at a good distance by the large white patch on the fore edge of the wing. The feet are grayish blue.

Nest.--Built on dry ground, near favorable water habitat, in a slight hollow lined with available vegetation and down. Normally 9 to 11 creamy white eggs.

SHOVELLER

A common migrant that breeds regularly in the sandhills region. Sometimes called "spoonbill", is 17 to 20 inches long.

Appearance.--A small duck, little larger than a Teal; best identified by its tremendous long and flattened bill, which in flight gives it a long appearance in front of the wings. Male largely black and white; belly and sides rufous red; head blackish glossed with green; breast white; pale blue patch on fore edge of wing. Female is mottled brownish, with large blue wing patch as in male. Both sexes possess orange feet.

Nest.--A hollow in the ground sparingly lined with grass and weeds and some down. Usually contains 10 to 12 olive buff or very pale greenish gray eggs.

REDHEAD

Medium sized members of the Wild Duck family, being 19 inches long.

Appearance.--Upper back, breast, and lower neck blackish; head bright reddish chestnut glossed with purple. Belly whitish more or less barred. Wings are gray. Back is finely barred with black and white.

Nest.--Built on marshy ground near water and made of weeds and grass lined with down; 7 to 10 grayish white or pale

olive eggs. Breeding range is farther north, but a considerable number summer in the Nebraska Sandhills and some nest there.

CANVASBACK

The Canvasback Duck is about 21 inches long, feeds out open water, far from shore. It is one of the most sought after game birds.

Appearance.--The head and neck are rufous (reddish or reddish yellow); crown, chin, lower neck, breast, tail, and upper back are black. Lower back and wing coverts are black barred with white and the belly is white. The female is less conspicuously colored. The birds have long, sloping bills and long, low heads.

Nest.--Among reeds or rushes over shallow water; uses stems to build a bulky mass and lines the inside with down; 7 to 8 pale olive green eggs.

RUDDY DUCK

A common migrant and summer resident in sandhills. In the air the Ruddy appears as a small, dark, chunky duck, and unpatterned in color except for the conspicuous white cheeks. It is 14 to 17 inches long.

Appearance.--The male is largely rusty red (gray in winter) with white cheeks, black crown, and large blue bill. The female is similar to the male but more gray, but with light cheeks crossed by dark line. The feet of both are large, bluish gray with dusky webs and claws. On the water the ruddy often cocks its tail vertically, like a wren.

Nest.--A basket-like affair concealed in thickly growing bulrushes, flags and reeds of which it is constructed, normally 6 to 10 large dull white or creamy white eggs.

PLATE 3

WHISTLING SWAN

The Whistling Swan is a rare migrant across Nebraska. These birds measure 48 to 55 inches long and are very large white water birds, larger than geese and with longer necks.

Appearance.--Plumage all white, feet and bill black, lores with a small yellow spot. Their larger size, lack of black wing tips and long streamlined neck differentiate them from snow goose in flight. Young birds are more ashy gray in color.

Nest.--In northern Alaska and Canada. On ground near water and constructed of available vegetation. Normal 4 or 5 creamy white eggs.

CANADA GOOSE

About 38 inches long. Formerly nested commonly in the sandhill region and on islands in the Platte and Missouri rivers.

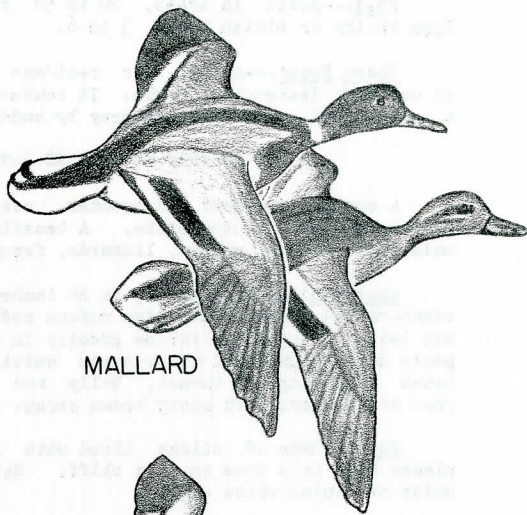
Appearance.--Neck and head are black with a broad white chin-strap. Upper parts brownish gray; rump and tail black with white upper tail coverts. Belly white.

Nest.--On mounds in low marshy places, made of grass and leaves lined with down; 6 to 8 dull white eggs.

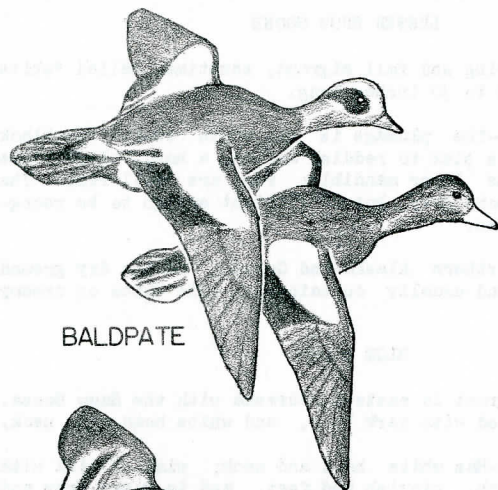
WHITE-FRONTED GOOSE

It is sometimes called "specklebelly" and is a common migrant through Nebraska in fall and spring. A medium sized goose 27 to 30 inches long.

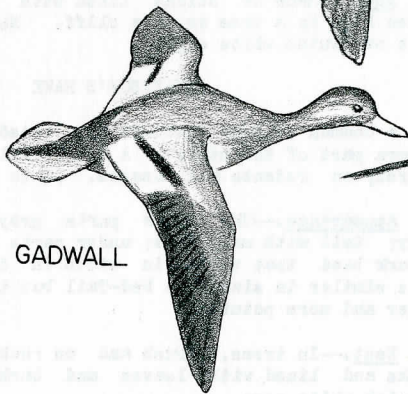
Appearance.--It has a clear white patch on the front of the face, black marks on the belly, yellow or orange feet, dusky gray back, and a pink bill. This is the only common goose with yellow feet. Gray brown with no contrast of black neck and light breast as does the Canadian Goose. In flight there is a uniform coloration below and at a distance it shows up.



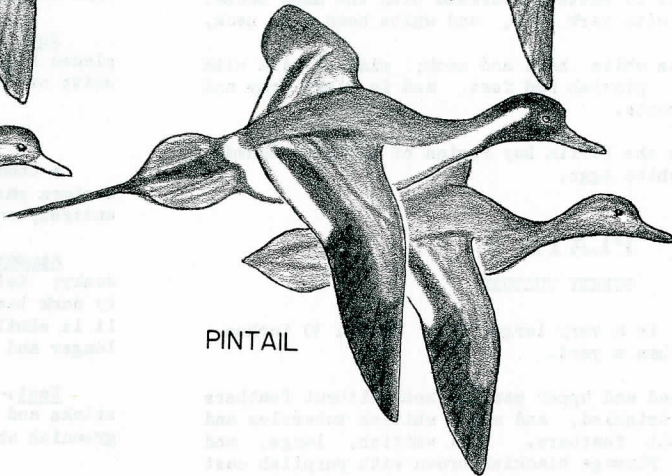
MALLARD



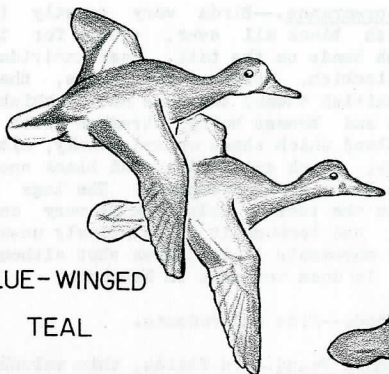
BALDPATE



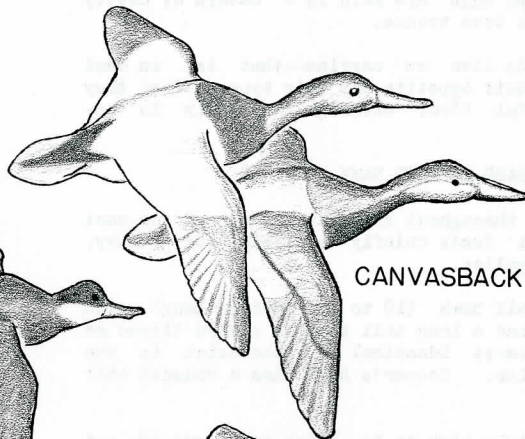
GADWALL



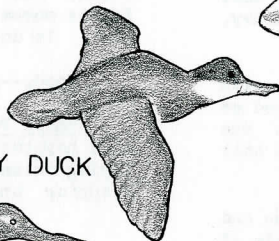
PINTAIL



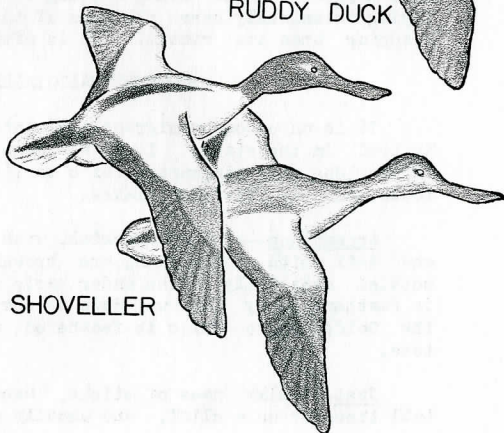
BLUE-WINGED
TEAL



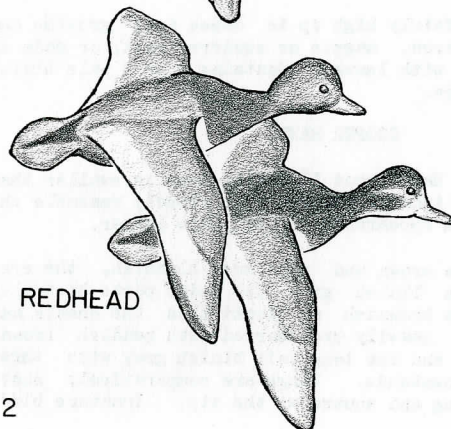
CANVASBACK



RUDDY DUCK



SHOVELLER



REDHEAD

Nest.--In northern Alaska and Canada, on the ground lined with grass, moss and down. Normally 5 or 6 light buffy to creamy white eggs.

LESSER SNOW GOOSE

A common spring and fall migrant, sometimes called "white brant". It is 23 to 30 inches long.

Appearance.--The plumage is all white except for black wing tips; bill is pink to reddish and has a hard, black plate along side of the lower mandible; feet are dull red. The young birds are more gray but still light enough to be recognized as Snow Geese.

Nest.--In northern Alaska and Canada, on the dry ground lined with down and usually contains six dull white or creamy white eggs.

BLUE GOOSE

A common migrant in eastern Nebraska with the Snow Goose. It is medium sized with dark body, and white head and neck.

Appearance.--Has white head and neck; pinkish bill with black grinner patch, pinkish red feet, and is dusky gray and brown on the upper parts.

Nest.--Nests in the Paffin Bay region of northern Canada, 3 to 5 pale creamy white eggs.

PLATE 4

TURKEY VULTURE

Turkey Vulture is a very large bird, length 30 inches--only 6 inches less than a yard.

Appearance.--Head and upper part of neck without feathers and the skin red, wrinkled, and with whitish tubercles and some hairs and small feathers. Bill whitish, large, and hooked. Eyes brown. Plumage blackish brown with purplish cast when fresh; rusty and soiled in appearance when old. When in flight, under, lighter colored feathers can be seen. Feet, dull flesh color.

Nest.--Two whitish eggs are laid in a cavern or cavity between rocks or fallen tree trunks.

Food.--These birds live on carrion--that is, on dead animals. Because of their appetite for this type of food they are considered a useful bird, although unsightly in appearance.

SHARP-SHINNED HAWK

A common resident throughout the state. One of our most destructive hawks that feeds chiefly on birds and poultry, with a few mice and reptiles.

Appearance.--A small hawk (10 to 12 inches long) with short, rounded wings and a long tail that is square tipped or slightly notched. Almost identical in coloration to the Cooper's hawk but smaller. Cooper's hawk has a rounded tail tip.

Nest.--Placed fairly high up in dense tree growths and may be a remodeled crow, magpie or squirrel nest, or made of dry sticks and lined with leaves. Contains 4 or 5 pale bluish or greenish white eggs.

COOPER HAWK

The male Cooper Hawk about 16 inches long is smaller than the female, about 19 inches. These birds closely resemble the Sharp-Shinned Hawk in appearance but they are larger.

Appearance.--The crown and nape are blackish, the eyes red, the upper parts bluish gray, the under parts basically white, streaked with brownish or blackish on the cheeks and throat but otherwise heavily crossbarred with reddish brown; the feet yellowish; and the long tail bluish gray with three or four blackish crossbands. Wings are comparatively short and rounded; tail long and square at the tip. Immature birds

have yellow eyes, are dull brown above, and whole under parts white streaked (not barred) with brown.

Nest.--Built in trees, 20 to 50 feet from the ground. Eggs chalky or bluish white, 3 to 6.

Where Found.--An all-year resident in Nebraska, and one of our most destructive hawks. It courses over the country a great speed, capturing its prey by suddenly darting upon it.

EASTERN RED-TAILED HAWK

A common resident and breeder, most frequently found in the eastern half of the state. A beneficial hawk that feeds mainly on rodents, snakes, lizzards, frogs, and insects.

Appearance.--A large (19 to 24 inches long) broad-winged, round-tailed soaring hawk with rufous red on the upper side of the tail. The plumage varies greatly in coloration from upper parts dark brown, and under parts whitish with broad reddish brown streakings on throat, belly and sides to individuals that are uniform dark sooty brown except for the reddish tail.

Nest.--Made of sticks lined with roots and fine bark placed high in a tree or on a cliff. Normally 2 or 3 orange white or bluish white eggs.

SWAINSON'S HAWK

A common summer resident and breeder in the central and western part of the state. A beneficial hawk feeding almost entirely on rodents and insects. It is 19 to 22 inches long.

Appearance.--The upper parts gray or brownish; wings dusky; tail with many bars; under parts light, breast crossed by dark band that varies in width in different individuals. It is similar in size to a Red-Tail but the wings are slightly longer and more pointed.

Nest.--In trees, brush and on rocks made of available sticks and lined with leaves and bark. Contains 1 to greenish white eggs.

AMERICAN ROUGH-LEGGED HAWK

This hawk is about 22 inches long.

Appearance.--Birds vary greatly in color. Some are brownish black all over, except for three or four narrow whitish bands on the tail. Most individuals have the head and neck blackish, streaked with white, the back dark brown, the tail whitish toward the base and blackish toward the tip, the throat and breast buffy streaked with black, and a black-belly-band which shows conspicuously, along with the pale wing linings, black quill tips and black spots at the wing wrists as the bird soars overhead. The legs are always feathered down to the toes. This hawk is very common from December to March, and because it is relatively unsuspecting and sluggish in its movements it is often shot although it never should be shot. It does not nest in Nebraska.

Food.--Mice and rodents.

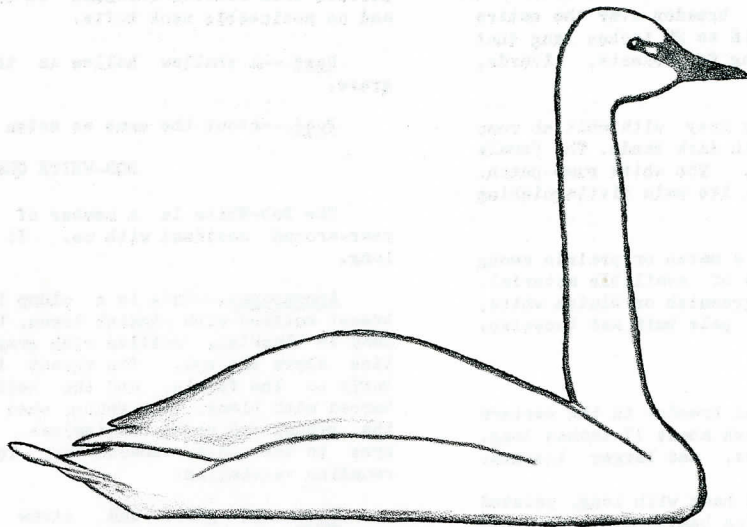
Where Found.--In fields, this valuable bird often perches on a haystack or low stump waiting for prey. It may be seen flying noiselessly over the tops of the grass and bushes and dropping upon its victim. It is often active at twilight.

SOUTHERN BALD EAGLE

It is an uncommon migrant and winter visitor that formerly bred in the state. It is a large soaring bird 30 to 31 inches long with wingspread of 6 to 7½ feet. It is usually found near the rivers and lakes.

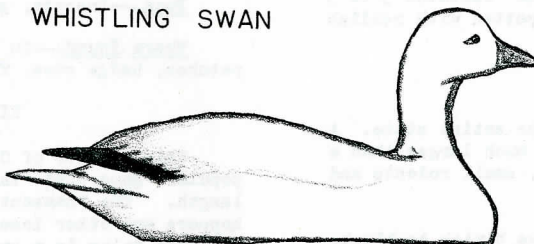
Appearance.--Mainly blackish, with head, neck, lower rump and tail white. The young are brownish or grayish black, mottled especially on the under parts with white. The shank is feathered only half way down as compared with the shank of the Golden Eagle which is feathered all the way down to the toes.

Nest.--Bulky mass of sticks, weeds or plant stalks in tall trees or on a cliff, and usually contains 2 white eggs.

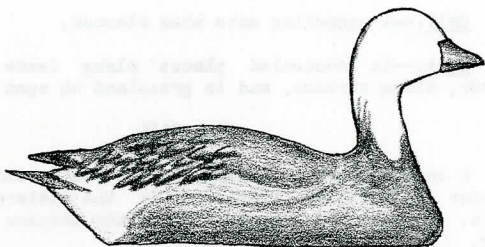


WHISTLING SWAN

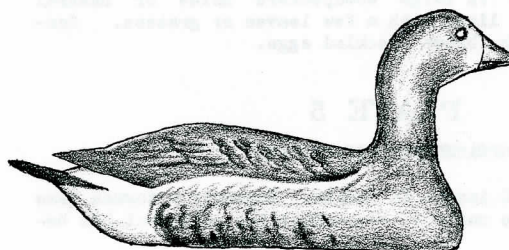
BLACK WING TIPS



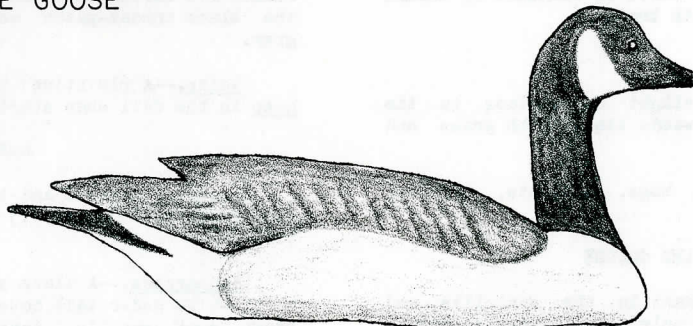
SNOW GOOSE



BLUE GOOSE



WHITE-FRONTED GOOSE



CANADA GOOSE

MARSH HAWK

A common permanent resident and breeder over the entire state. It is a medium-sized hawk 18 to 20 inches long that glides low over the ground in hunting for rodents, lizards, frogs, snakes, birds, and insects.

Appearance.--The male is chiefly gray with whitish rump and under parts; tail gray, barred with dark bands. The female is largely brownish with white rump. The white rump patch, long rounded wings and long tail are its main distinguishing features in flight.

Nest.--Usually on the ground in a marsh or prairie among rushes and grass or bushes, and made of available material. Contains 4 to 6 eggs that are pale greenish or bluish white, plain, or blotched and spotted with pale buff and brownish.

PRAIRIE FALCON

An uncommon permanent resident and breeder in the western part of the state. A medium-sized hawk about 17 inches long. It feeds on mammals, birds, reptiles, and larger insects.

Appearance.--A trim, medium-sized hawk with long, pointed wings and long, narrow tail. The wing beats are rapid and deep. Differs from the Duck Hawk in that its back is a paler sandy color whereas the back of that bird is slate gray. Underneath the Prairie Falcon shows blackish patches where the wings join the body. Sparrow Hawks are much smaller.

Nest.--Usually on ledges of cliffs and contains 3 to 5 creamy white eggs that are blotched and spotted with reddish brown.

EASTERN SPARROW HAWK

A common resident and breeder over the entire state. A small falcon 9 to 12 inches long and not much larger than a robin. It feeds largely on insects, snails, small rodents and an occasional small bird.

Appearance.--Male has tawny back; wings bluish to black; head bluish with rusty crown and characteristic black patches; tail rusty with white and black terminal bars. Female similar, except with brownish shoulders, barred with black. The narrow pointed wings separate it from the Sharp-Shin. It is the only common small hawk that habitually hovers over one spot.

Nest.--Usually in large woodpeckers holes or natural cavities in trees, lined with a few leaves or grasses. Contains 4 to 6 whitish, brown speckled eggs.

PLATE 5

GREATER PRAIRIE CHICKEN

This bird is 18 inches in length. Formerly a common game bird found in large numbers throughout the state but has become scarce.

Appearance.--Upper parts are yellowish brown and white, crossed by black bars. Head a deep buff except for blackish brown stripe and spots. Neck has tufts of feathers $2\frac{1}{2}$ inches long. Under parts white barred with brown.

Call.--A loud "booming".

Nest.--In open prairie in slight depressions in the ground, and made of grass and weeds lined with grass and feathers.

Food.--Grasshoppers, potato bugs, insects, berries, grain, buds, and green leaves.

PRAIRIE SHARP-TAILED GROUSE

An uncommon permanent resident in the sandhills and northwest part of the state. A pale white, speckled grouse (about $17\frac{1}{2}$ inches long) with a short pointed tail.

Appearance.--Upper parts reddish buff and black; wings spotted with white; under parts light with brown markings on breast and belly; tail with central feathers longest. Differs

from female Pheasants in that they have long pointed tails. Differs from Prairie Chickens in that they have pointed tails and no noticeable neck tufts.

Nest.--A shallow hollow in the ground, arched over by grass.

Food.--About the same as eaten by prairie chickens.

BOB-WHITE QUAIL

The Bob-White is a member of the Quail family and is a year-around resident with us. It measures about 10 inches long.

Appearance.--This is a plump bird with upper parts and breast mottled with pinkish brown, buff, black and white. The head is blackish, mottled with gray and red brown, with white line above the eye. The throat is also white in the male, buffy in the female, and the belly is white, finely cross-barred with black. The young, when frightened, squat close to the ground and remain motionless. You must look with sharp eyes to see them because they look so much like the surrounding vegetation.

Nest.--Of grass and straw on the ground, usually sheltered by weeds, sometimes built with a dome. 12 to 24 dull white eggs.

Call.--A clear, whistled "Bob, Bob White", is the best known call.

Food.--Insects, grain, weed seeds, wild berries.

Where Found.--In fields in summer; in thickets, weed patches, hedge rows, flocking in winter.

RING-NECKED PHEASANT

This native of China, Siberia, and Korea has become a popular game bird in Nebraska. It measures 40 inches in length. The Pheasant consumes an immense number of grass hoppers and other insect pests together with much grain. Its economic value is a good topic for discussion.

Appearance.--Back of head tufted, neck greenish or blue, breast rich coppery chestnut, light patch around the eyes, neck wholly or partly surrounded by white collar band. Back and wings mottled blue and white, wings becoming whiter near the ends. Female grayish brown, not brilliantly colored.

Call.--A squawking note when alarmed.

Nest.--In concealed places along fence rows, edge of timber, along streams, and in grassland on open prairie.

SORA RAIL

A common migrant throughout the state and fairly common breeder in suitable localities in the eastern part of the state. A small gray brown bird of the marshes about 9 inches long.

Appearance.--A small gray brown bird with a black patch on its face and throat, and a short, chicken-like yellow bill; flanks are barred with black and white. The young bird lacks the black throat-patch and is brownish underneath and not gray.

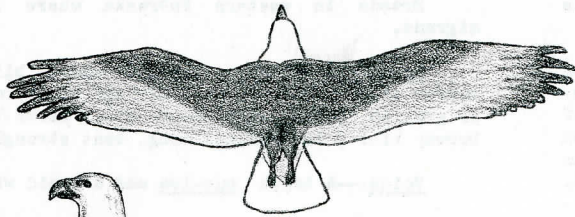
Voice.--A plaintive ker-wee in the spring, and a sharp keep in the fall when startled.

AMERICAN COOT

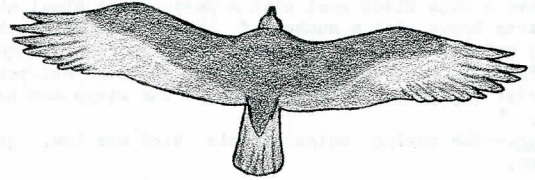
A common migrant and breeder in the state. A slate gray duck-like bird (about 13 to 16 inches long) with a whitish bill.

Appearance.--A slate gray bird with blackish head and neck; white under tail coverts; a whitish fowl-like bill, with brown spot near tip; toes lobed along edges. A white border shows on the hind edge of the wing when the bird is flying.

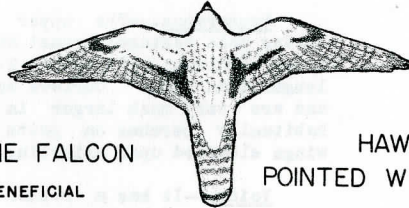
Nest.--A platform-like structure built of available marsh vegetation out in the water. Usually woven about stand of emergent vegetation that tend to anchor it in place.



SOUTHERN BALD EAGLE

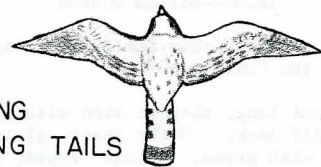


WESTERN TURKEY VULTURE

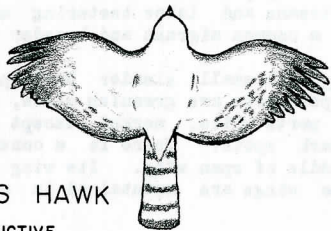


PRAIRIE FALCON
BENEFICIAL

HAWKS WITH LONG
POINTED WINGS AND LONG TAILS

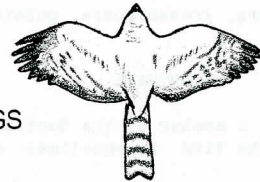


EASTERN SPARROW HAWK
BENEFICIAL

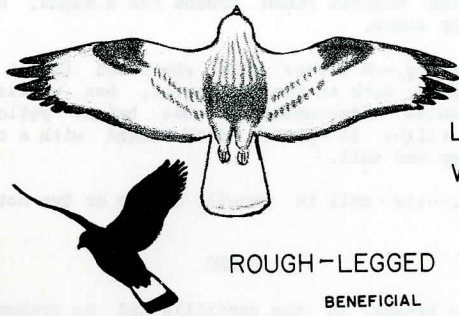


COOPERS HAWK
DESTRUCTIVE

LONG-TAILED HAWKS
WITH SHORT, ROUNDED WINGS



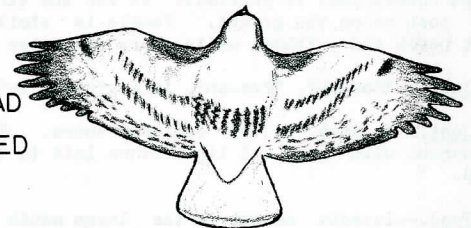
SHARP-SHINNED HAWK
DESTRUCTIVE



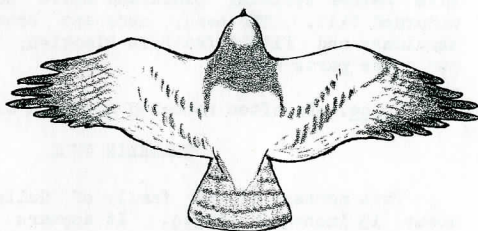
WHITE AT BASE OF TAIL

ROUGH-LEGGED HAWK
BENEFICIAL

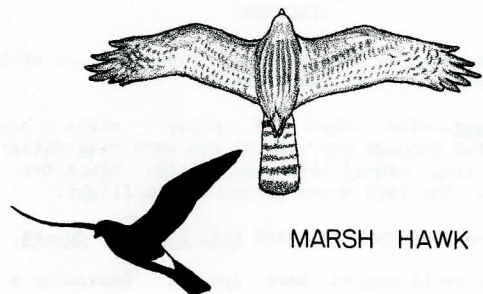
LARGE HAWKS WITH BROAD
WINGS AND BROAD ROUNDED
TAILS



EASTERN RED-TAILED HAWK
BENEFICIAL



SWAINSONS HAWK
BENEFICIAL



HAWK WITH WHITE RUMP PATCH

MARSH HAWK

The Mourning Dove is a member of the Pigeon family and is about 12 inches long.

Appearance.--The top of the head is bluish gray; the sides have a blue black spot with a bare space about the eye. Upper parts brown with a number of black spots on the back of the body and wings. Under parts are brownish color tinged with pink. The tail has fourteen feathers, graduated and more than two-thirds the length of the wings. The wings are pointed.

Song.--The cooing notes of this bird are low, deep and carry far.

Nest.--An old legend has it that the Mourning Dove started to build a nest, laid two sticks crosswise, and sang, "That'll do-oo-oo; that'll do-oo; that'll do". The description is correct at least in spirit, for the nest consists of a platform of twigs balanced in the fork of a tree. The two eggs are white.

Food.--Weed seeds and waste grain.

YELLOW-BILLED CUCKOO

This member of the Cuckoo family is 12 inches long and is sometimes called the "rain crow".

Appearance.--A long, slender bird with lower half of bill yellow, upper half dark. Upper parts plain grayish brown, faintly glossed with green. Wings appear reddish brown in flight. Under parts ashy white. Outer tail feathers black tipped with white.

Song.--An unmusical series of "lucks".

Nest.--A loose platform of sticks built in trees. Eggs 3 to 6, pale greenish blue.

Food.--Caterpillars, grasshoppers, potato bugs, and other insects.

NIGHTHAWK

The Nighthawk is a member of the Goatsucker Family. It is 10 inches long. The bird is sometimes confused with the Whip-Poor-Will.

Appearance.--Long pointed wings and forked tail. Short bill, large mouth, no bristles on face. White patch on the throat, chin and upper throat black. Upper parts black, mottled with gray and buff. Under parts barred with black and white. White bar on wings very noticeable in flight. The mottled colors make it difficult to see the bird sitting on a fence post or on the ground. Female is similar with buffy throat patch and without white bars on outer tail feathers.

Call.--"Pee-ah", "Pee-ah", in a grating voice.

Nest.--No nest in the ordinary sense. Two dull white eggs marked with gray and light brown laid in the open on the ground.

Food.--Insects caught in the large mouth during evening flight.

PLATE 6

KILLDEER

A common migrant and breeder throughout the state. A trim wading bird about 10 inches long.

Appearance.--The crown and upper parts brownish; forehead, line through eye, throat and neck ring white; front of head and ring around lower neck black; black bar across upper breast. The tail shows golden red in flight.

Voice.--A loud much repeated kill-deer, or dee-ee.

Nest.--A small cup in bare ground. Generally 4 eggs.

Breeds in western Nebraska where it is an uncommon migrant.

Appearance.--Large brownish shore bird with long down-curved bill. The head is buffy and black; upper parts reddish or grayish, barred with black; under parts brownish to reddish brown; bill 5 to 8 inches long, bent strongly downward.

Voice.--A harsh cur-lee and a rapid whistled kli-li-li.

Nest.--A depression in the ground lined with grass. Generally 3 or 4 eggs.

UPLAND PLOVER

This bird was formerly abundant in Nebraska but is now an uncommon migrant and rare breeder. A large streaked brown shorebird, larger than a Killdeer (about 12 inches long) but with no really distinctive marks. It is found around extensive fields, prairies and meadows.

Appearance.--The upper parts blackish with feathers having pale edgings; breast and sides buffy, with arrow-shaped brown markings; under parts light buff. The bill is slightly longer than head. Curlews and Godwits have much longer bills and are very much larger in comparison. The Upland Plover habitually perches on posts and has a habit of holding the wings elevated upon alighting.

Voice.--It has a rather rolling flight note and a more regular call of kip-ip-ip-ip.

SPOTTED SANDPIPER

A common Sandpiper that is often seen running along the margins of streams and lakes teetering up and down between steps. It is a common migrant and breeder in Nebraska.

Appearance.--A small slender Sandpiper about 8 inches long. Its upper parts are greenish olive, faintly marked with dusky; under parts white, marked except on middle of belly with round dark spots. There is a conspicuous white line along the middle of open wing. Its wing stroke in flight is short and the wings are maintained in a stiff, bowed appearance.

Voice.--Its Peet-weet, peet-weet as it flits and runs along a shore line is quite characteristic.

LESSER YELLOW LEGS

A common migrant found around the sloughs, marshes and lakes of the state.

Appearance.--A rather slim shorebird (about 11 inches long) that is dark on the back parts, has whitish rump and tail, is white underneath, and has bright yellow legs and feet. In flight it appears dark winged with a contrasting whitish rump and tail.

Voice.--Its call is usually of one or two notes, cu or cu-cu.

AVOCET

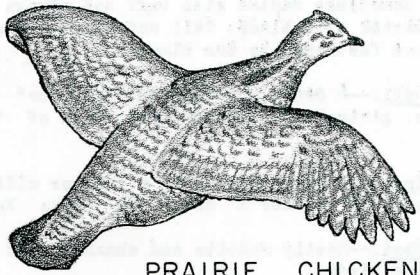
A rare breeder in the sandhills and an uncommon migrant to the swales and marshes of the state.

Appearance.--A large shore-bird (16 to 20 inches long) with rather striking black and white coloration and slender upturned bill. The head, neck and breast is cinnamon buff; shoulders and flight feathers blackish; middle of back, tail and under parts white.

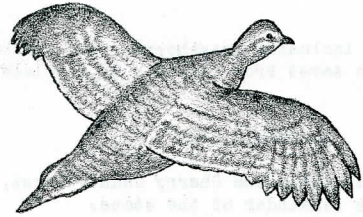
Voice.--An often repeated kleeek in excited tones.

FRANKLIN GULL

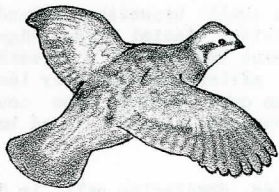
This member of the family of Gulls and Terns measure about 15 inches in length. It appears about the middle April in Nebraska and again in October. It is not known to nest here.



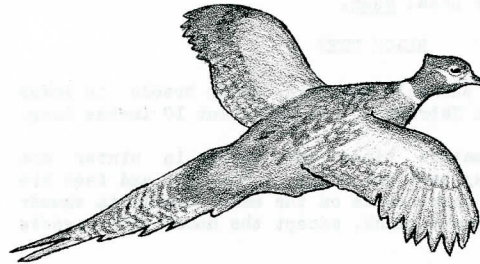
PRAIRIE CHICKEN



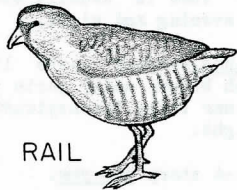
SHARP-TAILED GROUSE



BOB WHITE QUAIL

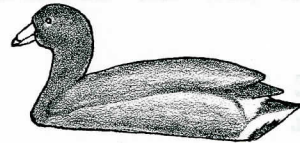


RING-NECKED PHEASANT



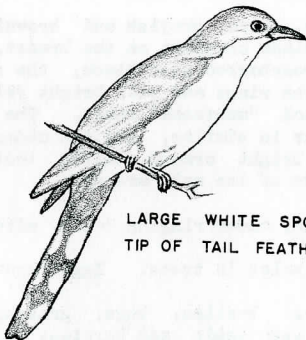
SORA RAIL

BLACK PATCH ON FACE AND THROAT
SHORT, CHICKEN-LIKE YELLOW BILL



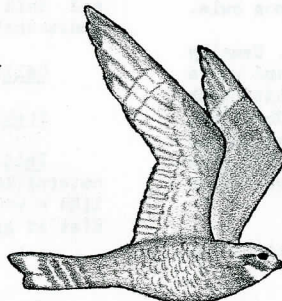
AMERICAN COOT

YELLOW LOWER MANDIBLE OF BILL

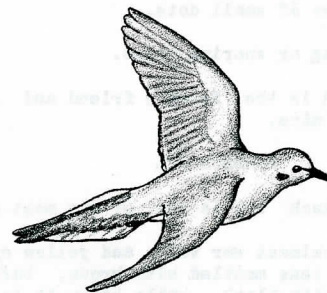


YELLOW-BILLED CUCKOO

BROAD WHITE PATCH
ACROSS THE WING



NIGHTHAWK



MOURNING DOVE

Appearance.--Feet with two webs (three front toes connected). Beak red; head blackish with white eyelids. Wings are mostly white underneath and the quills are gray tipped with white. Outer primaries have wide black spaces near the ends. Under parts are white, tinged with pinkish in the spring.

Food.--Insects, including grasshoppers and crickets. In Utah, crops have been saved from crickets by a related species of gull.

FORSTER'S TERN

It breeds locally about the Cherry County lakes, and is a common migrant to the remainder of the state.

Appearance.--A small black-capped gull-like bird with deep forked tail commonly seen about the lakes. It is white with a light gray mantel and black cap; red bill with a black tip; orange red feet; deeply forked tail. The outer tail feathers are very narrow and long.

Voice.--A rather nasal keer.

BLACK TERN

This member of the Gull and Tern group breeds in lakes and marshy areas in Nebraska. It is about 10 inches long.

Appearance.--Immature birds and adults in winter are white with pearl gray back and wings. The bill and feet are dusky and there are dusky marks on the ear. Adults in summer have head and under parts black, except the under tail coverts which are white.

Nest.--On dead floating rushes in shallow water or on old muskrat houses. Reeds and grasses are the materials used; 2 to 4 greenish drab to olive brown eggs spotted with blackish brown.

Food.--Insects for the most part; also crawfish and minnows.

PLATE 7

BARN OWL

Sometimes called the monkey-faced owl. It is an uncommon permanent resident and breeder over the state. It is medium sized and about 15 to 20 inches long.

Appearance.--A light colored owl with white heart-shaped face, and long legs. The upper parts light buff, mottled with blackish and white, and with many dark dots; under parts whitish, with few rows of small dots.

Voice.--A hissing or snoring noise.

Food.--This bird is the farmers friend and feeds almost entirely on rats and mice.

SCREECH OWL

The little $9\frac{1}{2}$ -inch owl is one of our most common owls.

Appearance.--Prominent ear tufts and yellow eyes. Usually gray above, more or less mottled with brown, buff, and white and finely streaked with black, while below it is white both streaked and crossbarred with fine black markings. Sometimes the upper parts are a bright reddish brown, varied on the shoulders with buffy white and finely streaked with black, the under parts white with fine black streaks and reddish brown crossbars. The legs and toes are fully feathered.

Call.--Low and quavering, heard at night in nearly any Nebraska locality.

Nest.--In hollow trees. Eggs usually 4 or 5, white.

GREAT HORNED OWL

This bird is about two feet long and is one of our biggest owls. The female is larger than the male.

Appearance.--Long and prominent blackish feather tufts or "horns" and big yellow eyes, each surrounded by a tawny to grayish buff facial disc. Upper parts mottled and speckled with gray, black, white, and buff. Throat white. Under parts white sometimes varied with buff and always finely and thickly crossbarred with black. Tail and wings inconspicuously barred. Feet are feathered to the claws.

Call.--A deep hooting "who-who-who" or a loud catlike scream, giving it the additional names of "Hoot Owl" or "Cat Owl".

Nest.--A large cavity in a tree or cliff, or sometimes an old nest of either a crow or a hawk. Eggs 2 or 3, white.

Food.--Mostly rabbits and skunks, but also some poultry and game birds.

BURROWING OWL

Found mainly in the western two-thirds of the state where it is a common summer resident and breeder.

Appearance.--A small brownish, ground owl, spotted and streaked with whitish; facial area edged at sides with blackish. It is about the size of a screech owl (approximately 10 inches long) earless and has very long legs for an owl. It is found in the open prairie type country usually about prairie dog towns where it uses abandoned burrows as a nesting site.

Voice.--A rather chattering call is common during the day, and a mellow coo-hoo at night.

Food.--Largely insects and small rodents.

SHORT-EARED OWL

A common migrant that sometimes breeds in the state. A buffy brown colored owl about the size of a crow (about 16 inches long) that is usually seen hunting about the marsh during late evening and night.

Appearance.--Upper parts light buff to deep rust, streaked with brown; under parts similar, but streaks narrower and fewer; ear tufts inconspicuous. Flies with an irregular flopping flight.

Voice.--A sharp kee-yow.

Food.--It is largely beneficial and feeds mainly on insects and small rodents with a few birds being taken.

YELLOW-SHAFTED FLICKER

This bird is a member of the Woodpecker family, and is about 12 inches long.

Appearance.--Head grayish and brownish with a scarlet nape patch, a black crescent on the breast, the back and wings olive brown crossbarred with black, the rump white, and the under side of the wings and tail bright yellow. The male has conspicuous black "mustache" marks. The more westerly Red-shafted Flicker is similar, but the under side of the wings and tail are bright orange-reddish instead of yellow and "mustache" marks of the male are red.

Call.--Loud, clear ringing calls, often rapidly uttered.

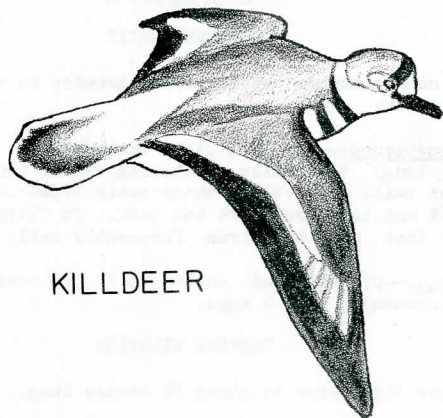
Nest.--In holes in trees. Eggs usually 5 to 9, white.

Food.--Ants, beetles, bugs, grasshoppers, crickets, caterpillars, weed seeds and berries. The Flicker is less like a woodpecker than any other member of the family, as this diet of ground-living insects indicates.

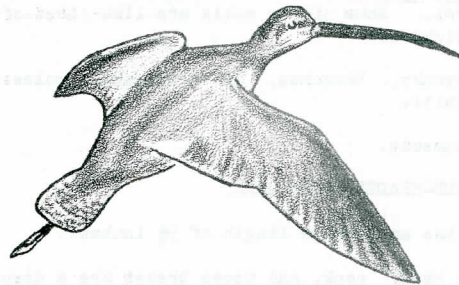
RED-BELLIED WOODPECKER

The Woodpecker is $9\frac{1}{2}$ inches long. It is shy and not so abundant or so often seen as other woodpeckers.

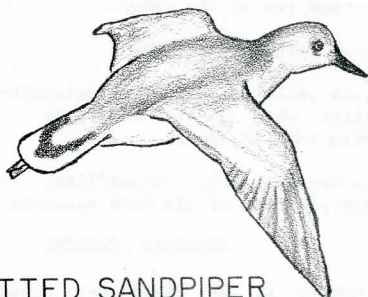
Appearance.--Top of head and back of neck, bright red rest of head, neck, and under parts ashy gray. Upper parts barred black and white; upper tail coverts, white with black markings.



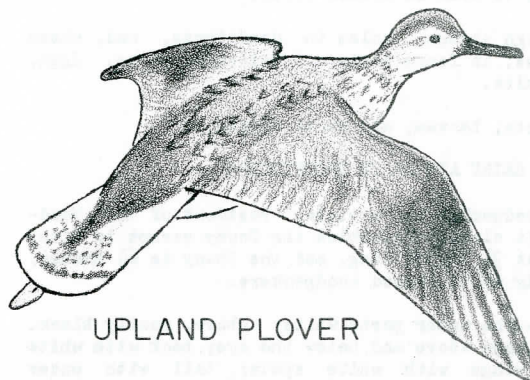
KILLDEER



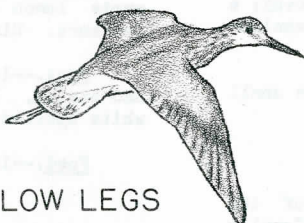
LONG-BILLED CURLEW



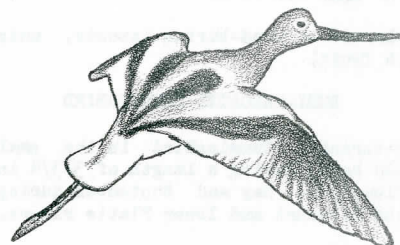
SPOTTED SANDPIPER



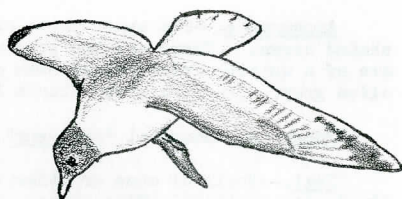
UPLAND PLOVER



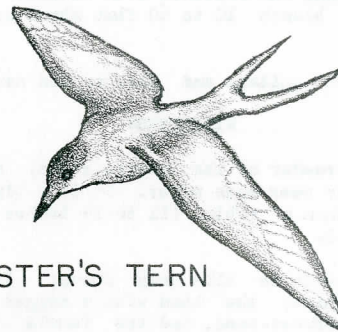
LESSER YELLOW LEGS



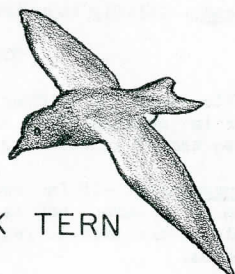
AVOCET



FRANKLIN'S GULL



FORSTER'S TERN



BLACK TERN

Song.--The "chiv, chiv", of the bird somewhat resembles the cries of a squirrel. Some of its calls are like those of the Redhead or the Flicker.

Nest.--In tree trunks, branches, or telegraph poles. Eggs 3 to 6, glossy white.

Food.--Chiefly insects.

RED-HEADED WOODPECKER

This Woodpecker has an average length of $9\frac{1}{2}$ inches.

Appearance.--The head, neck, and upper breast are a deep crimson red. Under parts, patch on wing and rump are white. Rest of upper parts are black.

Song.--Sharp cries. Like the Flicker and other Woodpeckers, it likes to drum on hollow trees.

Nest.--In high stumps, holes in dead trees, and, where there are no trees, in fence posts and telephone poles. Eggs, 3 to 5, glossy white.

Food.--Insects, larvae, and small fruits.

HAIRY AND DOWNY WOODPECKERS

The Hairy Woodpecker is a winter resident of the Woodpecker family. It closely resembles the Downy except in size. The Hairy is about $9\frac{1}{2}$ inches long, and the Downy is $6\frac{1}{2}$ inches. These are our only white backed woodpeckers.

Appearance.--The under parts white; above, mostly black. Head with white bands above and below the eye; back with white median stripe; wings with white spots; tail with outer feathers white. Males have red spot on the back of the head.

Call.--A sharp whistle; sometimes a single high note rapidly repeated.

Nest.--In holes in trees, 25 to 60 feet from the ground for the Hairy and from 15 to 30 feet high for the Downy; a two-inch entrance for the Hairy and about half an inch smaller for the Downy. Eggs are white.

Food.--Larvae of wood-boring insects, ants, and a small amount of wild fruit.

RUBY-THROATED HUMMINGBIRD

The Ruby-throated Hummingbird is the smallest of the birds described here, having a length of $3\text{-}3\frac{3}{4}$ inches. Usually seen about flowers in May and September during migrations; nests along the Missouri and lower Platte rivers.

Appearance.--Bill about twice as long as head; velvety black chin, throat brilliant crimson. Upper parts green, wings and tail tinged with steel blue. Under parts gray glossed with green. Feet small with downy plumage at base. Female similar but with white under parts and no red on throat. The tail is forked.

Nest.--Cup-shaped, made of soft vegetable fibers and coated with lichens and fastened with cobweb. It is placed on a twig or small branch 10 to 60 feet above ground. Eggs 2, white.

Food.--Small spiders and insects and nectar of flowers.

KINGFISHER

A common breeder of the entire state, and a few remain during the winter near open water. It is a big headed bird, a little larger than a robin (11 to 14 inches long), with a rather large bill.

Appearance.--It is blue gray above; tail blackish, speckled with white; the head with a ragged crest; the male with one broad breast-band, and the female with two breast-bands.

Voice.--A loud rattling noise.

Nest.--A burrow 4 to 15 feet long in perpendicular banks over water.

PLATE 8

CHIMNEY SWIFT

A common summer resident and breeder in the eastern part of the state.

Appearance.--A small dark swallow-like bird (about 5 inches long) that flies with long stiff wings, and with no apparent tail. It is blackish or sooty brown with gray throat. The feet and legs are short and weak. In flight the wing beat is very fast and the birds frequently sail between spurts.

Nest.--Of twigs and saliva built in some hollow tree or unused chimney. 4 to 6 eggs.

EASTERN KINGBIRD

This Flycatcher is about $8\frac{1}{2}$ inches long.

Appearance.--Under parts white, washed with grayish on throat and breast. Upper parts dark gray with head, wings, and tail darkest. Wing coverts edged with lighter gray and the tips of the tail feathers are white. There is a concealed patch of orange red on the crown.

Call.--A metallic "ti-tink".

Nest.--A well-built nest of weedstalks, string, and plant fibers, lined with softer material; 4 to 5 creamy eggs speckled with reddish brown.

Food.--Grasshoppers, butterflies, crickets, weevils and bees. Ninety per cent of his food consists of harmful insects.

ARKANSAS KINGBIRD

This member of the Flycatcher group is 9 inches long. Like its relative, the Eastern Kingbird, it is a brave, noisy fighter.

Appearance.--Upper parts and breast a light gray, under parts lemon yellow. The tail is black with white outer feathers. Wings brown. Red patch concealed in crown.

Nest.--In bushes or trees, made of weeds, twigs, rootlets and string, lined with paper and thistle-down. 4 eggs creamy white spotted with brown.

Food.--Insects.

PHOEBE

The Phoebe is a member of the Flycatcher family. It is about 7 inches long. Sometimes a pair may be attracted by a nesting box with one or more sides completely open, placed on one of the farm out-buildings.

Appearance.--The upper parts are olive gray with a darker shaded crown. There are two pale wing bars. The under parts are of a whitish color tinged with pale yellow. The breast is olive gray. The bird often flicks its tail nervously.

Song.--An unmusical "phee-ear".

Nest.--Built of moss or other vegetable material and mud; lined with feathers, fine grass, or other softer materials. Usually attached to rafters in farm buildings, on bridge beams and sometimes on rocks. Eggs 3 to 6, usually pure white, sometimes finely speckled around the larger end with brownish.

Food.--Chiefly injurious insects.

WOOD PEWEE

This small flycatcher is a common summer resident and breeder in eastern third of the state. It is sparrow sized and less than 7 inches long.

Appearance.--It is sooty olive above, has two prominent whitish wing bars, and is whitish underneath. The lower mandible of the bill is yellow. It does not wag its tail like the phoebe.

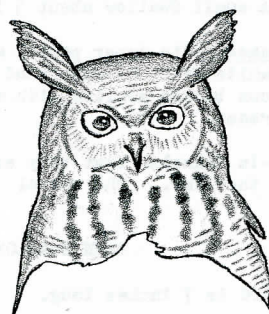
Voice.--A plaintive pee-ah-wee.



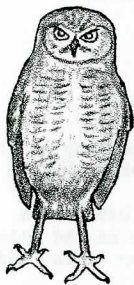
BARN OWL



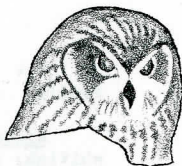
SCREECH OWL



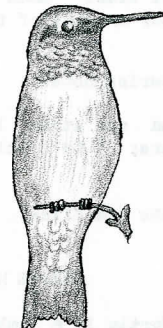
GREAT HORNED OWL



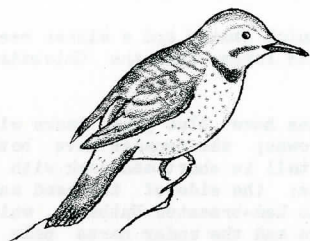
BURROWING OWL



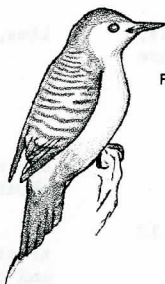
SHORT-EARED OWL



RUBY-THROATED HUMMINGBIRD

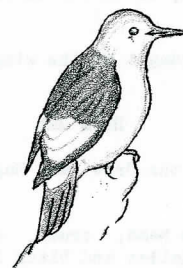


FLICKER



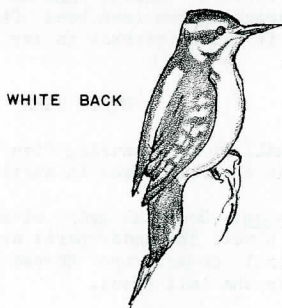
RED CAP, ZEBRA BACK

RED-BELLIED WOODPECKER



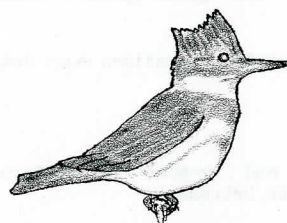
RED-HEADED WOODPECKER

RED HEAD, BROAD WHITE WING PATCH



WHITE BACK

HAIRY WOODPECKER



KINGFISHER

BANK SWALLOW

It is a common summer resident and breeder throughout Nebraska. A small Swallow about 5 inches long.

Appearance.--Its upper parts are dusky brown and under parts are white with a brown band across the breast. It is the only brown backed swallow with a distinct dark band across the white breast.

Nest.--In tunnels that they excavate in sandbanks, clay-banks, and the like. The normal set contains 3 to 6 white eggs.

BARN SWALLOW

This bird is 7 inches long.

Appearance.--Long and pointed wings and a very long deeply forked tail. The male is somewhat more brightly colored than the female. Under parts are pale reddish brown; chin, throat and forehead rich reddish brown. Upper parts blackish glossed with steel blue. Band across breast and line through eye blackish. Inner margins of tail feathers marked with white spots.

Song.--Twittering notes.

Nest.--Of mud and straw lined with feathers, usually attached to timbers; 5 to 7 white eggs spotted with reddish brown.

Food.--Insects and flies.

PURPLE MARTIN

The Purple Martin is a member of the Swallow family. It is about 8 inches long.

Appearance.--Entire body glossy bluish black in the male, less glossy black above and grayish below in the female. Wings and tail black, tail forked.

Song.--A pleasant and companionable twitter.

Nest.--In holes of trees or natural cavities in cliffs, crevices in buildings, or in martin houses. Eggs 3 to 6, pure white.

Food.--Insects caught on the wing.

BLUE JAY

This member of the Crow and Magpie family is about 12 inches long.

Appearance.--The head, crest, and back are grayish blue with narrow black collar and black forehead. Wings and tail bright blue barred with black. Inner wing coverts have white tips. All but the center tail feathers have white tips. Throat, midbreast, and sides grayish, belly white.

Call.--The bird utters sharp cries but has no song that is pleasant.

Nest.--Of twigs and rootlets in orchard or other trees about the farmstead. Eggs 3 to 6, dull green spotted with brown.

Food.--Mostly insects, fruits, grain; sometimes eggs and young of other birds.

MAGPIE

A common permanent resident and breeder in western Nebraska, sometimes nesting in eastern Nebraska.

Appearance.--The Magpie is slightly larger than the Jay and about 20 inches long. It has a lustrous black body, with belly, shoulders and edge of wing white. It is the only large black and white land bird in Nebraska with a long, sweeping tail.

Voice.--A rapidly repeated chek, chek, chek, chek.

CROW

This relative of the Jays and Magpies is about 20 inches long.

Appearance.--Everyone knows the Crow, that large, whole glossy bluish black bird, with the coarse "caw" call, that gathers in large flocks in the winter. Crows have recently been increasing in Nebraska to such an extent that they have become more destructive to other birds' nests and to crops than their considerable consumption of insect pests pays for, and therefore, the population of the state is being reduced.

Food.--Chiefly insect pests, field mice, rabbits, and other harmful rodents. Poultry and newly planted corn are both in danger where crows have become numerous.

Nest.--A large structure of coarse materials built high in trees. The 4 to 8 eggs are pale bluish green, olive green, or olive buff blotched with gray or brown.

PLATE 9

BLACK-CAPPED CHICKADEE

The Black-capped Chickadee, belonging to the Titmouse family, is a small winter resident only about 5 inches long.

Appearance.--It is a grayish bird with under parts whitish, slightly washed with brownish on the sides; the whole top of the head and the throat shiny black, and the cheeks clear white.

Song.--One of its calls is a plaintive "phee-bee" repeated again and again. The call from which it gets its name, however, is a chuckling, gurgling repetition of its name, "Chick-a-dee-dee-dee".

Nest.--In holes in trees or stumps, made of moss, fur hair, and sometimes feathers. Eggs 4 to 8, white, spotted with reddish brown and lilac, chiefly around the larger end.

Food.--Injurious insects and their eggs, including plant lice, tent caterpillars, cankerworms, seeds and small fruit.

WHITE-BREADED NUTHATCH

A member of the Nuthatch family and a winter resident in our state. It is a little larger than the Chickadee, being about 6 inches long.

Appearance.--The males have blue gray backs with contrasting, glossy black crowns; the females have both crowns and back blue gray. The tail is short and dark with feathers tipped with black and white; the side of the head and entire under parts are white. The Red-breasted Nuthatch, which has a dark line through the eye and the under parts pale reddish buff, is less common.

Nest.--In holes in trees. Felted materials and feathers are used to build it. There are 5 to 9 white eggs spotted with reddish brown.

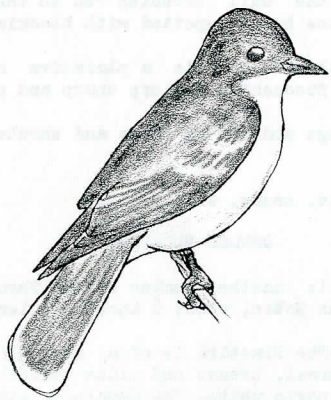
Food.--Insects, insect eggs and larvae, and nuts. The habit of descending the tree head first as the bird hunts for food makes it quite correct to say that it "eats its caterpillars up".

HOUSE WREN

This small bird, measuring five inches in length, usually returns about the third week in April.

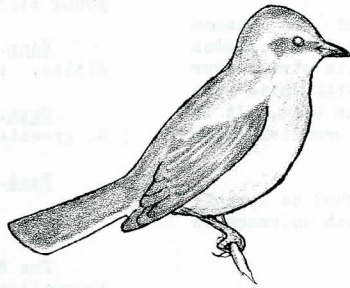
Appearance.--Brownish gray with wings and tail finely barred with black. The under parts are grayish; sides, flanks, and under tail coverts are barred with blackish. The bird usually holds the tail erect.

Song.--A short bubbling melody. When angered, it makes a sizzling sort of chatter.



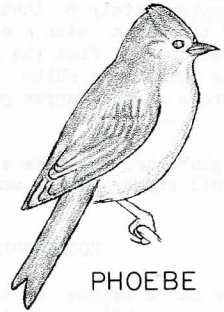
EASTERN KINGBIRD

WHITE RIM AT TIP OF TAIL

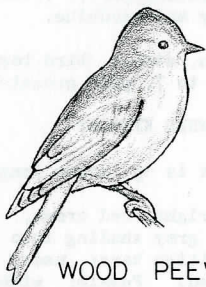


ARKANSAS KINGBIRD

WHITE BORDERS ON EACH SIDE OF DARK TAIL

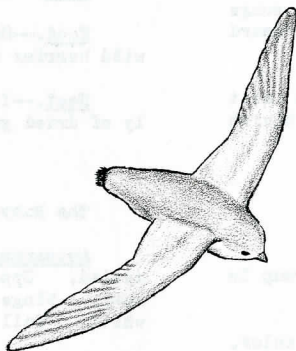


PHOEBE

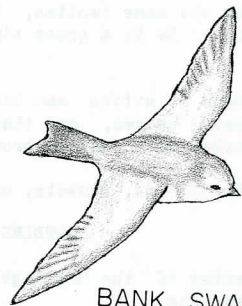


WOOD PEEWEE

TWO CONSPICUOUS WING-BARS

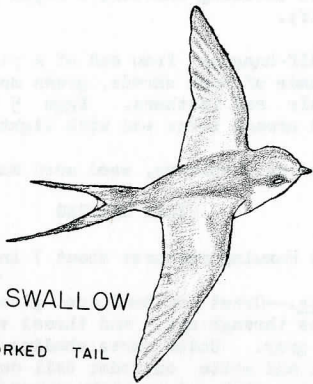


CHIMNEY SWIFT



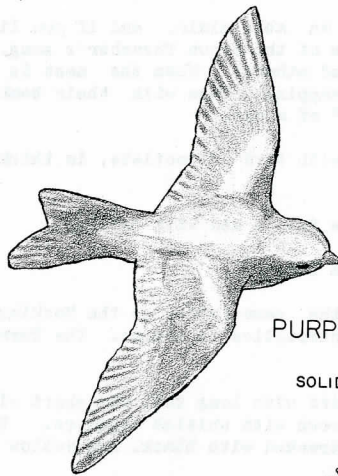
BANK SWALLOW

BROWN BREAST BAND



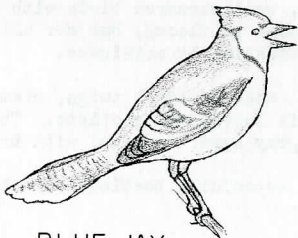
BARN SWALLOW

DEEPLY FORKED TAIL

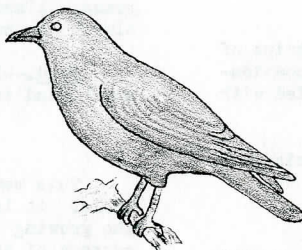


PURPLE MARTIN

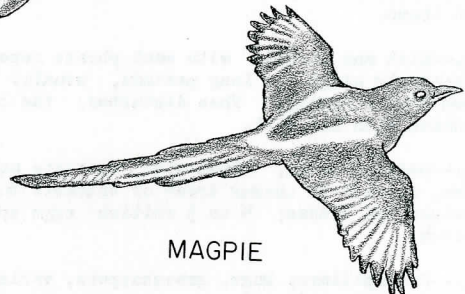
SOLID BLUE-BLACK



BLUE JAY



CROW



MAGPIE

PRAIRIE MARSH WREN

This wren is commonly found residing and nesting in all suitable marshy areas over the state.

Appearance.--This bird is about the size of the common house wren (approximately 5 inches long). It is the common brown wren of the marsh with a conspicuous white stripe over the eye, and separated from the other wrens with white eye-stripes by the black and white stripes on the back. It is mostly clear brown on the upper parts and with brownish white under parts.

Nest.--A globular, bag-like structure attached to upright reeds or cat tail stems in the marshes, and with entrance on one side.

MOCKINGBIRD

This bird is a member of the family of Thrashers and Mockers. It measures 10½ inches in length.

Appearance.--Light gray above with wings and tail of dark brownish gray. The edges of the primaries and the outer tail feathers are white. The eye is pale yellow with a whitish line above.

Song.--As the name implies, this bird imitates the songs of other birds. He is a great singer and may often be heard at night.

Nest.--Made of sticks and lined with rootlets and built in thick bushes, hedges, and thorny thickets; 4 to 5 bluish green eggs marked with reddish brown.

Food.--Earthworms, insects, and berries.

CATBIRD

This member of the Mockingbird and Thrasher group is about 9 inches long.

Appearance.--The bird is of a dark slate gray color, crown and tail black, under-tail feathers rich red brown.

Song.--The Catbird is an able mimic, and if you listen carefully you will hear bits of the Brown Thrasher's song, the Goldfinch's, the Robin's, and others. When the nest is disturbed, both birds make snapping noises with their beaks or perhaps the taunting "miaow" of a cat.

Nest.--Of twigs lined with bark or rootlets, in thickets; 4 greenish blue eggs.

Food.--Insects and some fruits and wild berries.

BROWN THRASHER

This bird belongs to the same family as the Mockingbird and the two have many characteristics in common. The Thrasher is 11½ inches long.

Appearance.--Slender bird with long tail and short wings. Upper parts are rich red brown with whitish wingbars. Under parts are whitish heavily streaked with black. Eye yellow with buffy line above.

Song.--Rich and varied, with each phrase repeated twice. The bird commonly sings for long periods, usually choosing to do so from high branches. When disturbed, the bird makes a snapping noise with its bill.

Nest.--Made of twigs, lined with rootlets and strips of weed stalks, usually in thorny trees or thickets but occasionally in vines and bushes; 4 to 5 whitish eggs speckled with reddish brown.

Food.--Caterpillars, bugs, grasshoppers, various kinds of beetles, fruit, and weed seed.

ROBIN

The Robin is a member of the Thrush family. It measures about 10 inches in length.

Appearance.--A blackish head, a broken white eye-ring, gray upper parts, dusky wings and tail, a white throat streaked with black, and the breast and sides bright brownish red in the male and dull brownish red in the female. The young birds have the breast spotted with blackish.

Song.--The Robin's song is a plaintive carol. In addition, the bird frequently utters sharp and petulant notes.

Nest.--Of twigs and mud in trees and shrubs. Eggs usually 4, greenish blue.

Food.--Insects, seeds, wild fruits.

COMMON BLUEBIRD

The Bluebird is another member of the Thrush family. It is smaller than the Robin, about 6 inches in length.

Appearance.--The Bluebird is of a deep glossy blue color above, with the throat, breast and sides reddish brown and the rest of the under parts white. The female is similar, but with the upper parts grayish, tinged with blue on the wings and tail. The Western Bluebird is a paler blue, both above and below.

Song.--A soft, inquiring warble.

Food.--Caterpillars, grasshoppers, crickets, and such wild berries as the hackberry and woodbine.

Nest.--In holes in trees, stumps, bird boxes; made chiefly of dried grasses. Eggs 4 to 7, pale greenish blue.

RUBY-CROWNED KINGLET

The Ruby-crowned Kinglet is 4½ inches long.

Appearance.--Male: A bright red crown, sometimes concealed. Upper parts olive gray shading into greenish on the rump. Wings have narrow whitish bars; under parts are dirty white. Tail somewhat forked. Female: without red crown.

Song.--For a small bird, it has a well modulated, voluminous song. Its scolding chatter, a rapid "chee-dah", makes it easy to identify.

Nest.--Half-hanging from end of a pine, spruce or other tree. It is made of bark shreds, green moss and feathers, and lined with hair and feathers. Eggs 5 to 9, white or buff faintly spotted around large end with light brown.

Food.--Insects, spiders, weed seed and fruit.

CEDAR WAXWING

The Cedar Waxwing measures about 7 inches in length.

Appearance.--Crest and head are glossy olive brown, with forehead, line through eye, and throat velvety black. Wings and tail blue gray. Under parts shading into an olive yellow on the flanks and white on under tail coverts. Tip of tail yellow, sometimes with red wax-like appendages at ends of tail and longer wing feathers.

Song.--Talkative, well-mannered birds with soft, pleasant voices. They usually come in flocks, but for all their numbers they do not attract attention by noisiness.

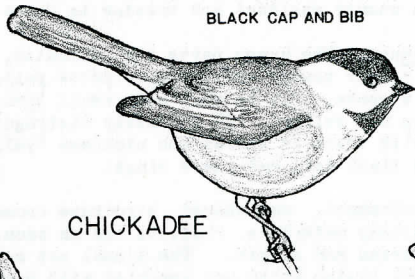
Nest.--In trees. Made of small twigs, stems of weeds and grass, lined with soft leaves and rootlets. There are 3 to 6 bluish or purplish gray eggs, spotted with brown or black.

Food.--Insects, especially beetles, and berries of wild shrubs and trees.

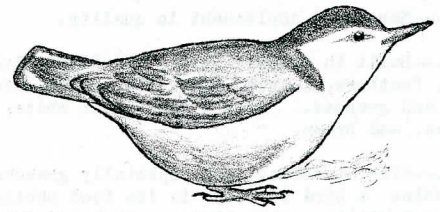
LOGGERHEAD SHRIKE

This member of the Shrike family is 9 inches long. On the whole, it is a useful bird. Pairs may be induced to nest by the growing of thorn trees and shrubs in out-of-the-way corners of the farm.

Appearance.--The hooked bill, lores, and forehead, and a broad line through and under the eye are entirely black. Upper

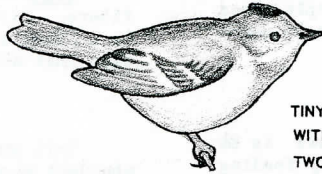


BLACK CAP AND BIB

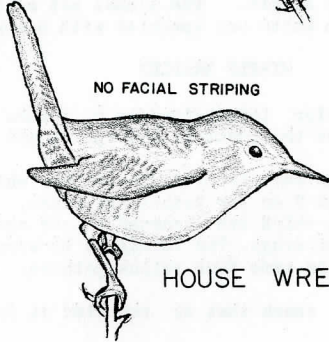


WHITE-BREASTED NUTHATCH

CHICKADEE



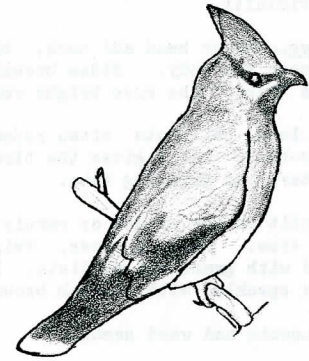
TINY STUBBY TAILED BIRD
WITH WHITE EYE RING &
TWO PALE WING BARS



NO FACIAL STRIPING

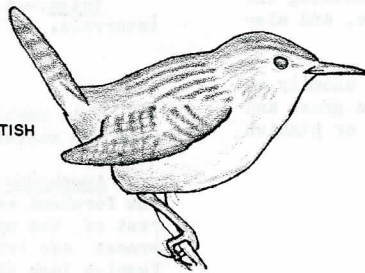
HOUSE WREN

RUBY-CROWNED KINGLET

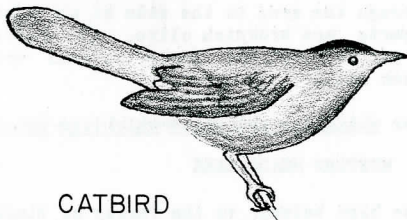


CEDAR WAXWING

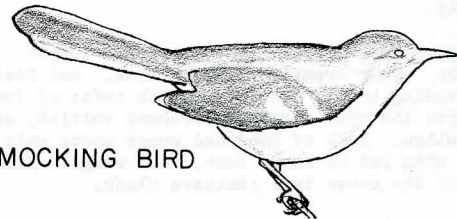
BOLDLY MARKED, WHITISH
UNDER TAIL COVERTS



PRAIRIE MARSH WREN

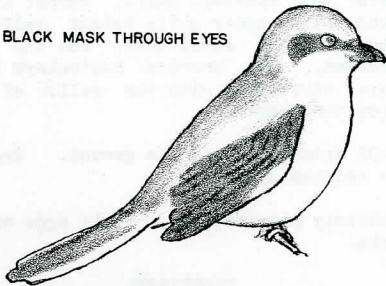


CATBIRD

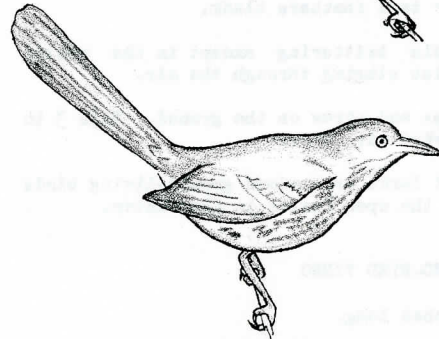


MOCKING BIRD

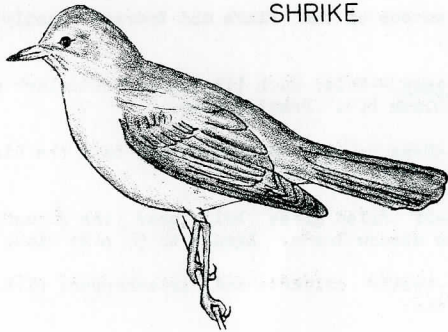
BLACK MASK THROUGH EYES



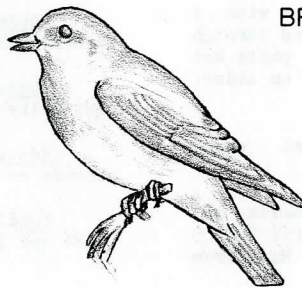
SHRIKE



BROWN THRASHER

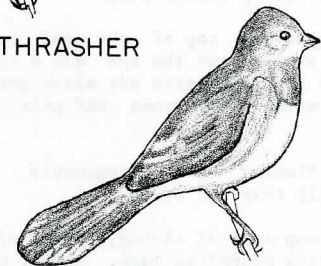


ROBIN



BLUE BIRD

ONLY BLUEBIRD
WITH RED BREAST



EASTERN TOWHEE

part of wings and body light gray. The ends of the outer feathers of the tail are white, and the under parts of the body are pure white.

Song.--Harsh and unpleasant in quality.

Nest.--Built in hedges, thorn, and briar patches and made of sticks, feathers, leaves, and other coarse materials, lined with hair and grasses. Eggs 4 to 7, dull white, spotted with gray, olive, and brown.

Food.--Mice, insects, and especially grasshoppers. The bird resembles a bird of prey in its food habits, sometimes attacking and killing other birds. It hangs its surplus food on thorns or barbs of wire fence for which reason it is sometimes called a "butcher bird".

EASTERN TOWHEE

This member of the family of Finches and Sparrows is $8\frac{1}{2}$ inches long. They frequent brushy woodlands, usually feeding on the ground, but singing from the tops of the shrubbery or trees in the vicinity.

Appearance.--Black head and neck, black back and wings. White underneath the body. Sides brownish, corners of tail white, and the iris of the eyes bright red.

Song.--A loud call note often repeated, resembling the syllables "tow-hee", which gives the birds its name, and also a longer, softer, and pleasing song.

Nest.--Built on the ground or rarely in woods, usually at the base of a tree. Made of vines, twigs, coarse grass and leaves, lined with grass and rootlets. Eggs white or pinkish white, thickly speckled with reddish brown.

Food.--Insects and weed seeds.

PLATE 10

HORNED LARK

This bird, a little over 7 inches long, is a member of the Lark family.

Appearance.--Under parts pale-colored, throat yellow, black patch on upper breast. Beak, eyes, and feet black. Black lines leading to the "horns" (black tufts of feathers). Broad line above the eyes and the forehead whitish, sometimes tinged with yellow. Back of head and upper parts pale grayish brown tinged with red on neck, back, and wings. Middle tail feathers brown, the outer tail feathers black.

Song.--A companionable twittering except in the mating season, when the bird flies singing through the air.

Nest.--A cup of grass and straw on the ground. Eggs 3 to 5 greenish or grayish marked with brown.

Where Found.--Horned larks are common ground-living birds that gather in flocks in the open fields in the winter.

RED-EYED VIREO

This Vireo is $6\frac{1}{4}$ inches long.

Appearance.--The top of the head is blue gray with a narrow white stripe over the eye and a blackish line through the eye. Rest of upper parts are olive green. Under parts are white washed with olive green and pale yellowish on sides. Eyes reddish.

Song.--A flowing but frequently interrupted song, whistled rapidly over and over.

Nest.--A cup made of string, strips of paper, leaves, and fibers lined with grapevine bark, stems, and rootlets; 3 to 5 white eggs lightly speckled with reddish brown. Hung from forked twigs of trees.

Food.--Insects and wild berries.

YELLOW WARBLER

This small yellow bird (slightly over 5 inches long) is a very common summer resident and breeder in Nebraska.

Appearance.--The upper parts are yellowish, brightest on the head, darker toward tail; under parts yellow, with many fine rusty streaks. It is the only small bird in the field that appears all yellow. It is easily distinguished from the Goldfinch with which it shares the nickname "yellow bird", but which has a black tail and black wings.

Nest.--Compact, cup-shaped structure commonly built of fibers, cottony materials, rootlets and an occasional feather in orchard trees and shrubs. The normal set contains about 5 eggs that are bluish white and speckled with brown lilac.

MYRTLE WARBLER

This small warbler (approximately 6 inches long) is an abundant migrant over the state in the spring and fall.

Appearance.--The male is blue gray above; white below and has a black inverted U on the breast and sides, and 4 prominent yellow patches which are located on the crown, rump and at sides near bend of wings. The female is browner but similar in pattern and has the same four yellow patches.

Voice.--A loud check that is repeated at fairly regular intervals.

YELLOW-THROAT

This small bird is a common summer resident and breeder over the eastern two-thirds of Nebraska.

Appearance.--The male has a distinct black mask across the forehead and through the eyes to the side of the neck, the rest of the upper parts are brownish olive, the throat and breast are bright yellow, and the lower abdomen whitish. Females lack the black mask.

Voice.--A clear whitchitee-whitchitee-whitchitee-whitchitee.

WESTERN MEADOWLARK

Nebraska's state bird belongs to the family of Blackbirds and Orioles. It measures about $10\frac{1}{2}$ inches in length.

Appearance.--The upper parts are a mottled brown, black and whitish, with black crossbars on the wing and middle tail feathers, outer tail feathers white. Throat and adjacent part of cheeks, and other under parts bright yellow except for a horseshoe shaped black chest band, and the sides heavily blackish streaked. The Eastern Meadowlark is similar but darker colored above and with the yellow of the throat not spreading upon the cheeks.

Nest.--Of dried grass on the ground. Eggs 3 to 7, white mottled with reddish brown.

Food.--Mainly grasshoppers, their eggs and other insects of the prairie.

DICKCISSEL

This member of the Finch and Sparrow family is $5\frac{1}{2}$ to 6 inches long.

Appearance.--Male: Much like small Meadowlark with yellow breast and black bib. Female paler.

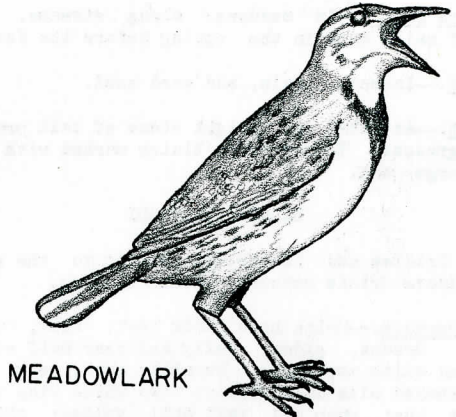
Song.--Even on the hottest summer days the bird enthusiastically repeats its song.

Nest.--Of dried grass built near the ground in weeds, bushes or on meadow lands. Eggs 3 to 5, pale blue.

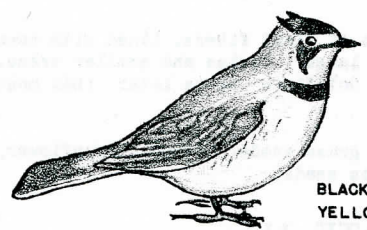
Food.--Mostly crickets and grasshoppers with some weed seed and grain.

GOLDFINCH

This Finch is five inches long.

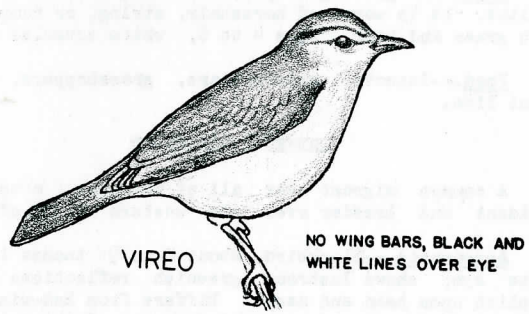


MEADOWLARK



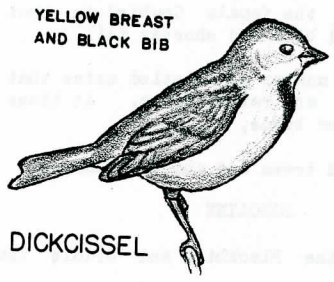
BLACK COLLAR BELOW
YELLOW THROAT

PRAIRIE HORNEDLLARK



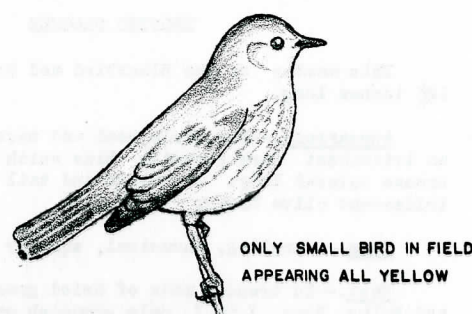
VIREO

NO WING BARS, BLACK AND
WHITE LINES OVER EYE



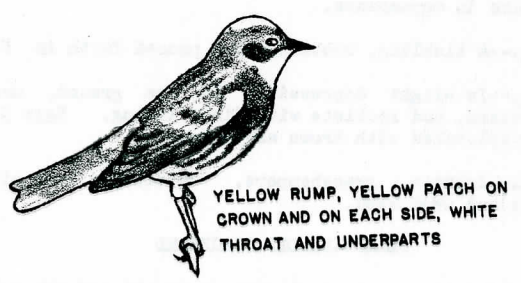
YELLOW BREAST
AND BLACK BIB

DICKCISSEL



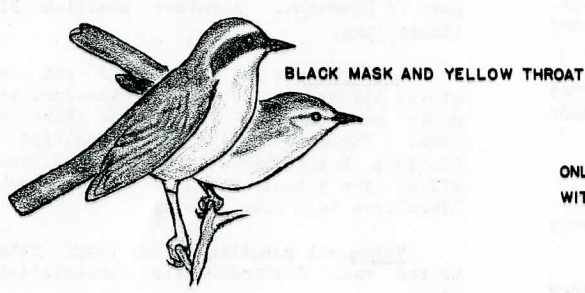
YELLOW WARBLER

ONLY SMALL BIRD IN FIELD
APPEARING ALL YELLOW



MYRTLE WARBLER

YELLOW RUMP, YELLOW PATCH ON
CROWN AND ON EACH SIDE, WHITE
THROAT AND UNDERPARTS



YELLOW THROAT

BLACK MASK AND YELLOW THROAT



GOLDFINCH

ONLY SMALL YELLOW BIRD
WITH BLACK WINGS

Appearance.--Male: Body is canary yellow except for black on crown, wings, and tail. In addition the wings are barred with white and there are white patches on the tail. Female: Yellowish brown upper parts, crown unmarked; otherwise like the male except that marks are less striking.

Song.--An inquiring call note and a lively tinkling song. Brilliant "per-chic-o-ree" flight song repeated with each bound.

Nest.--A cup-shaped nest of plant fibers, lined with down and other soft materials in larger bushes and smaller trees. Eggs 3 to 6 pale blue. The Goldfinch nests later than most birds.

Food.--Mostly weed and grass seeds. Fond of sunflower, dandelion, thistle, and cosmos seeds.

PLATE 11

STARLING

A common permanent resident over all of Nebraska

Appearance.--General coloration is glossy green and purple (appears blackish), with many whitish or buffy specklings. The bill is yellowish in summer and black in winter. The tail is short and square. In summer it is the only Blackbird with a yellow bill. The Starling is about 8 inches long and similar in shape to a Meadowlark. The young Starling differs from the female Cowbird in that it has a longer and more pointed bill and shorter tail.

Voice.--It has a number of whistled notes that are quite musical and some that are rather harsh. At times it gives good imitations of other birds.

Nest.--In holes in trees and about buildings.

BOBOLINK

This member of the Blackbird and Oriole family is 7 inches long.

Appearance.--Male in spring is mostly black with a broad buffy patch on the back of the head and neck. Scapulars, lower back, rump, and upper tail coverts are white. Eyes are brown, bill black, and feet mahogany red. The female is sparrow-like in appearance.

Song.--A tinkling, bubbling song poured forth in flight.

Nest.--In slight depressions in the ground, made of stems, grasses, and rootlets with finer lining. Eggs 3 to 7, pale gray spotted with brown and gray.

Food.--Insects, grasshoppers, weevils, caterpillars, rice, oats and weed seed.

YELLOW-HEADED BLACKBIRD

This bird is a common migrant over all of Nebraska and breeds locally in cat tail marshes.

Appearance.--A Blackbird about the size of a Robin (8 to 11 inches long) with head and upper neck bright yellow. A conspicuous white patch in the wing shows when the bird flies. The female is smaller, dull black with yellow largely limited to the throat and the breast is streaked.

Voice.--A clucking noise and a forced rasping call that resembles the noise made by an old rusty hinge on a door.

RED-WINGED BLACKBIRD

Like the Meadowlark, the Red-winged Blackbird is a member of the Oriole and Blackbird family. It is about $9\frac{1}{2}$ inches long.

Appearance.--Plumage is shiny black with the shoulder feathers contrastingly bright scarlet red. The female is grayish brown tinted pinkish on the face and throat, heavily streaked with dark brown and buff above and with dusky below, and about an inch shorter than the male.

Song.--When perched or flying, the Red-winged Blackbird often utters a sharp click much like the sound a man makes when he drives a team. The song of the bird is a musical "o-ka-lee", with a liquid quality.

Where Found.--In meadows, along streams, and marshes. Flocks of males come in the spring before the females arrive.

Food.--Insects, grain, and weed seed.

Nest.--Attached to upright stems of tall prairie plants; made of grasses. Eggs 3 to 5, bluish marked with darker color on the larger end.

BALTIMORE ORIOLE

The Orioles and Blackbirds belong to the same family. The Baltimore Oriole measures $7\frac{1}{2}$ inches long.

Appearance.--Males have black head, neck, and front half of back. Breast, sides, belly and rear half of back bright orange and white markings. Female's head, neck, and back are black streaked with dull yellow; two white wing bars in place of male's one; rump and tail dull yellow; chin and throat white mottled with black; sides of neck, breast, and sides dull orange; belly white tinged with orange.

Nest.--Long, bag-shaped, and hung from a slender branch or limb. It is woven of horsehair, string, or hemp, and lined with grass and hair. Eggs 4 to 6, white scrawled with black.

Food.--Insects, caterpillars, grasshoppers, weevils and plant lice.

BREWER'S BLACKBIRD

A common migrant over all of Nebraska, a common summer resident and breeder over the western third of the state.

Appearance.--Blackbird about 8 to 9 inches long with a white eye; shows lustrous greenish reflections on body and purplish upon head and neck. Differs from Red-wing Blackbird by lack of red shoulders, and from the Cowbird by long tail and longer more pointed bill.

Voice.--A rather harsh "keck" note and a harsh "que-ee".

BRONZED GRACKLE

This member of the Blackbird and Oriole family is about $12\frac{1}{2}$ inches long.

Appearance.--The whole head and neck of the adult male is an iridescent dark greenish blue which is in contrast to the bronze colored body. The wings and tail are a darker shade of iridescent olive brown.

Song.--Gurgling, unmusical, squeaky notes.

Nest.--In trees, made of dried grasses. Usually coarse and bulky. Eggs, 3 to 7, pale greenish or greenish blue, olive or olive whitish, spotted scrawled and lined with brown and black.

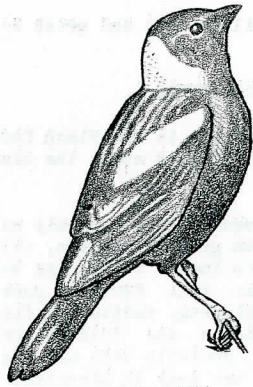
EASTERN COWBIRD

A common resident and summer breeder over the eastern part of Nebraska. A rather smallish Blackbird about 7 to 8 inches long.

Appearance.--The body wings and tail of the male are glossy black; head and neck iridescent brown. The female is dusky, sooty brown. The bill is short conical and sparrow-like. The male is the only blackbird with a brown head. Cowbirds habitually walk about with their tails lifted high off of the ground which helps differentiate them from other Blackbirds in a mixed flock.

Voice.--A gurgling creaky song. This noise is often made by the male Cowbird while characteristically raising the wings.

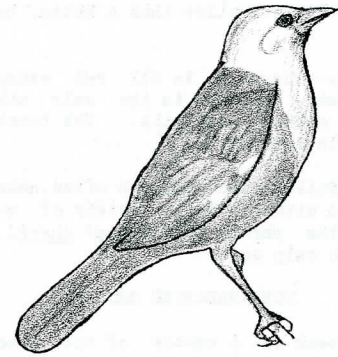
No Nest.--Eggs are placed singly in nests of other birds. Sometimes there are as many as 12 eggs.



BOBOLINK

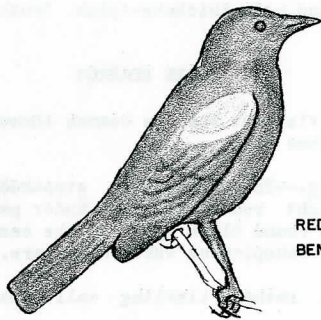


LARK BUNTING



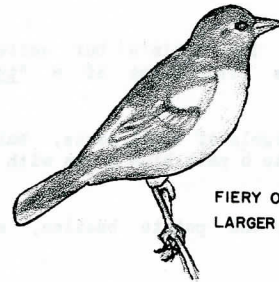
YELLOW-HEADED BLACKBIRD

ROBIN SIZED BLACKBIRD
WITH YELLOW HEAD



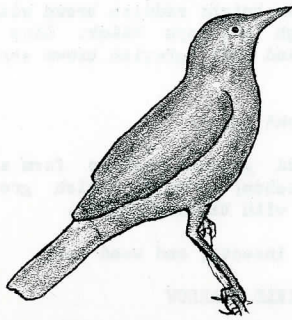
RED PATCH AT
BEND OF WINGS

RED-WINGED BLACKBIRD

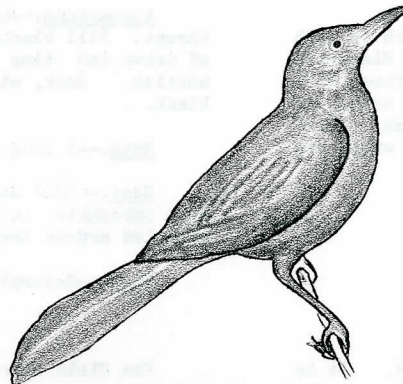


FIERY ORANGE AND BLACK,
LARGER THAN SPARROW

BALTIMORE ORIOLE



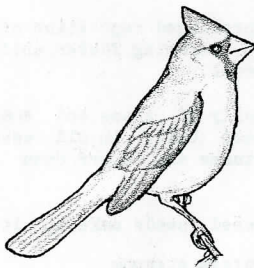
BREWER'S BLACKBIRD
BLACKBIRD WITH WHITE EYES



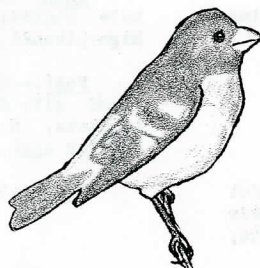
BRONZED GRACKLE
LARGE BLACKBIRD WITH
LONG WEDGE-SHAPED TAIL



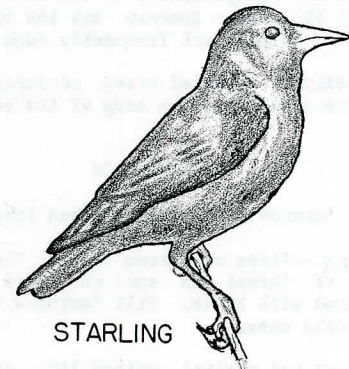
COWBIRD
BROWN HEAD, CONICAL SPARROW-LIKE BILL



CARDINAL
ONLY RED BIRD WITH A CREST



ROSE-BREADED GROSBECK
BLACK AND WHITE WITH LARGE TRIANGULAR
PATCH OF ROSE-RED ON BREAST



STARLING
SHORT-TAILED BLACKBIRD
WITH YELLOW BILL

EASTERN CARDINAL

The redbird is a very common permanent resident and breeder in the eastern half of Nebraska, and uncommon to rare farther west. It is smaller than a Robin, being about 8 to 9 inches long.

Appearance.--The male is all red except for the black chin and forehead, and it is the only all red bird with a crest. It has a heavy red bill. The female is mainly gray brown washed with reddish.

Voice.--A full-bodied whistle often heard in late winter and spring, and uttered in a variety of ways which may be represented by the phrase what cheer! cheer! cheer! It also has a short thin chip note.

ROSE-BREADED GROSBREAK

This Grosbeak is a member of the Finch and Sparrow family. It is 8 inches long.

Appearance.--Head and upper parts are black except white markings on the wing, tail, and rump. The under parts are black except triangular red-rose patch on breast and light red wing linings. The female is mottled brown and white and quite different in coloring from the male. The beak is large and strong.

Song.--Somewhat resembles the Robin's but softer and sweeter. Both birds sometimes utter notes of a "tsweek" nature.

Nest.--A thin cup made largely of small roots, built in bushes and low trees. Eggs 3 to 6 pale blue green with brown spots.

Food.--Insects, especially the potato beetles, seeds, blossoms, and buds of trees.

LARK BUNTING

A common breeder and summer resident in the western half of Nebraska. An open country bird about the size of a House Sparrow and approximately 6 inches long.

Appearance.--The male is black with a white patch in each wing. It may be described as appearing like a small Blackbird with large white wing patches. It is sometimes confused with the Bobolink which has much on the back as well as on the wings. The females are streaked brownish and whitish. They are probably easiest identified when associated with the males.

Voice.--The song is a musical trill.

PLATE 12

VESPER SPARROW

Vesper sparrows are common throughout the state. It is streaked breasted about 6 inches long.

Appearance.--The body is chiefly dark brownish gray, much streaked; bend of wing is chestnut; outer tail feathers are white which flash conspicuously as the bird flies. The Pipit is similar to the Vesper Sparrow but its bill is thinner, it walks instead of hopping and frequently wags its tail.

Voice.--Silver whistled notes accompanied by quavering trills that are similar to the song of the song sparrow.

LARK SPARROW

The Lark Sparrow is about $6\frac{1}{2}$ inches long.

Appearance.--Sides of crown and ear coverts are chestnut brown; sides of throat and spot on breast are black. Back broadly streaked with black. Tail feathers tipped with white, except the middle ones.

Song.--Loud and musical, rather like the Song Sparrow's.

Nest.--Built in bushes or trees and sometimes on the ground. Made of stems, dried grass and weed fibers. Eggs 3 to 6, whitish marked with black and brown on large end.

Food.--Grasshoppers, weevils, weed and grass seed, and waste grain.

SLATE-COLORED JUNCO

The Slate-colored Junco belongs to the Finch family. It is about 6 inches long, which makes it about the size of the Nuthatch.

Appearance.--The Slate-colored Junco, commonly called the "Snow-bird", has a general slate gray coloration, with darker wings and tail, a pink bill, the lower breast and belly contrastingly white, and the outer tail feathers pure white, showing conspicuously in its zig-zag, twittering flight. It is very common about weed patches and thickets from early October to early May. It is a sociable bird and is usually found in small flocks. It does not nest in Nebraska.

Song.--Tinkling single notes often repeated.

Food.--Insects and weed seeds.

Where Found.--In thickets--plum brush, low trees, and shrubs.

TREE SPARROW

A winter visitant that is common throughout Nebraska. It is about 6 inches long.

Appearance.--This Sparrow is streaked on the upper parts and has a bright red brown cap; under parts are plain gray with a single round black spot in the center of the breast; wings have two conspicuous white wing bars.

Voice.--A rather tinkling call that is sweet and variable.

CHIPPING SPARROW

This sparrow is barely $5\frac{1}{2}$ inches long.

Appearance.--Under parts grayish with white chin and throat. Bill black. Crown bright reddish brown with forepart of crown and line through the eye black. Line above eye whitish. Back, wings, and tail grayish brown streaked with black.

Song.--A long drawn out trill.

Nest.--Weed stalks and grasses used to form a cup lined with horsehair in low bushes; 4 to 5 bluish green eggs speckled around large end with blackish brown.

Food.--Caterpillars, insects, and weed seed.

FIELD SPARROW

The Field Sparrow is about $5\frac{1}{2}$ inches long.

Appearance.--Reddish or pinkish bill, crown patch of brown, sides of head gray with a brownish streak back of eye and the back grayish and rusty streaked with black. There are two distinct bars on the wings. Under parts are whitish, slightly tinged with rust.

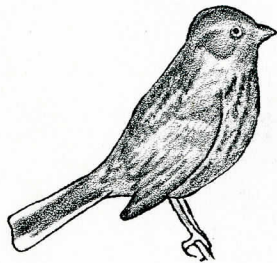
Song.--A simple but prolonged repetition of the same high note beginning slowly and becoming faster until it ends in a high-pitched, plaintive trill.

Nest.--Made principally of grass and small weed stems, lined with fine grass, and built in old weed patches, in thickets, bushes in pastures and other open fields; 4 to 5 whitish eggs.

Food.--Insects and weed seeds make up its food ration.

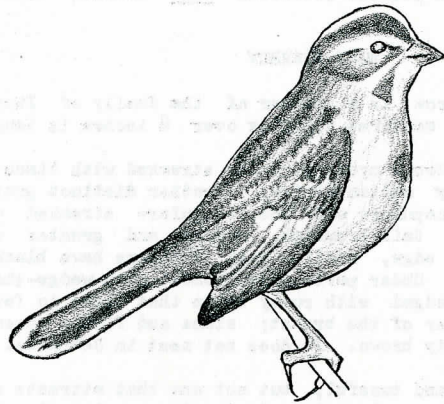
HARRIS'S SPARROW

A common migrant over all of Nebraska that winters in the southern and eastern part of the state. It is about 7 to 8 inches long.



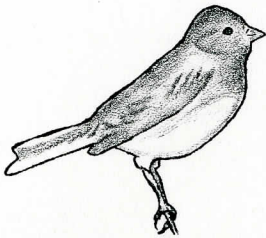
VESPER SPARROW

WHITE OUTER TAIL FEATHERS,
STREAKED BREAST



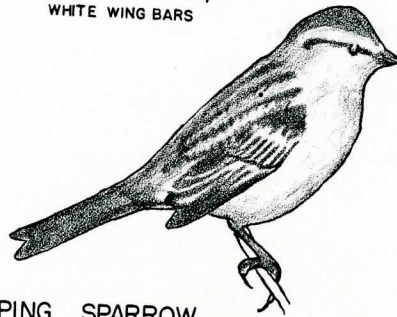
LARK SPARROW

CENTRAL BREAST SPOT,
TAIL WITH WHITE TIP,
WHITE WING BARS



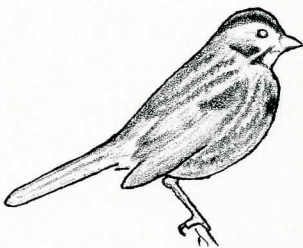
SLATE COLORED JUNCO

SLATE GRAY BIRD WITH WHITE
OUTER TAIL FEATHERS



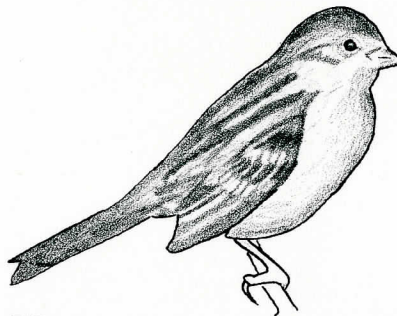
CHIPPING SPARROW

WHITE EYE STRIPE,
PLAIN BREAST



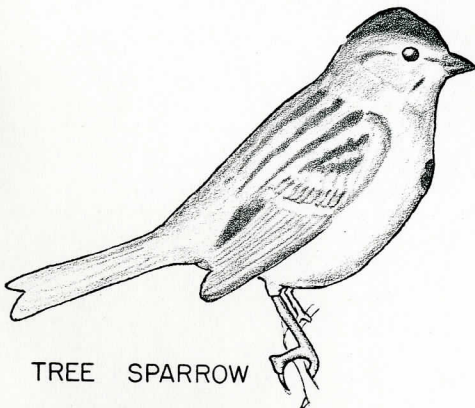
SONG SPARROW

STREAKED BREAST WITH LARGE CENTRAL SPOT



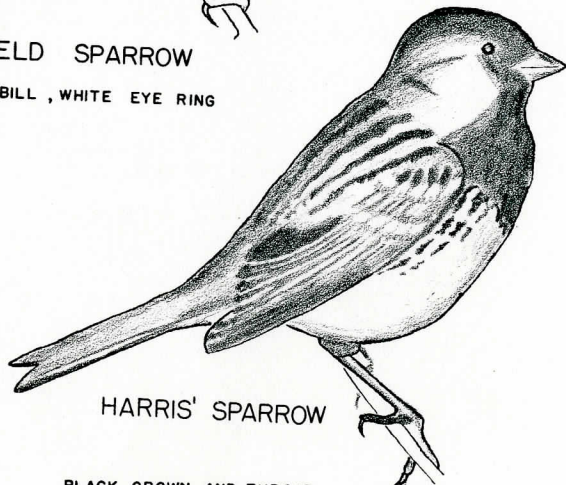
FIELD SPARROW

PINK BILL , WHITE EYE RING



TREE SPARROW

CENTRAL BREAST SPOT, DARK TAIL
WHITE WING BARS



HARRIS' SPARROW

BLACK CROWN AND THROAT
WHITE WING BARS

Appearance.--It is larger than the House Sparrow, has black head and throat which are distinctive; upper parts are streaked dark and gray; under parts white except for streaks in sides.

Voice.--A high pitched querulous "whee" usually repeated three times.

SONG SPARROW

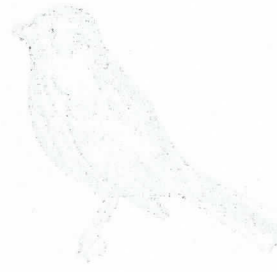
The Song Sparrow is a member of the family of Finches and Sparrows, and measures slightly over 6 inches in length.

Appearance.--Brown crown narrowly streaked with black and with a narrow gray median stripe; a rather distinct grayish line over eye; scapulars and interscapulars streaked with black; wings and tail brownish, middle and greater wing coverts have paler edge, middle tail feathers have blackish streaks or shafts. Under parts white, chest with wedge-shaped streaks of black edged with rusty brown that tend to form a blotch in the center of the breast; sides and flanks streaked with black and rusty brown. It does not nest in Nebraska.

Song.--Short and tuneful, but not one that attracts much attention. It frequently sings during its spring migration through Nebraska.

Nest.--In low bushes or on ground, made of grasses; 4 to 5 dull greenish white eggs thickly specked with reddish brown.

Food.--Insects and weed seeds.



SONG SPARROW



SONG SPARROW



SONG SPARROW



SONG SPARROW