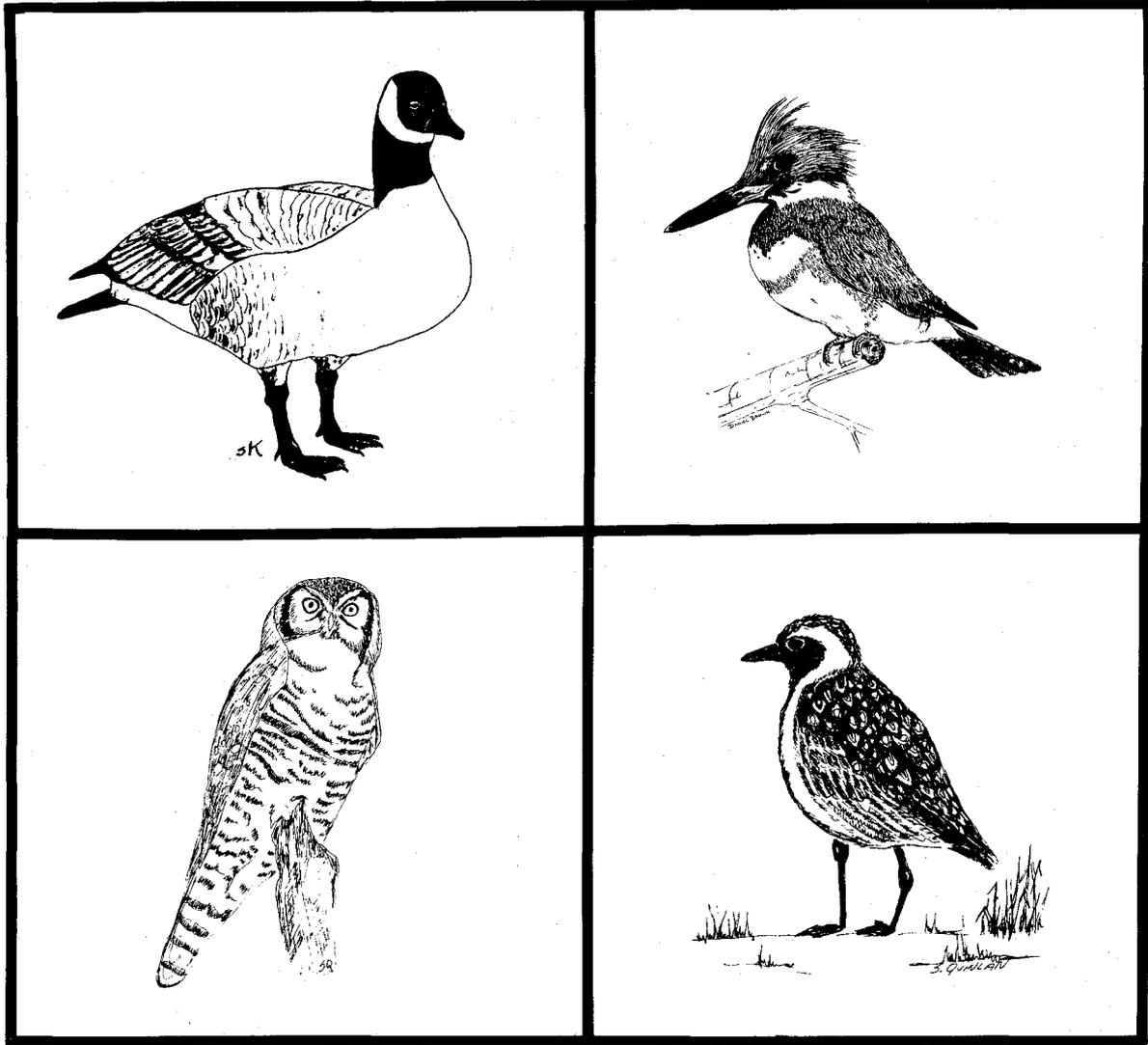


ALASKA'S BIRDS

Their Identification, Biology, and Conservation

A Guide for Youth Groups



Nongame Wildlife Program
Game Division
Alaska Department of Fish and Game
and
Cooperative Extension Service
University of Alaska
U.S.D.A. and Sea Grant cooperating

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THEIR IDENTIFICATION, BIOLOGY, AND CONSERVATION

A GUIDE FOR YOUTH GROUPS

This booklet was jointly written by Susan Quinlan, Nongame Biologist, Alaska Department of Fish and Game, and Lori Quakenbush, a B.S. graduate in wildlife biology from the University of Alaska.

Charlotte Lehmann, Human Resource Chairman, Cooperative Extension Service, University of Alaska, initiated the publication and provided direction and advice for development of the project.

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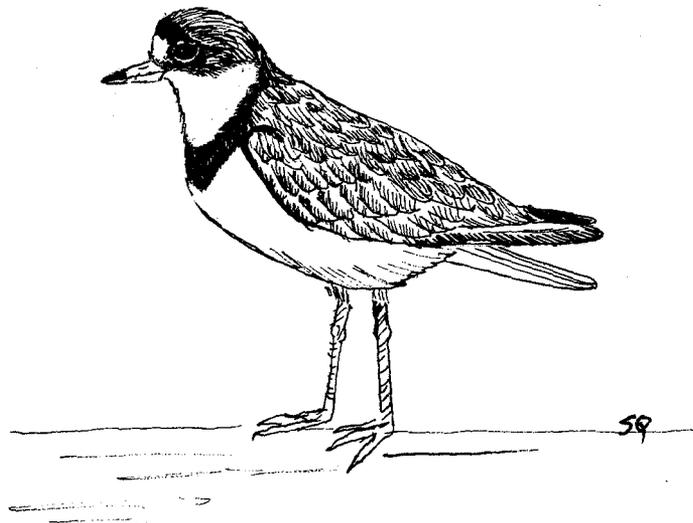
HOW TO USE THIS BOOKLET

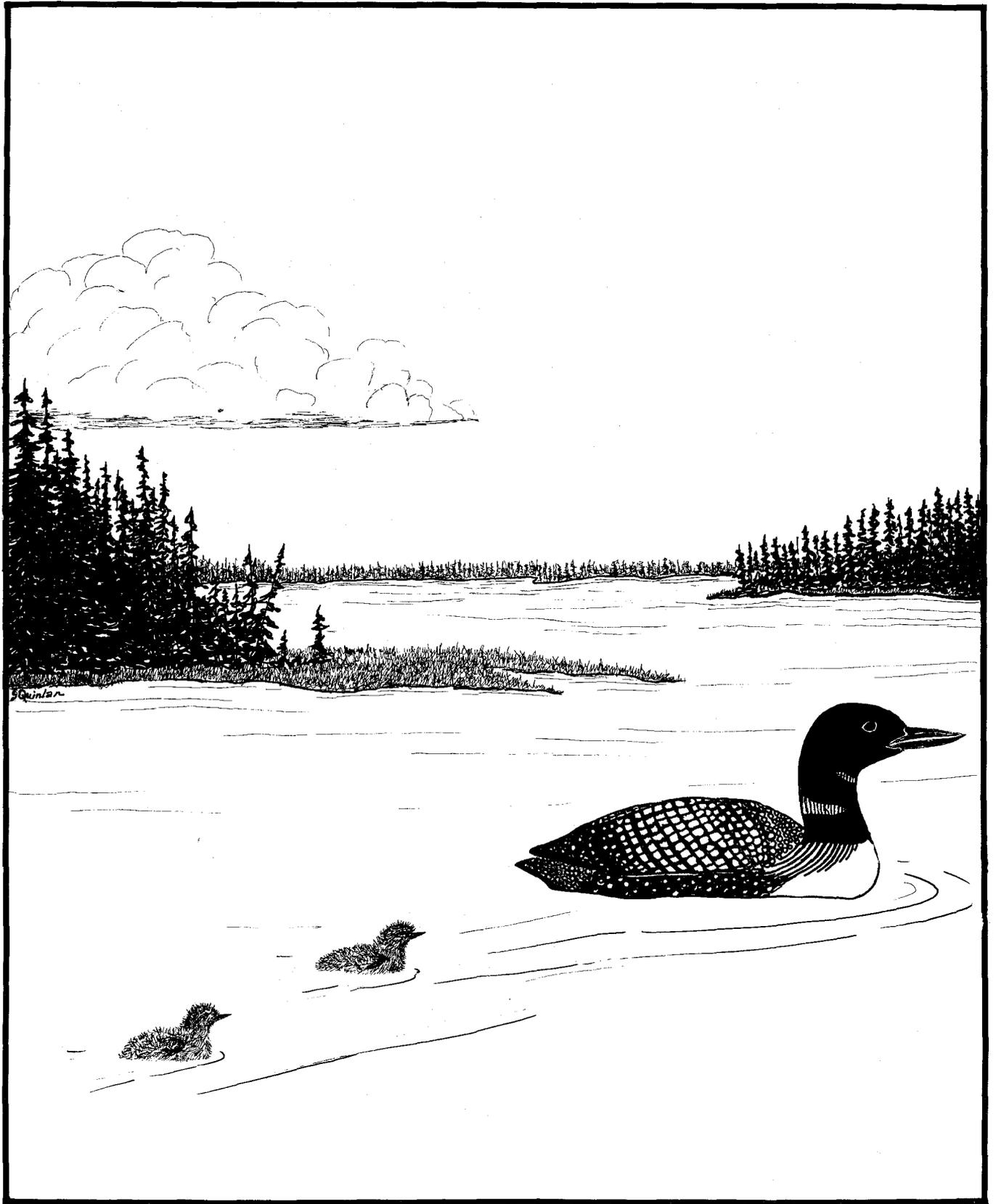
Each chapter of this booklet provides enough information for one or two youth group meetings. Groups may go over the information together, then do the activities at home or read a chapter before meeting and do the activities as a group.

Many activities in this book are suited for displays at state or local fairs; 4-H group leaders may want to organize local competitions. Girl or Boy Scouts, or Camp Fire youth groups may use this booklet and selected activities as guides for earning conservation, ornithology, ecology, or other badges. ADF&G's Nongame Wildlife Program staff would be pleased to help plan group conservation projects--particularly landscaping of local areas for wildlife.

All of the chapters and some of the activities can be used any time of year. April, May, and June are the best months to go outside on birdwatching trips, but some species can be observed throughout the year. Bird feeders will attract more birds if they are set out in late summer or early fall. However, you can build and place birdhouses any time of year. Birds are most likely to use them sometime between March and July, but a birdhouse set out in midsummer will weather just enough to be used by birds the following winter or spring.

So, use this book to learn more about Alaska's birds and how to enjoy them. Contact the Alaska Department of Fish and Game, Nongame Wildlife Program, 1300 College Road, Fairbanks, AK 99701 or 333 Raspberry Road, Anchorage, AK 99503 for more information or if you are interested in organizing a landscaping-for-wildlife project in your community.





S. Quinton

BIRDS IN ALASKA

Birds migrate to nest in Alaska from all over the world including the Lower 48, Mexico, South America, Antarctica, the West Indies, and Asia. Two species migrate to Alaska every summer but nest during the winter in Australia, New Zealand, and Chile. In all, over 400 species of birds have been seen in Alaska; about 325 are sighted regularly.

What bird do you think is the smallest in Alaska? You're right if you guessed the rufous hummingbird--it's only 3½ inches long and weighs a tenth of an ounce, barely more than a penny. In contrast, the largest Alaskan birds have wing spans of 6-8 feet and weigh 10-35 pounds. Can you guess which birds are the largest in Alaska?*

In color, Alaska's birds vary from black, brown, and white to bright yellow, rose-red, rusty orange, carmine blue, and iridescent green. Can you name birds that have feathers of each color? You can learn about some of them in this booklet.

What do birds eat? You might be surprised. Many Alaskan birds eat insects, but they catch them in many different ways. Some birds catch insects in midair, others catch them on plants. Some birds drill insects out of wood, others probe for them in mud, and one species walks under water to catch them! Other Alaskan birds eat seeds and berries, while some species graze on grass like cows. A variety of birds dive under water to catch fish, zooplankton, squid, and even clams. Hummingbirds sip flower nectar. Many Alaskan birds eat small mammals like voles, lemmings, and shrews; several birds eat smaller birds.

Birds help man by eating insects and small rodents that sometimes harm crops or forests. Seed-eating birds transport seeds of plants to new areas where they may grow for the first time or replace vegetation that has been burned, washed out, or otherwise disturbed. Many birds clean up dead animals and garbage. Others, like ducks and grouse, provide food for humans. Studying birds often has helped man to understand the serious effects of air and water pollution on the earth and on ourselves.

Besides their practical importance, birds have aesthetic values. Birds are beautiful animals to see and hear and have inspired man to write, sing, paint, sculpt, and even to fly. Watching and identifying birds is a popular sport throughout the world.

In some cases, birds can be pests, too. Geese sometimes destroy grain fields, pigeons often create eyesores on buildings and statues, and woodpeckers sometimes damage houses or telephone poles by pecking on them.

Overall, however, birds are important and fascinating creatures.

* trumpeter swan, bald eagle, black-footed albatross

What is a Bird?

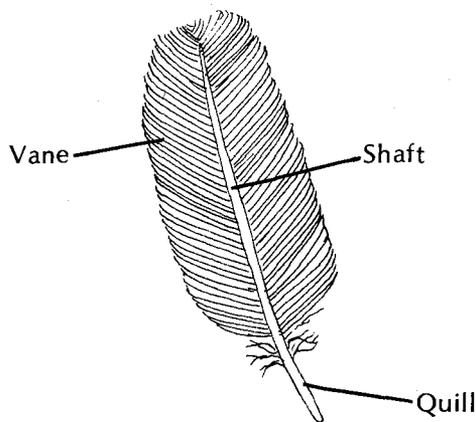
How do birds differ from other animals? Only birds have feathers. Birds can also fly. (Some other animals fly, too. Can you name them?)* Birds are able to fly because they have wings and because they weigh so little in comparison to their size. Why do birds weigh less than other animals of the same size? Most birds have light bones--some even have hollow bones. Birds do not have teeth or jaws (which weigh a lot), and many birds have pockets of air inside their bodies. Birds also have very strong breast (or pectoral) muscles, so they can flap their wings rapidly and for long periods.

Like reptiles, birds have three-chambered hearts, while mammals have four-chambered hearts. Unlike reptiles though, birds can regulate their body temperatures which means they can keep warm even when the air temperature is low. Birds' body temperatures are higher, and their heart rates are faster than mammals.

Similar to reptiles, birds reproduce by laying eggs. The baby bird develops in the egg if it is kept warm, or incubated, by its parent. Most birds lay their eggs in nests. Where in Alaska would you look to find a bird nest? Did you name a tree branch? On the ground? How about inside a tree trunk? Several birds nest on cliff faces, and some species even nest underground. Most birds hide or camouflage their nests to protect their eggs from predators.

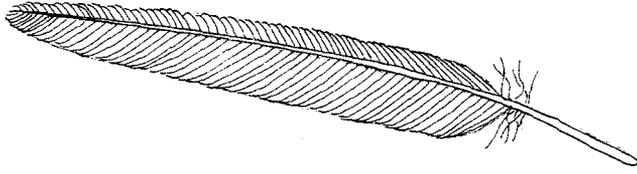
Types of Feathers:

Let's take a closer look at the one thing no animals other than birds have--feathers! Feathers keep birds warm, camouflage them from predators, allow them to fly, and attract mates. But all feathers are not the same. Here are a few of the different types of feathers:



Contour feathers cover a bird's body, streamlining it for flight and keeping the bird warm and dry. Though they appear to cover the entire body, contour feathers grow only in patches, called pterylae, on most birds' bodies. Contour feathers have a vane, a shaft, and a quill. The vane is held together by thousands of tiny barbs. If the vane splits, the bird can "zip" it back up by pulling it through his beak. To preen its feathers, a bird first oils its bill at a special oil gland found at the base of the tail, and then by pulling individual feathers through its oily beak, each feather is "zipped up" and waterproofed. A bird must preen its feathers often in order to stay warm and dry, and in order to fly.

** bats, flying squirrels, many insects, flying fish



Flight feathers are the long feathers on the wings and tail used in flying. Wing flight feathers can be easily identified because the shaft does not divide the vane evenly.

Down feathers are the small fluffy feathers found under the contour feathers. What do people use down for? Birds use their down to keep warm, too. Sometimes birds fluff up their feathers which makes them look fat. Birds do this to create air spaces between the feathers. These spaces hold air heated by the body which provides insulation from the cold.



After-feathers are small feathers that emerge from the same shaft as a contour feather. Best seen on grouse and ptarmigan, after-feathers help insulate the bird and fill out body contours.

Activities

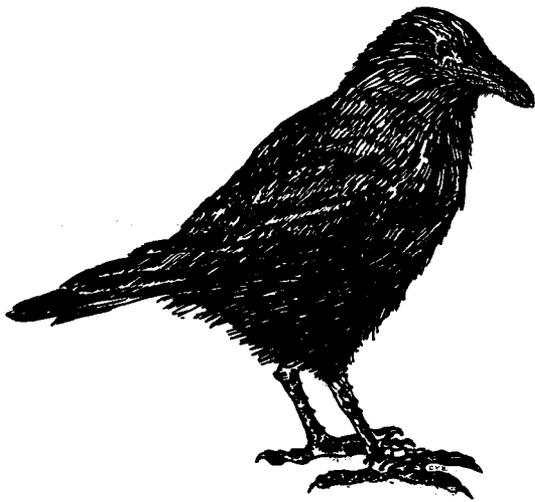
1. Make a list of all the birds you know that live around your home. Without looking in a book, which is the largest? Which is the smallest?
2. Make a list of all the birds you know of in the world--without looking in a book.
3. Start a scrapbook of Alaskan birds by cutting pictures of them from newspapers and old magazines.
4. Read a book on how birds fly.
5. Examine some feathers. Split a vane and see how it zips back up. Try to identify the type of feather it is and what part of the bird it came from. Look at an after-feather.
6. Make a feather collection and label the different types of feathers. What bird did each feather come from?

HOW TO IDENTIFY BIRDS

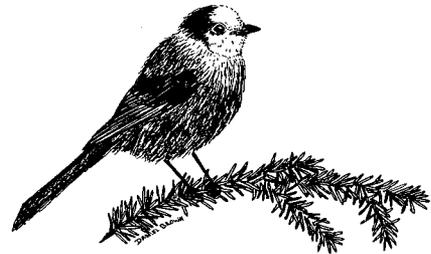
Almost 400 kinds of birds can be found throughout Alaska. Does it seem impossible to ever identify so many birds? Just by learning to recognize a few characteristics, many birds can be easily identified.

Color: The color of a bird is important to notice because birds come in all different colors, but birds of the same species can be different colors. Many birds change colors in the fall and spring. Male birds are usually more brightly colored than females, and young birds are often different colors than their parents. These color variations may cause confusion in identification. Although color is important for identification, other characteristics must also be noted. In addition to color, try to note the following things about each new bird you see.

Size: When you see a new bird, note how big it is. Is it a large bird like a raven, or is it a medium-sized bird like a gray jay? Is it a small bird like a chickadee?



Common Raven

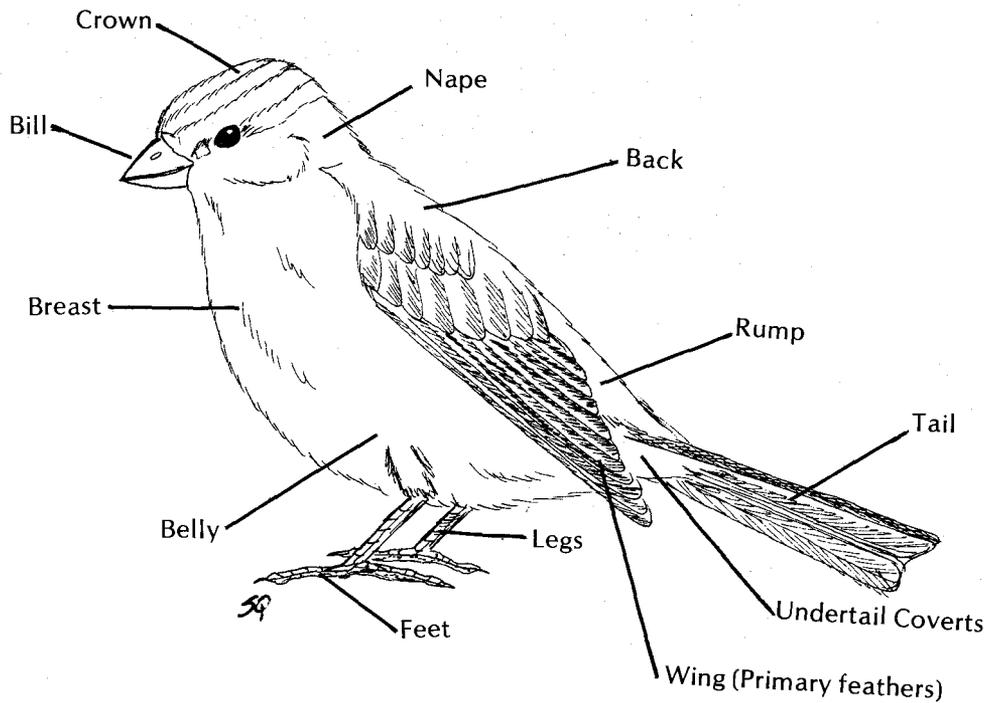


Gray Jay

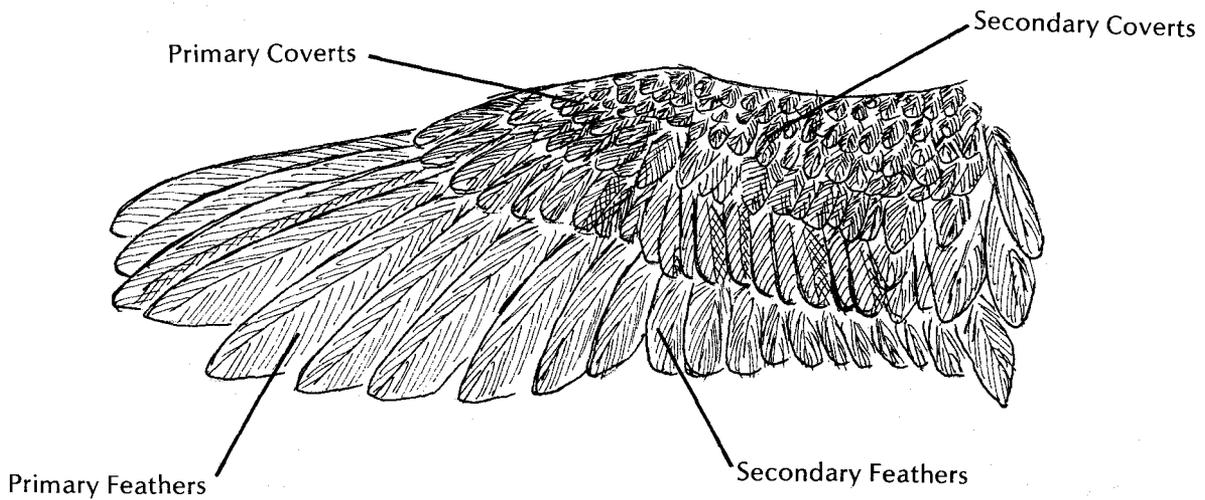


Black-capped Chickadee

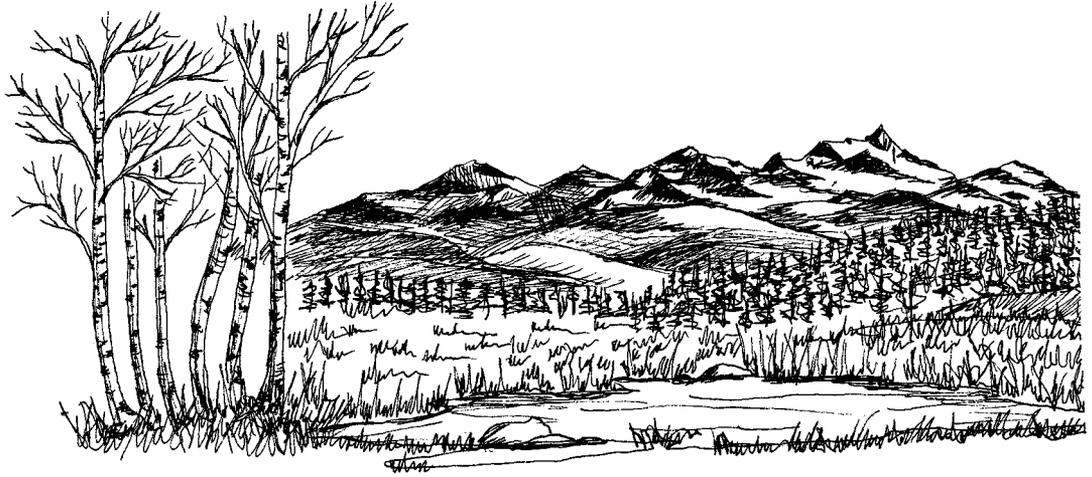
Parts of a Bird: First, learn the different parts of a bird. When you see a bird, try to notice what color and shape each part of the bird is. For example, if you saw the bird shown below, you might say it was brown. But if you looked at it carefully, you would notice its back, wings, and tail are brown, but its crown is black and white, its bill, legs, and feet are orange, and its breast and belly are light gray.



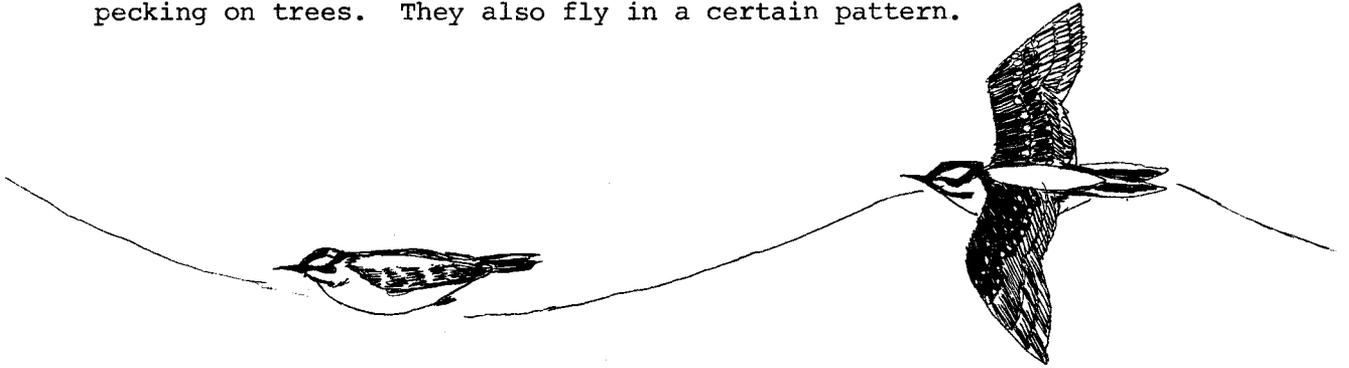
Bird Wings:



Habitat: Just remembering where you see a bird will help you identify it. Was it on a mudflat, by a pond, in a stream, in a spruce tree, in a birch forest, or on the tundra? Was it on a rocky beach or a sandy beach?

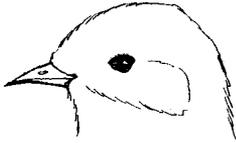


Behavior: Notice what a bird is doing when you see it. For example, kingfishers perch on a branch over water, then suddenly dive straight into the water for fish and frogs. Flocks of swallows often dip and dive over water to catch insects. Bohemian waxwings often flock together and feed on berries. Flycatchers flit upward from a branch, snatch an insect, then loop back to the same perch. Grebes, loons, mergansers, and puffins dive under water to catch fish. Hawks and eagles often soar. Woodpeckers can be identified by their habit of pecking on trees. They also fly in a certain pattern.

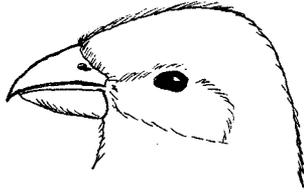


Songs: Songs can be used to locate and identify birds. Some similar birds have very different songs. For example, alder flycatchers look so much like Hammond's flycatchers that you probably couldn't tell them apart if their songs were not so different. When you hear a bird singing, look for it. Birds often sing from places where they can be easily seen.

Bill shape is a good identification clue. You can also tell a lot about a bird's feeding habits by the shape of its bill.



Insect eaters have slender, pointed bills (flycatchers, warblers, thrushes, and swallows).



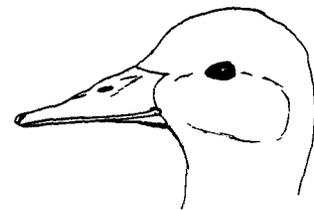
Seed eaters have short, stout, cone-shaped bills for cracking seeds (pine grosbeaks, redpolls, and sparrows).

Woodpeckers have strong, straight, chisel-like bills for drilling into wood to catch insects.



Mud probers have long, slender bills for catching animals in the mud (dunlins, yellowlegs, and other sandpipers).

Water strainers have spoon-like bills with edges that strain food from the water (mallards, pintails, shovelers, and wigeons).



Fish eaters often have long, sharp bills for catching or spearing fish (kingfishers, grebes, loons, and mergansers).

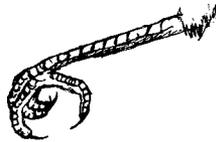


Birds of prey or "raptors" have strong, hooked beaks with sharp edges (eagles, hawks, owls, and shrikes).

Legs and feet. The length of a bird's legs and shape of its feet are also clues to bird identification. Leg and feet shapes also provide information about where a bird lives, how it captures its food, and how it moves from place to place.



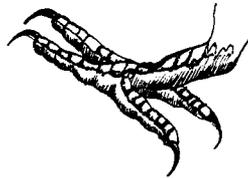
Wading birds have long legs and toes (yellowlegs and great blue herons).



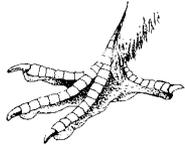
Perching birds have toes for grasping. Pressure on the inside of the foot causes the toes to lock around a perch. That is how chickadees can sleep without falling off the branch.



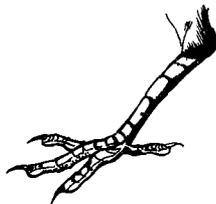
Swimming birds like ducks, puffins, and loons have webbed feet for paddling in water. Grebes are also swimming birds, but their feet are lobed.



Tree climbers have wide-spread toes with curved claws. Some woodpeckers have two toes in front and two toes in back. Three-toed woodpeckers have two toes in front and one in back.

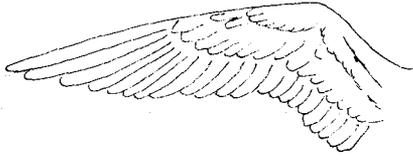


Birds of prey like hawks, owls, and eagles have strong legs and feet with sharp, hooked claws to grasp and carry prey.



Ground feeders like sparrows and juncos often scratch the ground for food. Their feet have three forward toes and one hind toe.

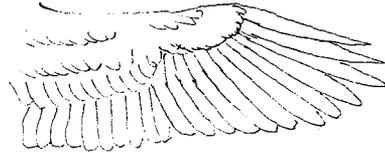
Wing shapes are good indicators of flight style. Both wing shape and flight patterns are clues to identification.



Pointed wings are found on fast-flying birds like falcons and swallows.

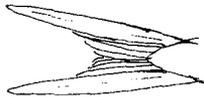


Short, rounded wings are good for quick takeoff but short flights. Grouse and sparrows have this type of wing.



Long, broad wings are soaring wings like those of hawks and eagles.

Tail shape indicates how a bird flies.



A long, forked tail is for steering during fast flight. Swallows use their forked tails to make quick dips and turns while chasing insects.



A stiff tail provides leverage for tree climbers. Woodpeckers use their tail for support when they peck tree trunks in search of insects.



A broad, rounded tail is typical of soaring birds like hawks.

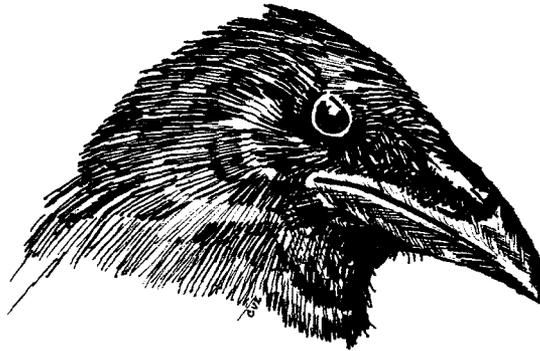


A long, narrow tail is typical of falcons and acts as a rudder during swift dives.



Activities

1. Visit a museum, pet store, or taxidermy shop. Look closely at the different types of birds. Can you tell what they eat by looking at their bills? Look at their feet, tails, and wings; what can you tell about the bird's habits?
2. Check out a book on Alaskan birds from the library and look through it to see the wide variety of birds in Alaska. Notice the different shapes of their bills, feet, tails, and wings.
3. Listen to a tape or record of birdsongs.
4. Start a personal checklist of the birds you see. You may want to list when and where you saw each bird and what it was doing.
5. Make a poster of bird silhouettes showing birds of different sizes with different types of bills, feet, legs, wings, and tails.
6. In spring, listen for a bird singing and then try to find it to see its size, color, and shape.



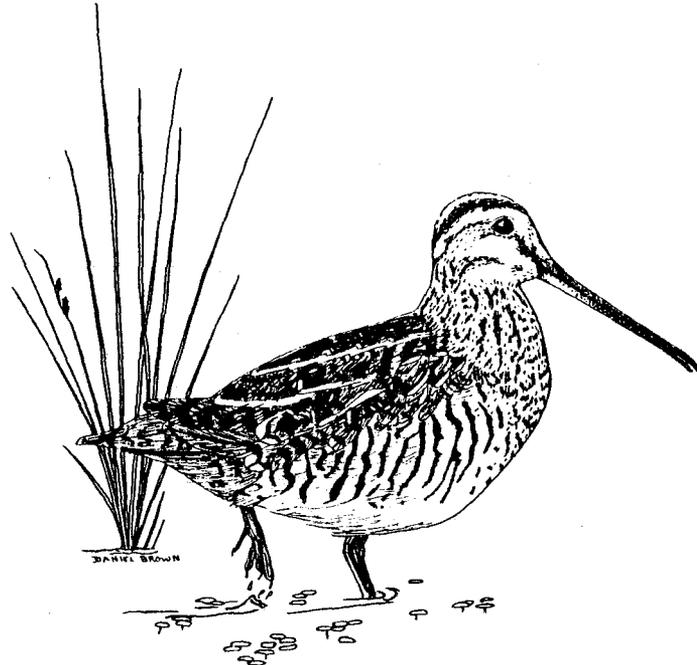
BIRD WATCHING

Now that you know the basics of identification and a little bit about some Alaskan birds, you can try your skills in the field. Where would be a good place to find birds? Some good places to look are along the edge of the woods, a pond, or a lake, or at established bird feeders. An ideal place is an area where different habitats occur together. Such places have the greatest variety of birds. For example, if you look for birds in a coniferous forest, you will see only birds that live in forests. But, if you go to a mixed forest beside a field with a pond, you may see forest birds, birds that like open country, and water birds.

After choosing a good place to visit, take a walk. Don't forget binoculars, a field guide to birds with color illustrations, and a notebook to record observations. Find a spot to sit or move about quietly and use your eyes and ears to find birds.

Don't be discouraged if you can't identify the birds you see. Choose one or two birds you don't know to look at closely. Write down some notes on each one including its color, size, behavior, and location. Note also the shape of its bill, legs, and feet and, if you can, the length and shape of its wings and tail. (Use page 12 as a field aid.) If you can't answer some questions, leave the answer space blank.

As you go through the next few chapters, you may be able to figure out what birds you saw on your first bird watching trip.



FIELD NOTES

Size: _____

- Is it bigger or smaller than a chickadee?
- Is it bigger or smaller than a gray jay?
- Is it bigger or smaller than a common raven?

Color: _____

- crown _____
- nape _____
- back _____
- wings _____
- rump _____
- tail _____
- belly _____
- breast _____
- bill _____
- legs and feet _____

Behavior - What is it doing? _____

Habitat - Where is it located? _____

Shape - Draw a picture to answer each of the following questions.

- What is the bird's shape?
- What does its bill look like?
- What do its legs and feet look like?
- What shape are its wings?
- What does its tail look like?

Song - Is it singing? What does it sound like? _____

COMMON BIRDS OF ALASKA

Birds live everywhere in Alaska, but different species live in different places. The following sections discuss some of the most common Alaskan birds. Many, but not all of them, probably live near you--if you look in the right place at the right time. At the end of each section, the suggested activities give ideas of things to do to learn more about these birds and where to go to see them.

After reading each chapter, try to identify the silhouettes shown on the first page of each chapter.

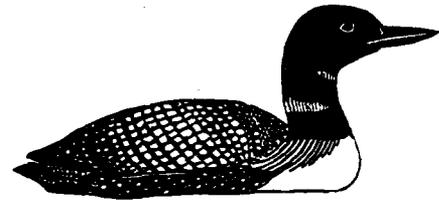


WATER BIRDS

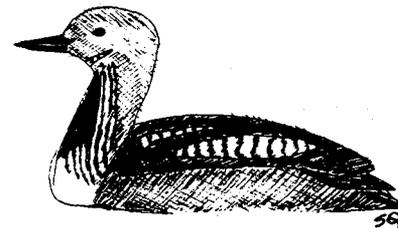
WATER BIRDS

Most water birds can be found around freshwater or saltwater, but alcids occur only at sea. Three of these water birds (loons, grebes, and mergansers) are fish eaters and sometimes carry their chicks on their backs through the water. Male and female loons, grebes, swans, geese, and alcids look similar, while male and female ducks have different markings.

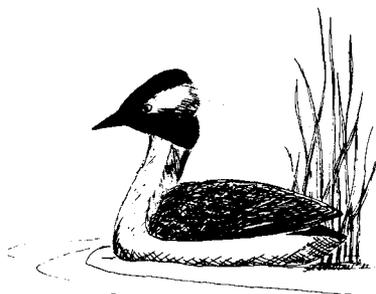
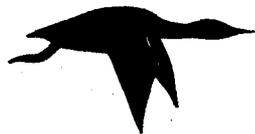
Loons are large, striking birds with black and white spots and stripes. Loons sit low in the water and often sink straight down like a submarine. They propel themselves under water with their large, webbed feet. In flight, loons hold their heads lower than their bodies. Webbed feet and sharply pointed bills are other loon characteristics. Loons nest next to the water and lay only 1 or 2 eggs. Some winter in southeastern and southcoastal Alaska. The common loon, arctic loon, and red-throated loon are the most common Alaskan loons; all have striking calls. A common loon may weigh 20 pounds and is much larger than a raven.



Common Loon



Arctic Loon

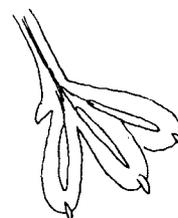


Horned Grebe

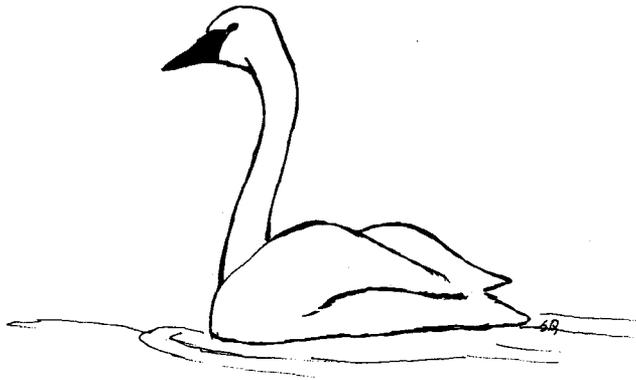
Grebes have long, skinny necks and are smaller than loons. Both red-necked grebes and horned grebes can be seen swimming and diving in freshwater lakes, ponds, and slow-moving rivers. Grebes have lobed toes instead of webbed ones. They use their feet to propel themselves under water. Loons and grebes cannot take off from land but run along the surface of the water before gaining flight.



Red-necked Grebe

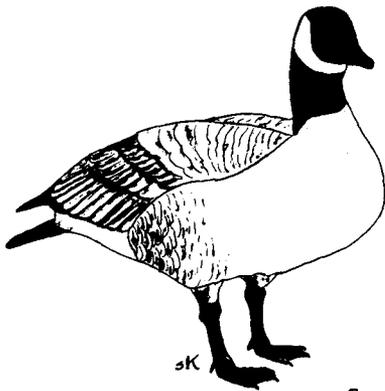


Grebes have lobed toes instead of webbed feet



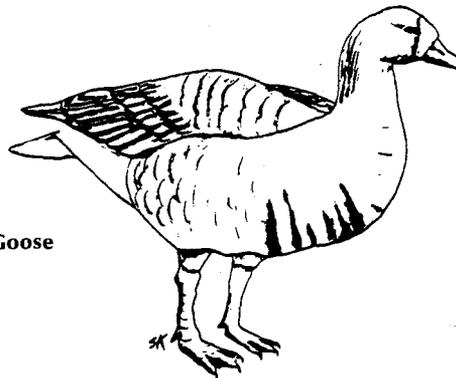
Trumpeter Swan

Swans are very large birds with white feathers and long necks. Trumpeters have all black bills, while tundra swans have a yellow spot at the base of their bills. Young swans are gray brown. The two species have different calls. It is not unusual for a pair of swans to remain together for life. Swans nest on the ground near water, usually on small islands. They lay 3-4 eggs. The tundra swan is the most common throughout Alaska. Trumpeter swans are less common, and whooper swans are rare. Trumpeter swans are one of the largest birds in Alaska.



Canada Goose

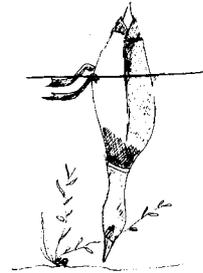
Geese are smaller than swans, but larger than ducks, and are more often seen feeding on land than other water birds. Most geese graze on grasses and other plants. Canada geese are probably the most common in Alaska and can be easily identified by their white cheek patches. Geese nest on the ground, and most lay 4 to 6 eggs. All geese migrate south in winter. Other geese common to Alaska include brant, greater white-fronted goose, snow goose, and emperor goose.



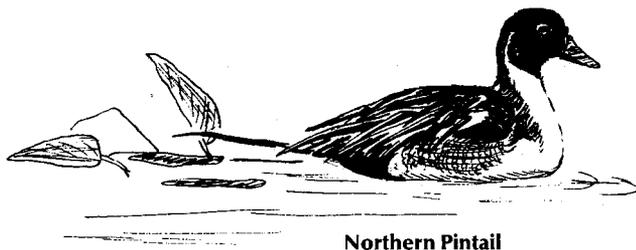
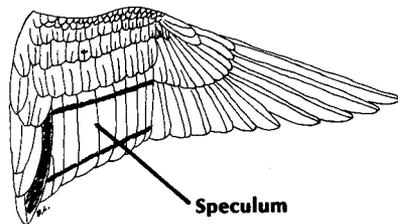
Greater White-fronted Goose

Ducks. Ducks are smaller and have shorter necks than geese. Some ducks are called "dabbling" or puddle ducks because they feed near the surface of the water by walking through the water or by tipping bottoms up. Other ducks are called diving ducks because they dive under water to feed on small animals that live on or near the bottom.

Dabbling ducks are able to take off right from the water. Also, dabbling ducks have a brightly colored feather patch (called a speculum) on the trailing edge of their wings. Dabbling duck males are more brightly colored than females. The brown color of the female helps her to stay hidden when she is incubating her eggs. Dabbling ducks nest on the ground amidst grasses.

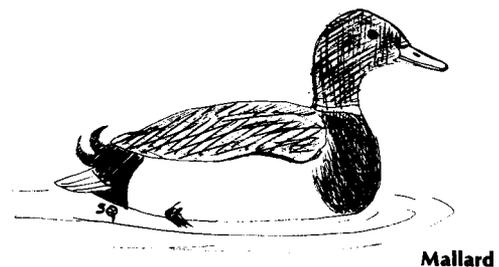


"Tipping up" by a dabbling duck.



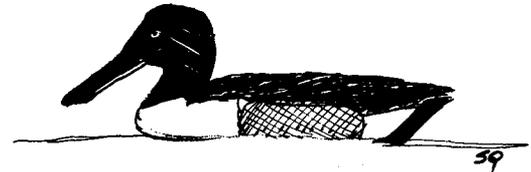
Northern pintails are found throughout Alaska and are our most common dabbling duck. Northern pintails get their name from their long, pointed central tail feathers. They have a brown head with a white stripe up the side and are brown, black, and white on the back.

Mallards are probably the most common of the dabbling ducks. Males have a green head with a narrow, white neck ring and a red-brown breast. They are gray on the back and white underneath. Females are mottled brown with a dark-brown eye stripe. Both sexes have a violet-blue speculum bordered by a white stripe. Mallards eat seeds of various pond weeds. They winter in most of the Lower 48 states and along the coast of Alaska. They prefer freshwater areas but can be found along the coast during winter. Mallards nest on the ground near water.



American wigeon males have a green band from the eye to the back of the head. Female wigeons are reddish brown. Nests are built on the ground farther from water than other dabblers and usually contain about 9 eggs. Wigeons eat stems and leaves of water plants.

Northern shovelers have a long, wide bill with a spoon-shaped tip. The bill has a special edge for straining tiny food particles from the water. Shovelers feed on seeds and stems of water plants, small fish, mollusks, crustaceans, and insects. Shovelers nest on the ground and lay an average of 9 eggs. They winter in California, Louisiana, and Mexico.



Northern Shoveler



Diving ducks must run across the water to take-off.

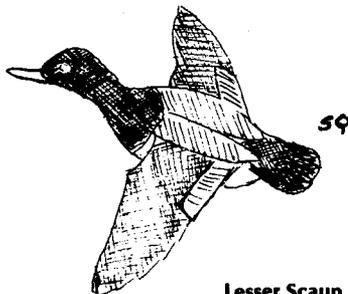
Diving ducks can be separated from dabbling ducks because they dive under water instead of "tipping up," and because they run along the water surface before taking off, instead of flying straight up. Diving ducks use their large webbed feet to propel themselves under water. Unlike the iridescent speculum of most dabbling ducks, most diving ducks have white or gray speculums.

There are two species of diving ducks known as scaup: greater scaup and lesser scaup.

Greater scaups prefer marine habitat and are identified by a round, glossy green head. Greaters nest in marshy tundra near ponds. Females lay an average of 9 eggs. Greater scaups winter in coastal saltwater bays.

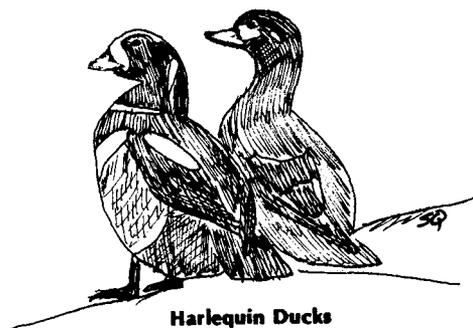


Greater Scaup



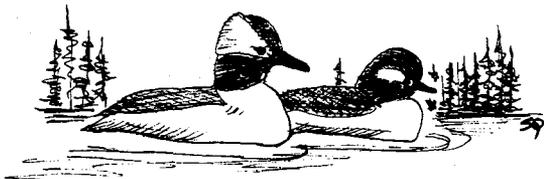
Lesser Scaup

Lesser scaups are smaller with a glossy purple head. Lessers are more often found around freshwater during spring and summer than greater scaups. In fall and winter, both species are found in saltwater. Scaup feed in deeper water than most diving ducks and eat more animal than plant life.



Harlequin Ducks

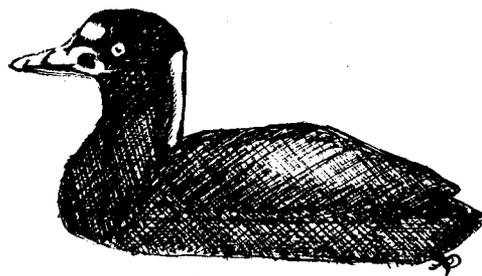
Harlequin ducks were named for the resemblance of the male's brilliant plumage to that of a clown or "harlequin." The male is slate blue on the head and breast with white markings and chestnut flanks. Females have white around the bill, a white circle on the side of the head, and are otherwise brown. Harlequins nest along cold, swift streams. In winter, they live in inshore marine waters. They dive under water to catch small clams and other invertebrates. Harlequin ducks spend the winter along Alaska's coast.



Buffle head

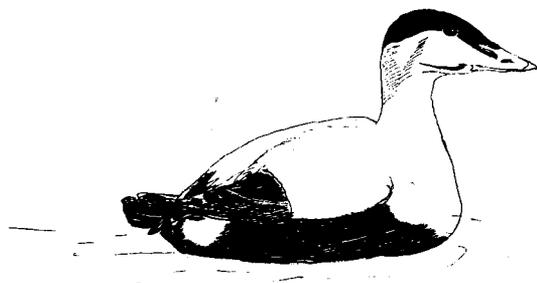
Buffleheads are the smallest diving duck in Alaska. Males have a large white patch on their purple-black heads, while females have a small oval white spot behind the eye. Buffleheads nest in holes in trees. Usually, they use abandoned woodpecker holes. In freshwater, buffleheads eat aquatic insects and plant seeds. In saltwater, these diving ducks eat shrimp, mollusks, and fish. Buffleheads spend the winter along the coast from southeast Alaska to California, and on large lakes in the Lower 48.

Three species of scoters occur in Alaska: white-winged scoter, black scoter, and surf scoter. White-winged scoters have white wing patches. Black scoters are solid black with a yellow-orange base on their bill. Surf scoters are black with several white markings on the head and neck and a red, white, and black bill. Scoters feed on clams, mussels, and other aquatic invertebrates. They nest on the ground. All scoters winter along the coast in saltwater bays and inlets.



Surf Scoter

Eiders live at sea and in saltwater bays and inlets during most of the year. They nest in coastal tundra and on barrier islands. Eiders dive under water to feed on invertebrates that live in the bottom mud. In spring, summer, and fall, large flocks of eiders migrate along the coasts of northern and western Alaska. Four species occur in Alaska: common, king, spectacled, and Steller's.



Common Eider

Spectacled and Steller's eiders live only in Alaska and Siberia.

Common eiders are the largest eiders, and the largest ducks in North America. Male common eiders have a white back and breast, black undersides and a black cap, green on the back of the head and a yellow bill. Females are mottled brown.

Mergansers are a kind of duck, but are similar in some ways to loons and grebes. Like these birds, mergansers dive under water to catch fish and carry their young on their backs. Mergansers have slender bills with sharp, teeth-like structures to catch and hold fish. Most mergansers have crest feathers on the back of their head. Mergansers use their large webbed feet to propel them under water.

Red-breasted merganser males have a green head, a red-brown breast, and a red bill. They are black, white, and gray on the sides and back. Females have a brown head and no breast band.



Red-breasted Merganser

Alcids are among the most interesting seabirds. This group includes puffins, murres, auklets, murrelets, and guillemots. All of these birds spend most of their lives at sea and dive under water in search of food. They eat small fish and invertebrates called zooplankton. In contrast to other diving birds that use their feet to swim under water, alcids "fly" under water using partially folded wings to propel themselves. Though most dives are probably only a few yards under the surface, murres have been recorded over 200 feet below the waves.

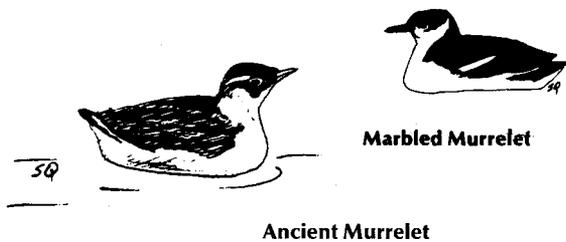
The only time alcids come to land is to nest. Puffins, murres, and auklets nest in large colonies on oceanic islands. Each pair lays only 1 egg each year. Guillemots and murrelets nest alone or in small colonies. Some of these species lay 2 eggs each year.



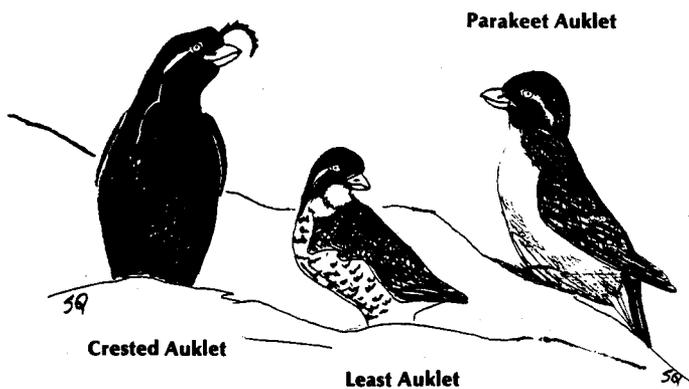
Tufted Puffin

Puffins can be recognized in spring and summer by their large, brightly colored bills. Tufted puffins have orange and green on their bills. Horned puffins have red and yellow on their bills. Some people call puffins "sea parrots." Tufted puffins use their bills and large orange feet to dig deep burrows for nesting. Most dig burrows 3 or 4 feet deep, but in soft soil burrows may be 15 or more feet deep. Horned puffins nest in rock crevices. Puffins lose their brightly colored bill sheaths in winter.

Two species of murres occur in Alaska: common murre and thick-billed murre. Murres nest in large colonies on steep cliffs. Murres do not build nests but lay their eggs on bare rocks. Murre eggs are cone-shaped which causes them to roll in circles rather than off the cliff. Each pair of murres lays a slightly different colored egg and are able to distinguish their egg from eggs of other pairs. About 14 days after hatching, and before their wing feathers have grown, young murres join their parents by jumping off the cliff into the sea. Many leap from ledges 200 feet or more above the sea.

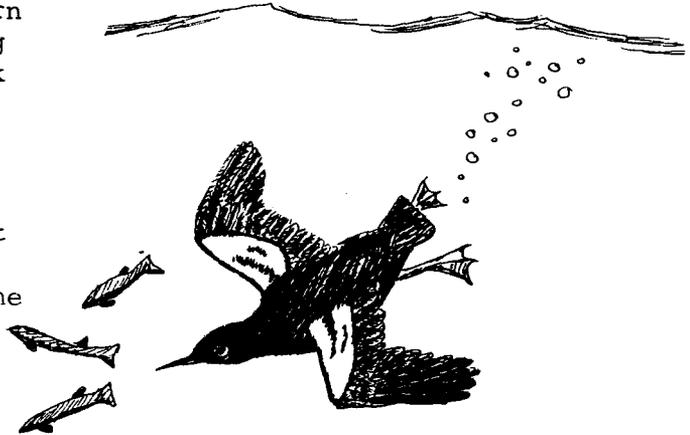


Three species of murrelets occur in Alaska, including ancient, Kittlitz's, and marbled murrelets. Murrelets return to land mainly at night so little is known of their habits. Over 500 thousand marbled murrelets occur in Alaska, yet only 8 nests have ever been found. Most of these nests were on tundra, but 3 nests were found in large trees.



Auklets look and act like small puffins. Crested, least, and whiskered auklets occur nowhere in the world other than Alaska and off the coast of Siberia. Crested auklets are said to have a curious "tangerine-like" odor. Parakeet auklets get their name from their musical calls. Crested and parakeet auklets have a bright orange bill. Auklets nest in burrows and rock crevices.

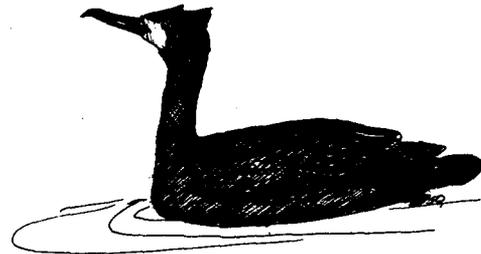
Two species of guillemots occur in Alaska. Pigeon guillemots occur along the southern coast, while black guillemots occur along the northern coast. Guillemots are black with white wing patches and red feet in summer. In winter, they are mottled white. Guillemots have a curious, long, whistle-like call. Part of their courtship occurs underwater. Unlike most other alcids, guillemots lay 2 eggs each year. Small fish called sandlance are one of their main foods.



Pigeon Guillemot

Cormorants are long-necked, black-colored birds that dive under water to catch fish. They are often seen around boat harbors where they sit on piers with their wings spread. All four toes of a cormorant are connected by webs. Double-crested, red-faced, and pelagic cormorants are three species that occur in Alaska.

Double-crested cormorants are the largest cormorants. They nest in colonies near the sea and around freshwater lakes. They nest on cliff ledges, on the ground, and in trees.

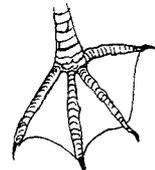


Double-crested Cormorant



Pelagic Cormorant

Pelagic cormorants can be recognized by their white flank patches. They nest in colonies on cliff ledges near the sea. They lay 3 to 5 eggs in a stick nest.



All 4 toes of a cormorant are connected by webs.

Activities

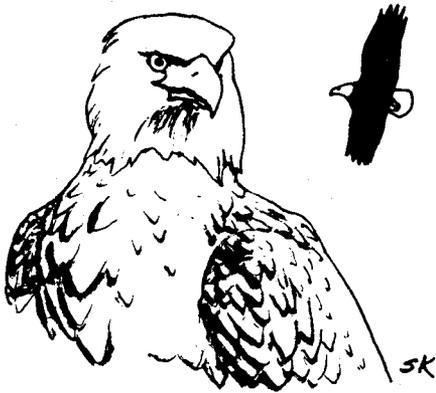
1. Visit a lake, pond, or river near your community during late April, May, or June. See how many different kinds of water birds you can see. Which ones dive under water? Which ones "tip up"?
2. Build a nest box for a merganser or goldeneye and place it near a lake or pond near you (see page 82).
3. Make a list of the water birds occurring in your area by looking at a bird book or asking your local Department of Fish and Game or U.S. Fish and Wildlife Service what water birds live in your area.
4. Obtain a copy of the regulations for waterfowl in Alaska. Which birds can be legally hunted?
5. Make an exhibit or give a talk telling how to tell a puddle duck from a diving duck.
6. Visit a waterfowl refuge or management area and find out what is being done to help water birds on the refuge (Potter's Marsh in Anchorage, Creamer's Field in Fairbanks, and Mendenhall Flats in Juneau are a few examples of State refuges).



BIRDS OF PREY

BIRDS OF PREY

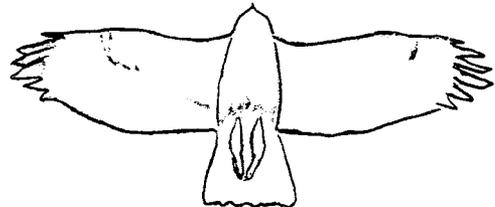
Birds of prey, or "raptors," include those species of birds that capture and eat birds, fish, or mammals. Name some birds you think are birds of prey. Did you think of eagles, hawks, falcons, and owls? What beak and feet characteristics do these birds have to help them capture and hold on to food? In general, female raptors are larger than males of the same species. All birds of prey have acute vision for spotting prey over long distances.



Eagles are large, have long wings, and their beaks are almost as long as their heads. Two eagles occur regularly in Alaska: golden eagles and bald eagles. Adult bald eagles are easy to recognize because they have a white head and tail, but young bald eagles do not have these white markings. They look similar to golden eagles until they are 4-5 years old. Golden eagles are all brown. Arctic hares and rodents are the chief food of golden eagles while bald eagles usually feed on fish. Bald eagles are more common along the coast. Golden eagles migrate to the Lower 48 in winter, while bald eagles winter along the coast; Alaska has more bald eagles than are found in the entire rest of the United States. Bald eagles are endangered in the Lower 48 states due to habitat loss and pesticide poisoning, but luckily Alaska still has healthy populations of bald eagles.

Hawks are smaller than eagles and hunt during the day. There are four types of hawks: buteos, accipiters, falcons, and harriers. Many hawks mate for life and occupy the same nest year-after-year. Most hawks make a screaming call: "kearr, kearr."

Buteos or soaring hawks have broad wings and tails. Buteos are often seen perching on dead trees or poles to spot prey. They feed on small mammals like hares, voles, and lemmings.



Rough-legged Hawk



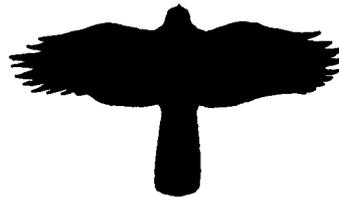
Rough-legged Hawks often hover over open marshes and tundra. They can be recognized by the band of dark feathers across their lower breast. Rough-legged hawks also have a light tail with a dark band along the edge.

Red-tailed Hawks are soaring hawks and get their name from their reddish brown tails.



Red-tailed Hawk

Accipiters feed mainly on small birds and can be distinguished from other hawks by both their long legs and tails and short rounded wings.



Northern Goshawk



Northern goshawks are the largest Alaskan accipiters. Northern goshawks can be seen in wooded areas in Alaska where they hunt among the trees for grouse and other birds, hares, squirrels, and small mammals. Northern goshawks build large stick nests in large, old aspen or cottonwood trees. They lay 2-3 eggs. Goshawks are gray on the back, white underneath, and have a dark head with a white stripe through the eye. Their eyes are bright red.

The Sharp-shinned hawk is a small hawk also found in woodlands where it hunts for small birds. Both of these accipiters fly through the woods with several quick wing beats and then a glide. Sharp-shinned hawks are brown on the back and have light brown and white horizontal stripes across its breast. They also have red eyes.



Sharp-shinned Hawk



Northern Harrier

Harriers are medium-sized hawks with long wings and tails and slim bodies. Northern harriers (formerly called marsh hawks) are the only harrier in Alaska. Male northern harriers are gray, while females are brown. Both sexes have a distinctive white rump patch. These hawks are often seen flying low over open country, especially marshes, searching for mice and birds. Northern harriers nest on the ground.

Falcons are streamlined hawks known for their speed and hunting abilities. Falcons have been trained to hunt game for man in a very old sport called falconry. Falcons spot prey from a vantage point, then capture it on a swift dive. Falcons have pointed wings and long narrow tails.



American Kestrel

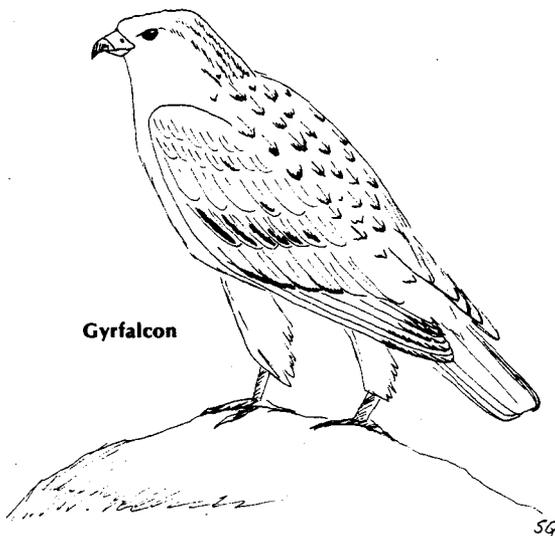
American kestrels, often called "sparrow hawks," are the smallest of the falcons and the most colorful. Males have blue-gray wings and a cinnamon colored back. Kestrels have a black mustache and black marks behind the ears. Often seen on telephone poles along the roads, kestrels are found around open areas, farmland, forest edges, and even cities. Kestrels catch grasshoppers, other insects, and small mammals. Kestrels nest in cavities of dead trees.

The peregrine falcon is one of the fastest birds in the world. Peregrines diving after prey sometimes reach speeds of up to 180 miles per hour. The speed and dexterity of these birds has made them a favorite of falconers.

Adult peregrines are blue-gray on the back and white with black barring underneath. Unfortunately, some pesticides have caused peregrine falcons to lay thin-shelled eggs that break when the female tries to incubate. As a result, the peregrine is close to extinction in some areas. Peregrines are considered an endangered species in Alaska. Peregrines are found in open country along rivers, coastlines, and marshes where they nest on cliff ledges. Peregrines prey on other birds including ducks, seabirds, and shorebirds.



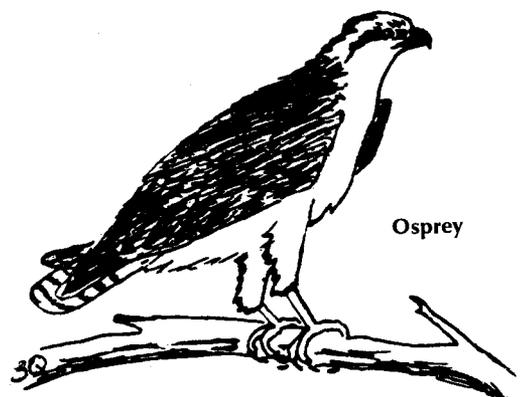
Peregrine Falcon



Gyrfalcon

Gyrfalcons are the largest of the falcons and may be black, gray, or white in color; the gray phase is the most common in Alaska. Gyrfalcons also prefer open country. They feed on ptarmigan and seabirds.

Osprey are uncommon but occur throughout the world. They catch fish with their large clawed feet. Their toes have special spiny tubercles that help them grasp and carry slippery fish. Osprey are striking black and white large birds. They build large stick nests in large trees along rivers, lakes, and marine waters. Like peregrine falcon populations, osprey populations have declined as a result of pesticide pollution.



Osprey

Owls are generally night-time, or nocturnal, hunters. They have large heads with disc-shaped areas around their big eyes. These discs help collect sound so owls can locate prey in near darkness. Besides special hearing abilities, owls have soft feathers that allow them to swoop down on prey with scarcely a sound. Owls cannot look in different directions with their eyes; they must move their entire head. The most common nocturnal owls in Alaska are the great horned owl, great gray owl, boreal owl, and saw-whet owl.



Great Horned Owl

Great horned owls are the most common large owl in Alaska. They are bigger than ravens (18-25 inches tall) and get their name from the tufts of feathers on their head that stick up like horns. Their barred feathers may be gray to red-brown. Great horned owls prey on hares, squirrels, and other small mammals. Great horned owls build large nests in large trees. They can be heard hooting just about any time of year.

Boreal owls are only a little larger than a gray jay. They have white facial discs framed in black and a white spotted forehead without any ear tufts. The feathers on their back are a soft brown. Boreal owls live in coniferous and mixed forests. They nest in holes in tree trunks, and feed on small mammals and birds. Their soft hooting is most often heard in February and March.



Boreal Owl

Some owls hunt during the day or at dusk and dawn, including these Alaskan owls: snowy owl, northern hawk owl, and short-eared owl.



Hawk Owl

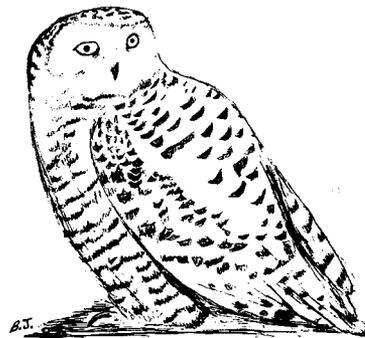
Northern hawk owls are dark chocolate brown, and have long tails, well-barred underparts, and no ear tufts. Northern hawk owls are found in open coniferous and deciduous forests where they nest in tree cavities or on top of tree snags. Northern hawk owls hunt for small birds and mammals during daylight hours.

Short-eared owls have light facial discs framed in white. Their feathers are a warm, yellow-brown. They prefer open country such as tundra, tide flats, and marshes. Short-eared owls nest on the ground.



Short-eared Owl

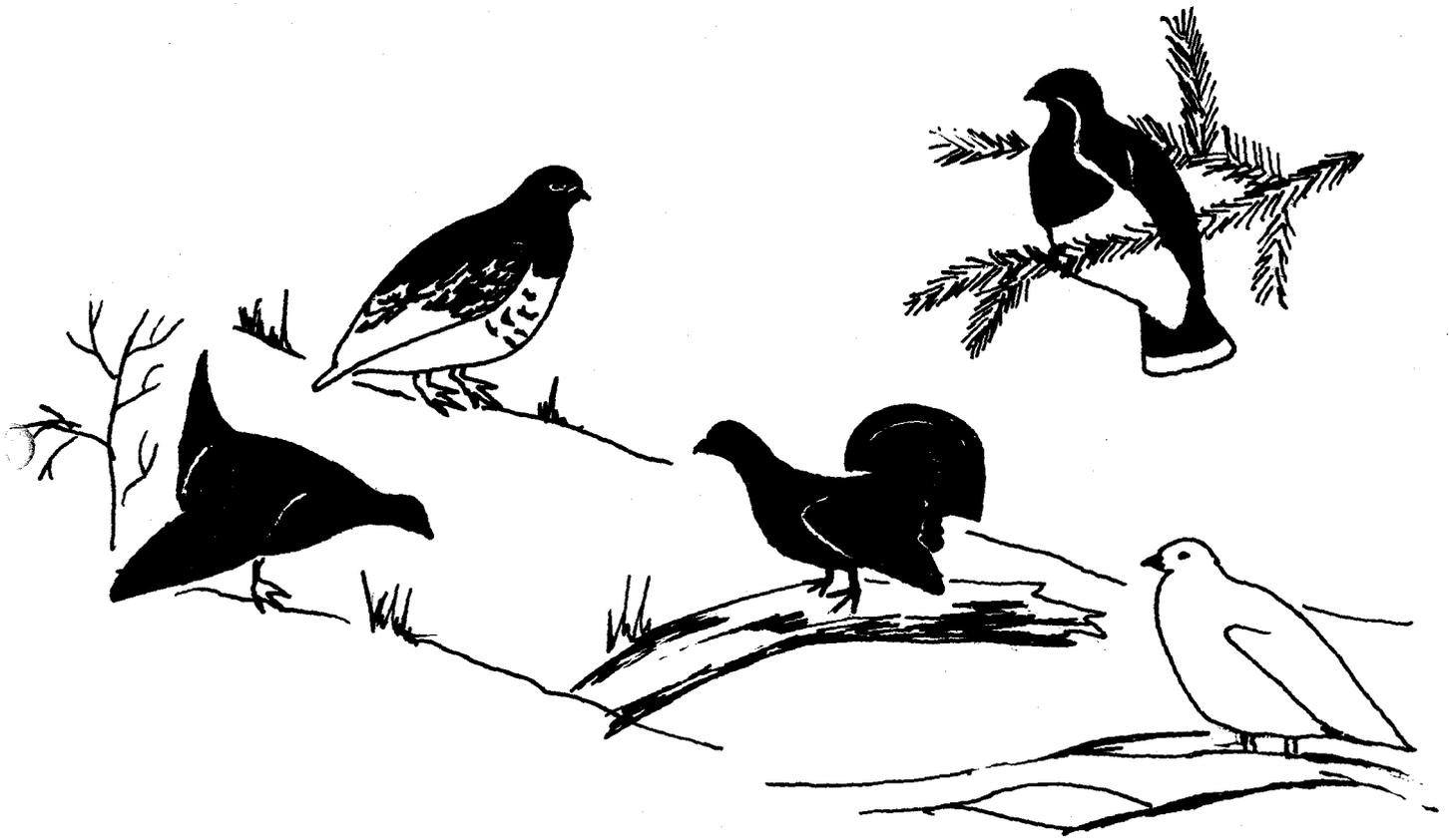
Snowy owls prey on lemmings, voles, and small birds. These large white owls nest on the ground in arctic tundra areas.



Snowy Owl

Activities

1. If you live in a forested area, listen to a tape or record of owl calls. Go out into the woods or drive along a quiet road at night during late February or March to listen for owls hooting.
2. Find out if anyone in your area is a falconer, then ask him if he would be willing to show you and your group how his trained bird hunts.
3. Draw a picture or make a painting of your favorite raptor.
4. Visit a museum, university, or a local Department of Fish and Game office to look at a stuffed raptor. Compare the head of an owl to that of a hawk.
5. Use a bird book to make a list of raptors that occur in your area. Which ones are eagles, buteos, accipiters, falcons, or harriers? Which are owls?
6. Make a poster that tells why hawks are important to you.
7. Find out what regulations there are to protect eagles, hawks, and owls in Alaska.

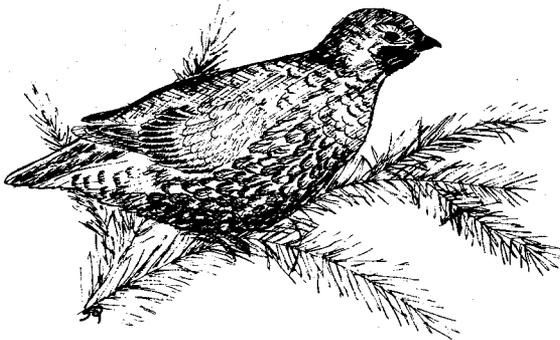


GROUSE

GROUSE

Grouse are chicken-like birds with stocky bodies, short legs, and short rounded wings. They are only able to fly short distances, then must rest before flying again. Grouse eat mostly seeds and berries. They pick up sand and gravel for "grit." This grit helps the birds' gizzard to grind up hard-shelled seeds and coarse plant fibers.

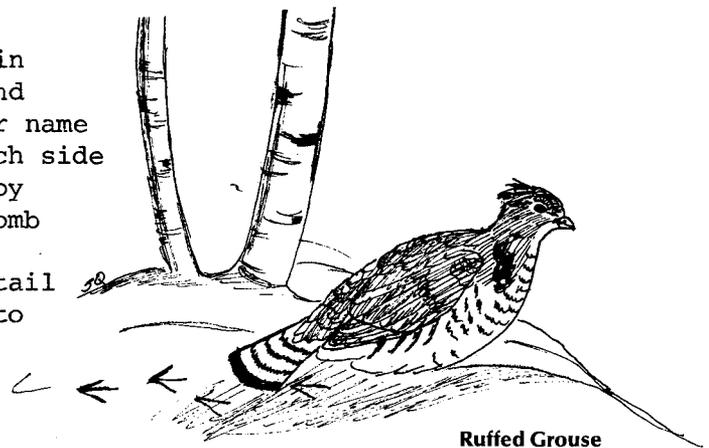
All grouse nest on the ground. They lay 8-12 eggs. Grouse are interesting birds and are easy to watch. Their defense against predators is camouflage, so when danger threatens they "freeze" to let their feathers blend in with the background. Grouse may be legally hunted in Alaska during certain seasons by licensed hunters.



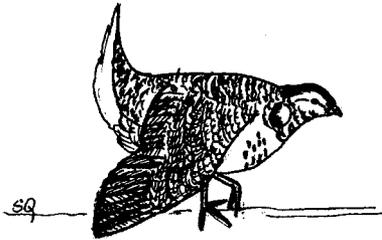
Spruce Grouse

Spruce grouse males are gray with a black breast, a red comb over the eye, and a rust-colored band at the tip of a dark tail. Females are red-brown with black bars. Spruce grouse are found in coniferous forests, where they feed on spruce needles. Spruce grouse often are seen picking up small pieces of gravel along roadsides in the fall. This grit helps their gizzard grind the needles they must feed on all winter after the soft berries are gone.

Ruffed grouse - Ruffed grouse live in birch and aspen forests of central and southcoastal Alaska. They get their name from a ruff of black feathers on each side of the neck. Their tail is marked by bands of black. Males have a red comb over the eye. In spring, the male attracts a female by spreading its tail and beating the air with its wings to create a "drumming" sound.



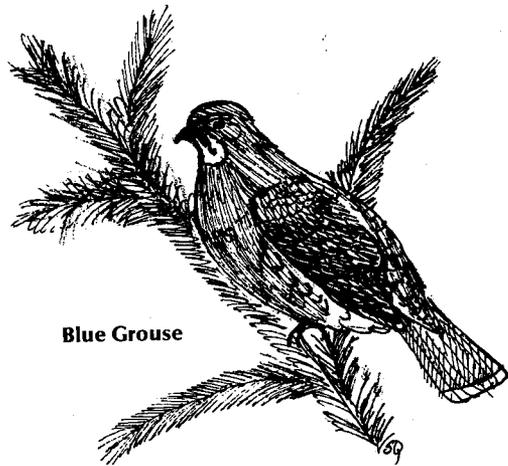
Ruffed Grouse



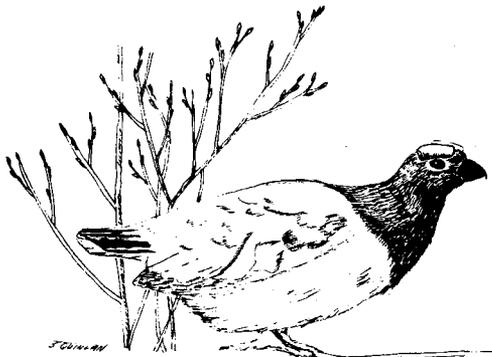
Sharp-tailed Grouse

Sharp-tailed grouse - This interesting grouse has a sharply pointed tail with white feathers on each side. Otherwise it is mottled brown and white. Sharp-tailed grouse live in muskeg and low shrub tundra in interior Alaska. During spring, the males attract females by strutting around with the tail up and wings out. They pound the ground with their feet, inflate air sacs on their necks, and make cooing sounds. Males gather together to display at a dancing ground, or "lek."

Blue grouse - This grouse occurs in coastal forests of southeast Alaska. Males are blue-gray with a black tail and have a yellow comb. Females are mottled brown with a black tail with a gray edge band. During courtship, males give a loud hooting call from their inflated air sacs. They hoot from the tops of large trees.



Blue Grouse



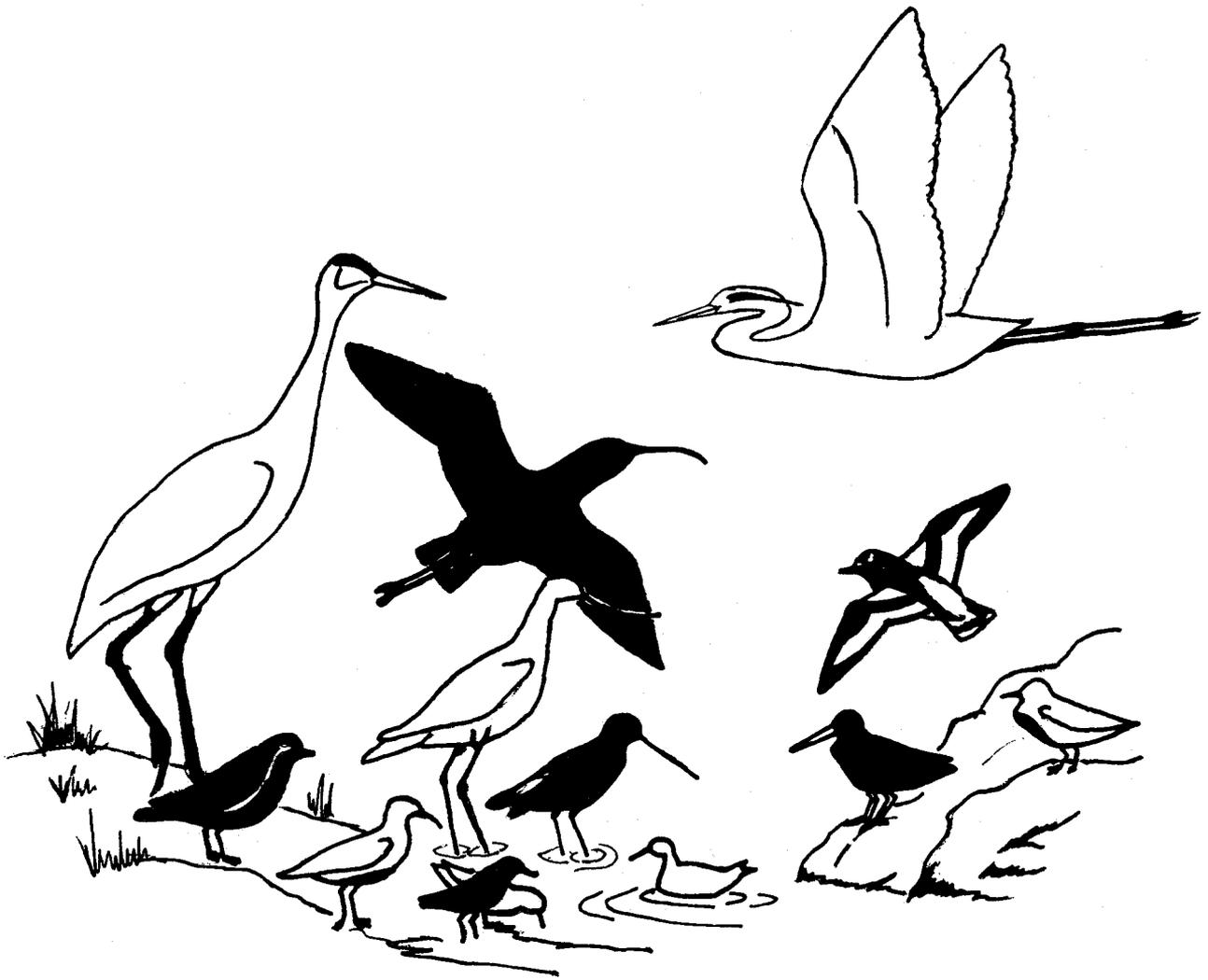
Willow Ptarmigan

Ptarmigan - Ptarmigan are a type of grouse that molt into white plumage for winter. Ptarmigan have feathers on their feet. In winter, these feathers act like snow shoes. Three species of ptarmigan occur in Alaska: willow, rock, and white-tailed ptarmigan.

Willow ptarmigan are honored with the title of Alaska's state bird. In spring, ptarmigan males give loud, raucous calls to attract females.

Activities

1. Use a bird book to find out which grouse and ptarmigan live near your home.
2. Get some grouse feathers from a hunter. Make a display of the different kinds of feathers on a grouse. Did you identify an "afterfeather?" What makes the grouse markings--is each feather a solid color or is each feather marked?
3. Listen to a tape recording of grouse and ptarmigan making their courtship calls and sounds. Which grouse makes its courtship music with its feet? Which one uses its air sacs? Which one uses its wings? Which grouse says "Get back! Get back! Look out! Tobacco! Tobacco! Tobacco!" Have each student in the group draw the name of one of Alaska's grouse from a hat, then have each one act out the courtship display of that species--have the others try to guess which bird the player represents.
4. It is exciting to watch a grouse giving its courtship display. Try getting up early on a spring morning, or go out late in the evening and listen for a grouse hooting, drumming, or calling. Quietly track the sound down--don't disturb the bird or approach too closely. Sit quietly and watch the bird through your binoculars.



CRANES, HERONS, AND SHOREBIRDS

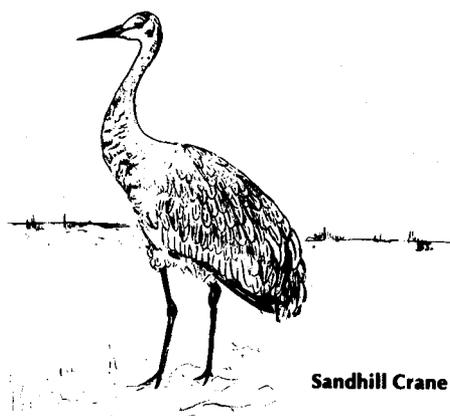
CRANES, HERONS, AND SHOREBIRDS

This chapter covers a variety of birds. Most, but not all, live in wetlands. Cranes, herons, and shorebirds are not closely related, although birds in each group have long legs and long necks. Cranes and herons are large birds, the species that occur in Alaska stand 3-4 feet tall. Shorebirds come in a variety of sizes, from the tiny least sandpiper--which weighs less than 1 ounce and stands only 3 inches tall to the large godwits and whimbrels which weigh up to 1 pound and stand up to 16 inches tall.

Cranes

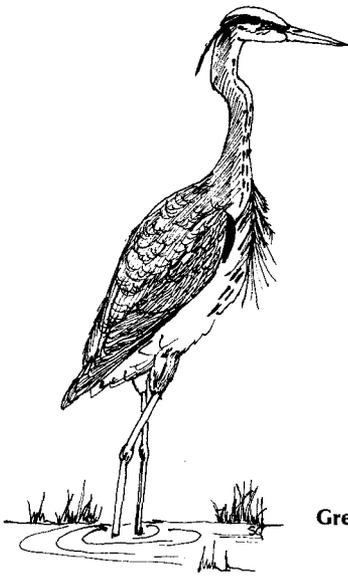
Cranes are tall, long-legged birds with long necks. They fly with their neck stuck out straight. Cranes nest on the ground and lay only 2 eggs each year. When the young hatch, they look like balls of down with long legs. They are able to run around within minutes after hatching. They winter in the Lower 48.

Sandhill cranes are the only crane in Alaska. They are gray birds with red foreheads. Sandhill cranes can be seen throughout Alaska except in northern regions during spring, summer, and fall. They travel in large, noisy flocks and often feed in fields and meadows during their migrations. They eat seeds, small rodents, and sometimes frogs or toads. Pairs of cranes do a courtship dance on the nesting ground. The dance includes head movements, leaps, wing flapping, and calling.



Hérons

Hérons are tall, long-legged, long-necked wading birds. Herons fly with their neck folded in an s shape over their back. Herons wade in shallow water of lakes, ponds, and estuaries to look for fish. Often they stand motionless waiting for fish to swim within striking range. When a fish nears, the heron snatches the fish up with a lightning fast jab of its sharply pointed bill.



Great Blue Heron

Great blue herons are the only common heron in Alaska. They occur in southeast and southcoastal Alaska. Great blue herons have beautiful blue gray feathers and plumes, a white face mask, a black plume behind the eye, and a yellow bill.

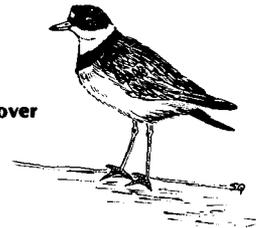
Shorebirds

All the birds in this group are closely related. Many people think shorebirds are hard to identify, but anyone can learn to identify Alaska's common shorebirds. Alaska is the only place in the United States where many of these shorebirds nest. During nesting, shorebirds sing and some species are colorful. In fall and winter, shorebirds are usually quiet and most have only brown, black, and white feathers, which makes them more difficult to identify. Still, the length and shape of the bill and length of the legs provide easy clues to the identity of many shorebirds. All shorebirds lay a clutch of 3-4 eggs.

Plovers are short-legged, stocky shorebirds with big eyes. They often run for short distances, then stop, only to run again. Plovers feed mainly on insects. Four species common in Alaska are semipalmated plover, killdeer, lesser golden plover, and black-bellied plover.

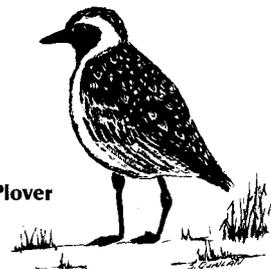
The semipalmated plover has a single black breast band and black-tipped beak. Beaches of lakes, ponds, and rivers are likely places to find this bird.

Semipalmated Plover



The lesser golden plover is found in tundra habitat. This beautiful dark-bellied plover has a richly gold-speckled back, a white stripe down its neck, and black underparts.

Lesser Golden Plover



Sandpipers probe in the mud for food. What kind of bill would be good for this? Did you guess a long bill? Sandpipers have many sensitive nerve endings in the tip of their bills so they can find animals in the mud using their sense of touch. Intertidal areas and lake shores are the best places to look for sandpipers.

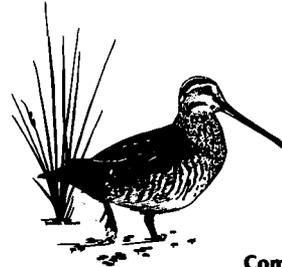
Large Sandpipers



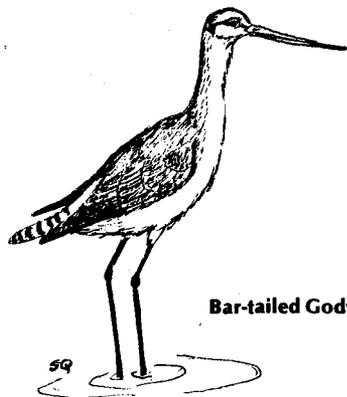
Yellowlegs

Yellowlegs are sandpipers named for their long yellow legs. They are often seen walking through freshwater marshes. There are two kinds of yellowlegs in Alaska, the greater yellowlegs and lesser yellowlegs. Greater yellowlegs are larger and have a longer bill, but the two species look very similar.

The common snipe has a very long bill and lives in muskegs and marshes. Snipe make a strange "who-who-who-who-who-who-who" sound during their courtship flight. This sound, called winnowing, is made by air moving through the snipe's stiff tail feathers as the bird dives.



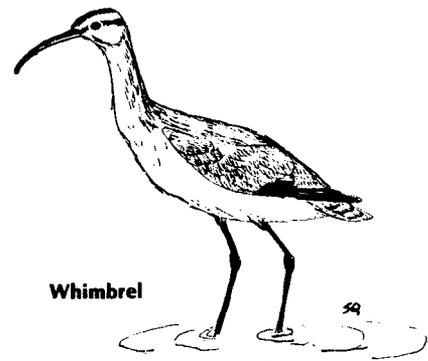
Common Snipe



Bar-tailed Godwit

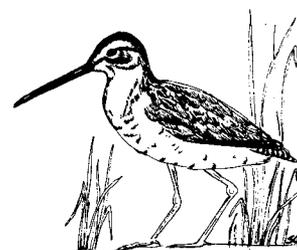
Godwits are large sandpipers with long, slender, upturned bills. Bar-tailed godwits and Hudsonian godwits breed in low-lying tundra areas. They use their bills to probe in the mud for insects. Both of these godwits are cinnamon brown.

Whimbrels have long, slender, down-curved bills and are found in the same habitats as godwits. Whimbrels are light, mottled brown and have black and white stripes on the top of their head.



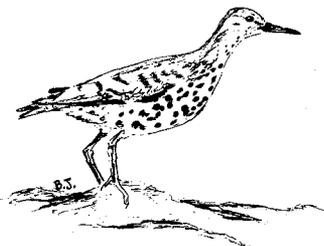
Whimbrel

Dowitchers are medium-sized birds with long straight bills. They have a diamond-shaped white patch on their rumps which shows in flight. Short-billed and long-billed dowitchers nest in wet tundra and feed on muddy tidal flats during winter. Long-billed dowitchers are a light cinnamon brown, while short-billed dowitchers are dull brown.



Long-billed Dowitcher

Small Sandpipers (peeps)



Spotted Sandpiper

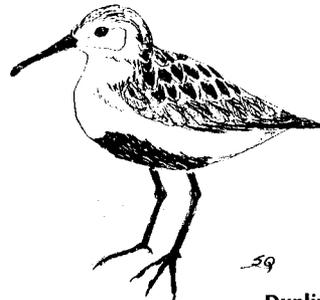
Spotted sandpipers are named for the large black spots on their white underparts. Their back is brown, and their bill is orange with a black tip. They live along river, lake, and saltwater shores. They can be easily recognized by their habit of bobbing their tail up and down. They feed on insects.



Least Sandpiper

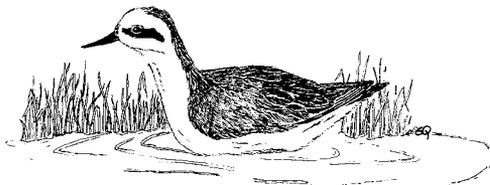
Least sandpipers are the only small sandpiper with yellow rather than black legs. Their back feathers are a warm brown, their breast is marked with light brown streaks, and their underside is white. Least sandpipers can be found along tidal flats, lakes, ponds, and marshes in Alaska. They rarely occur in large flocks. They are the smallest sandpiper.

Dunlins are medium-sized peeps with fairly long bills that curve down at the tip. In summer, dunlins sport reddish backs and white underparts with a black patch on the belly. Found in tidal flats and along muddy and sandy beaches, dunlins are often found feeding in large flocks.



Dunlin

Phalaropes are small shorebirds that swim. Females are more brightly colored than males. Females do the courting, lay the eggs, then leave the male to incubate the eggs and raise the young. To feed, phalaropes twirl in circles in the water to stir up food (small invertebrate animals) from the bottom.

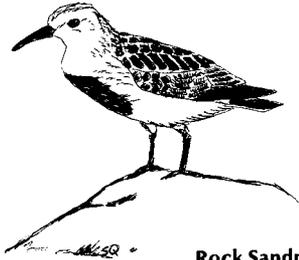


Red-necked Phalarope (summer)

Red-necked phalaropes occur throughout most of Alaska and nest near ponds or lakes. They are blue gray on the back and have a reddish neck. Red phalaropes are more common along the northern coast and in tundra areas. They are reddish all over. Both species winter at sea in the southern hemisphere.

Shorebirds of rocky coasts

Some sandpipers and oystercatchers spend most of their lives along rocky seacoasts. Some nest inland, in mountain tundra, while others nest along the coast. In general, they are stocky birds with thick legs and short bills.



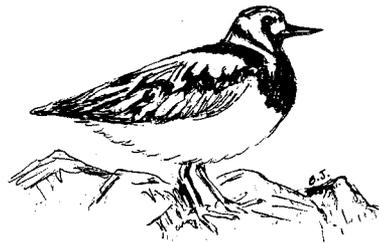
Rock Sandpiper

Rock Sandpipers look like dunlins because they also have a black patch, but the patch is on the breast instead of the belly. Rock sandpipers are the smallest of shorebirds found in rocky areas. They often travel in large flocks.

Surfbirds are short-legged, short-billed, chunky birds. They have a white rump, a yellow bill, and yellow feet. Surfbirds nest in tundra areas and spend the winter on rocky shores and the rockier parts of tidal flats.



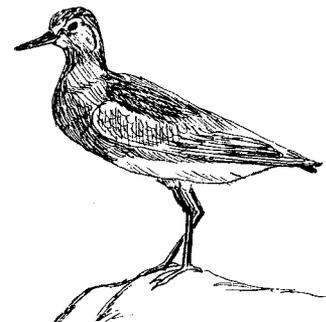
Surf bird



Ruddy Turnstone

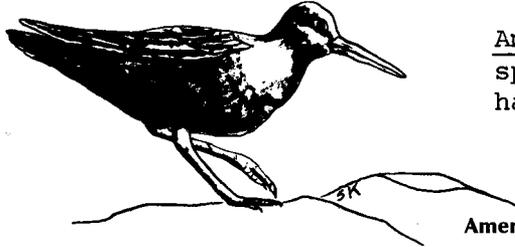
Turnstones run along rocky shores of tide flats and beaches. Sometimes, they turn over stones to find food. Ruddy turnstones have orange legs and a white throat. Black turnstones have black chests and white breasts and bellies. In flight, both turnstones show a vivid calico pattern. Both turnstones nest in coastal tundra of northern and western Alaska.

Wandering tattlers are dark gray birds with medium-length straight bills. Summer tattlers have barred underparts. Wandering tattlers nest in gravel along mountain streams and spend the winters along rocky saltwater beaches.



Wandering Tattler

Oystercatchers are stocky black birds. They have a long, stout, red bill and flesh-colored legs. The stout bill is used to open shell fish and pry limpets off rocks. They build nests of white shells or stones on gravel beaches. Oystercatchers live along rocky shores, reefs, and on islands. They have a loud raucous call.

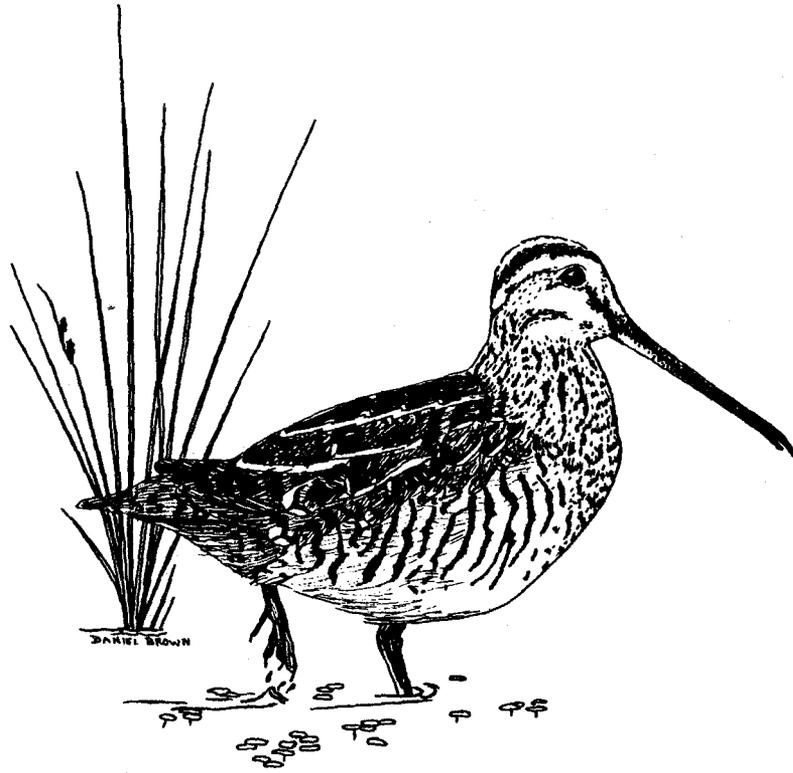


American black oystercatchers are the only species in Alaska. They are black, but have a bright red bill and yellow eyes.

American Black Oystercatcher

Activities

1. Use a bird book to make a list of the cranes, herons, and shorebirds that occur in your region. Make a poster of those you like the best.
2. Find out when cranes migrate through your area by talking to the Alaska Department of Fish and Game or a local birdwatcher, then try to watch them flying overhead or feeding in a meadow.
3. Visit a pond or coast near your community. How many different kinds of shorebirds can you see? Did any of them make any sounds?





GULL-LIKE BIRDS

GULL-LIKE BIRDS

This chapter covers a variety of birds that have long wings, webbed feet, and stout bills.

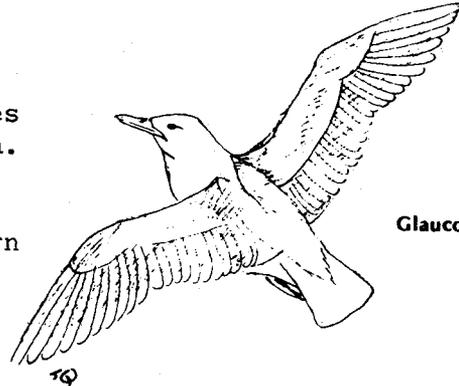
Terns, jaegers, and most gulls occur inland as well as along the coast and at sea. Tubenosed birds are ocean going birds that rarely come near land.

Gulls are long-winged birds that live along the ocean, lakes, and rivers. Most people call these birds "sea gulls" because they are often seen along the coast. But only two species really deserve the name sea gull; most gulls remain on or near land much of the time. The correct term is "gull." Most gulls are white with gray wings. The color of the eyes, feet, bill, and wing tips are important for identifying the species.

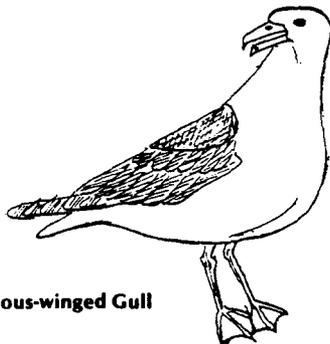
Large Gulls

Three gulls larger than ravens that occur in Alaska are the glaucous gull, glaucous-winged gull, and herring gull. All have white heads and lay 2-3 eggs in a grass nest.

Glaucous gulls have very light gray backs and white wing tips. They nest in colonies on cliff ledges or on the ground in tundra. Glaucous gulls eat the eggs and young of other birds as well as scavenging dead animals and garbage. They live in northern and western Alaska.



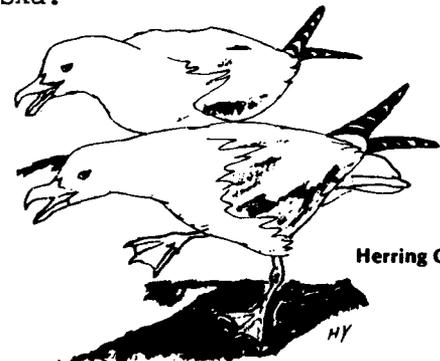
Glaucous Gull



Glaucous-winged Gull

Glaucous-winged gulls have gray wings with gray tips. They nest in colonies on cliff ledges and on rocky beaches. Glaucous-winged gulls scavenge food at garbage dumps, canneries, and along salmon streams; they also eat the eggs and young of other birds. They live in southwestern, southcoastal, and southeast Alaska.

Herring gulls have black wing tips with white spots and yellow eyes. Herring gulls nest on the ground, on cliff ledges, and even in trees. This gull is found inland more than the other species. Like other gulls, herring gulls are scavengers.

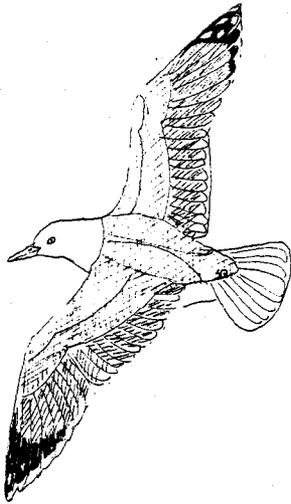


Herring Gull

Small Gulls

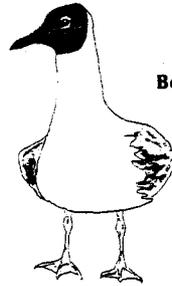
These gulls are smaller than ravens. Some have white heads and some have black heads.

Mew Gull



Mew gulls have yellowish bills and greenish legs. They are often seen along rivers and the coast. Mew gulls nest on tundra, in trees and stumps, and on sand near water.

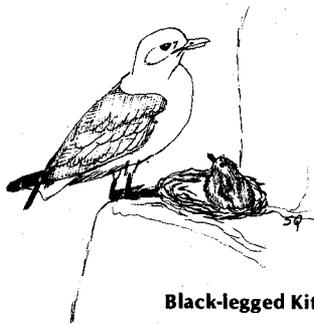
Bonaparte's Gull



Bonaparte's and Sabine's Gulls are the only two Alaskan gulls with black heads. Bonaparte's gulls nest in spruce trees near water. Sabine's gulls nest on the ground in tundra areas. Bonaparte's gulls winter along the coast and along salmon streams. Biologists do not know where Sabine's gulls spend the winter.



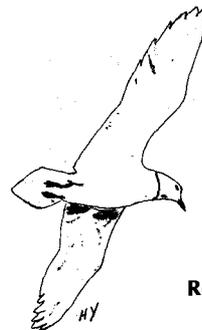
Sabine's Gull



Black-legged Kittiwake

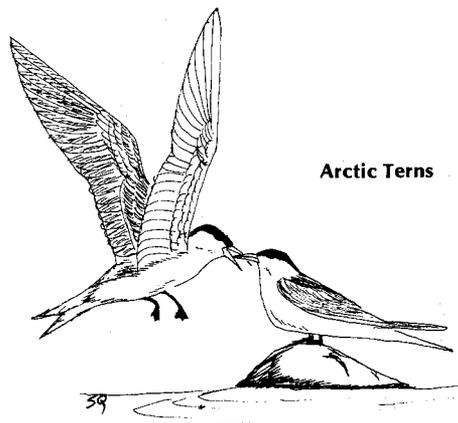
Kittiwakes are small, delicate gulls that nest in colonies on cliffs of oceanic islands. They cement their grass nests onto tiny ledges often no larger than 4 inches wide. Kittiwakes lay 2-3 eggs and usually mate for life. They feed on invertebrates and small fish. Black-legged kittiwakes are the most common. Red-legged kittiwakes occur nowhere in the world except Alaska.

Ross' gulls are unusual birds--the adults in breeding plumage are pink! They nest in Siberia but occur off the north coast of Alaska in large numbers during fall.



Ross' Gull

Terns hover over water then dive in after fish. They have sharp pointed bills and deeply forked tails. Most terns are white with gray backs and wings. Terns have small, webbed feet. Arctic terns and Aleutian terns are the only two species nesting in Alaska.

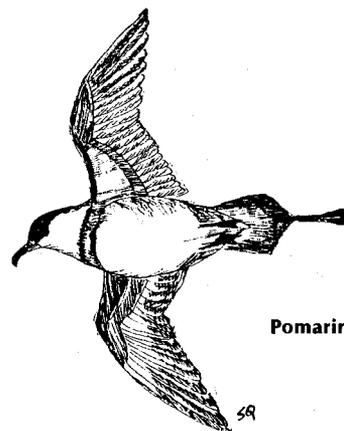


Arctic Terns

Arctic terns have black caps and bright red bills and feet. Aleutian terns have black bills and feet with a white patch on their black cap. Terns nest on the ground in scattered pairs or in large colonies. They defend their nests by diving and screaming at intruders. Aleutian terns occur nowhere in the world except Alaska. Arctic terns have the longest known migration of any bird in the world. They summer in the Arctic and winter in Antarctica, a 20,000-mile roundtrip.

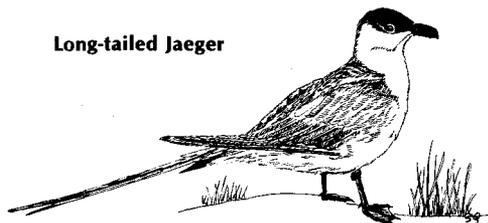
Jaegers are gull-like birds with strong hooked bills and sharp claws. Jaegers have long central tail feathers. Jaeger wings are long and pointed which allows them to fly and dive rapidly. At sea, jaegers often harass gulls, terns, and other birds to obtain food the other bird is carrying. All jaegers spend the winter at sea. Three species occur in Alaska; these are the pomarine jaeger, parasitic jaeger, and long-tailed jaeger.

Pomarine jaegers are the largest jaegers in Alaska; during summer, they feed on rodents. Some pomarine jaegers are white underneath with a dark breast band, and chocolate brown on the back. Dark phase pomarine jaegers are chocolate brown all over.



Pomarine Jaeger

Long-tailed Jaeger



Long-tailed jaegers have especially long central tail feathers. They are gray brown on the back, white underneath, have a black cap, and light yellow on the back of the face. They nest in wet coastal tundra and on drier inland tundra. Long-tailed jaegers prey on other birds.

Albatrosses, shearwaters, fulmars, and storm-petrels are called tubenosed birds because of their tube-like nostrils. These birds occur only at sea and spend most of their lives flying over the ocean. They catch food on and near the sea surface. All tubenosed birds collect an oily substance in their stomach and will spit this oil at other birds, predators, or people that approach their nests. Tubenosed birds have a better sense of smell than most birds and use smell to locate food.

Tubenosed birds and other seabirds drink only saltwater. If a human drank only saltwater, he would soon die from dehydration. However, seabirds are able to drink saltwater because of special glands in their foreheads that extract excess salt from the bird's blood.



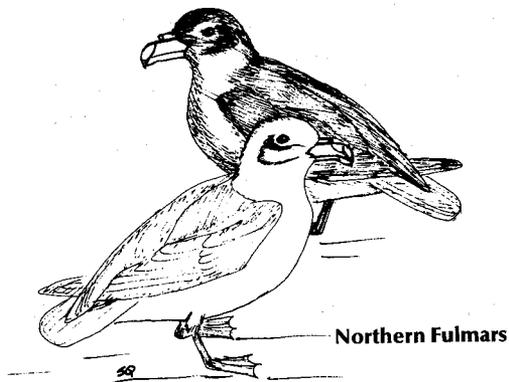
Black-footed Albatross

Albatrosses are the largest seabirds. They have long narrow wings. Albatrosses are able to soar on wind currents for hours without flapping their wings. Three species occur in Alaska's offshore waters: black-footed albatross, Laysan albatross, and short-tailed albatross. Albatrosses nest on small islands near Japan, Hawaii, and other tropical islands. Black-footed albatrosses are the most common in Alaska; they have a 7-foot wingspan. Short-tailed albatrosses are an endangered species.

Shearwaters, like albatrosses, have long, narrow wings. Sooty and short-tailed shearwaters nest in Australia, New Zealand, and Chile during our winter, then migrate to Alaska each spring to spend the summer feeding in the Gulf of Alaska and Bering Sea. They travel in tremendous flocks in a recognizable flap-flap-flap-glide flight. Biologists have observed single flocks of shearwaters containing 1-10 million birds in the Bering Sea.



Sooty Shearwaters



Northern Fulmars

Northern fulmars are about the size of a raven but have much longer wings. There is only one species of fulmar but individual birds may be almost pure white or completely brown. Fulmars nest nowhere in the Pacific Ocean except Alaska, but they are common in the Atlantic Ocean. Fulmars nest in open nests on grassy slopes of oceanic islands.



Fork-tailed Storm-Petrel

Storm-petrels are birds about the size of sparrows, though their wings are relatively longer. Two storm-petrel species occur in Alaska; these are fork-tailed storm-petrels and Leach's storm-petrels. Fork-tails are light blue-gray, Leach's are black with a white rump patch. They spend most of their life far offshore. They return to the islands where they nest only at night.

Storm-petrels have a faint skunk-like odor. They dig small burrows, about the size of a pop can and 2 feet or more deep. They lay a single egg at the back of this burrow. Both the male and female incubate the eggs for about 1½ months.

Storm-petrel chicks remain in the burrow until they are able to fly--about 2 to 2½ months. During this time, they remain in the burrow alone and are visited and fed by parents only at night.



Leach's Storm-Petrel



A tube-nosed seabird's bill.

Activities

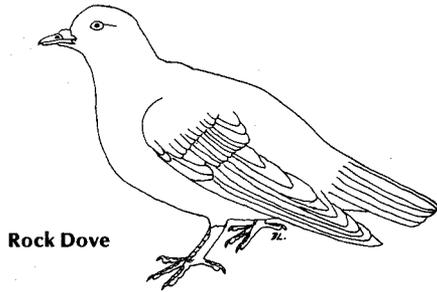
1. Draw a map of the Pacific Ocean and show the migration route of shearwaters and arctic terns. How far do shearwaters fly each year?
2. Visit a local lake, river, or seacoast. See how many gulls and terns you can see. What species are they? Make a list of species that occur in your area by referring to a bird book. See how many of the species you can find.



PERCHING BIRDS AND OTHERS

PERCHING BIRDS AND OTHERS

This chapter covers a variety of birds including pigeons, hummingbirds, kingfishers, woodpeckers, and the largest order of birds--passerines. Passerines, or perching birds, have feet designed for grasping a perch. Passerines are sometimes called songbirds; the group includes dippers, flycatchers, swallows, jays, chickadees, thrushes, warblers, finches, sparrows, and many other birds.

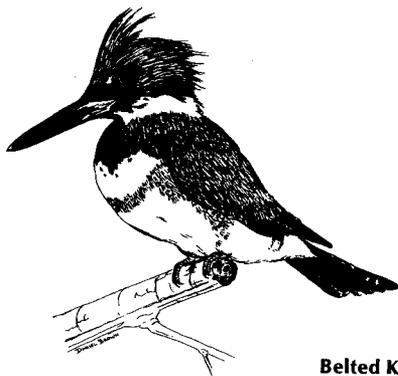


Rock doves (also called pigeons) are not native to Alaska but can be seen in flocks about our cities. Pigeons are unusual because they are able to drink water without tilting their heads back. Pigeons feed their young a milk-like substance produced in their crops. They occur in several different colors including white, brown, and gray.

Rufous hummingbirds are the only hummingbirds that live and nest in Alaska. Anchorage is thought to be its northernmost nesting area. This bird is the smallest found in Alaska. It weighs little more than a penny. Hummingbirds are known for their ability to hover and fly backwards. Hummingbirds use their long bills to sip nectar from flowers. These birds are especially attracted to the color red and often hover around red objects other than flowers. Some people wear red hats in hopes of attracting a hummingbird.



Rufous Hummingbird



Belted Kingfisher

Belted Kingfishers plunge under water to catch fish in their stout sharp bill. These birds have a distinctive crest and are blue on the head and back with a white underside. Female belted kingfishers have a brown band across their breast. Kingfishers live along rivers, ponds, and the coast. They nest in deep burrows dug into earthen banks.

Woodpeckers are built for tree-climbing. They have short legs, and stiff tail feathers to brace them against tree trunks. Most woodpeckers have four toes--two facing forward and two facing backwards. Three-toed woodpeckers have two toes in front, but only one in back. Each toe has a sharp claw to help the woodpecker hang on to tree bark. Woodpeckers have strong, chisel-like bills for digging and prying insects out of wood. Woodpeckers also use their bills to excavate nesting and roosting holes in trees. Abandoned woodpecker holes provide nest sites for other birds that nest in tree holes including swallows, chickadees, and boreal owls.

Downy Woodpecker



Hairy Woodpecker

Hairy and Downy Woodpeckers are most common in birch and aspen woods. They often come to suet feeders. These two woodpeckers appear very similar (both have skunk-like stripes on their backs), but the hairy is a much larger bird and has a longer bill. Males of both species have a red patch on the back of their head.

Three-toed Woodpeckers live in coniferous forests. Their backs have white stripes with horizontal bars across the white patch. Males have a yellow crown. Black-backed woodpeckers, as you might guess, do not have any white on their backs. They live in more open forests and recently burned areas.



Three-toed Woodpecker

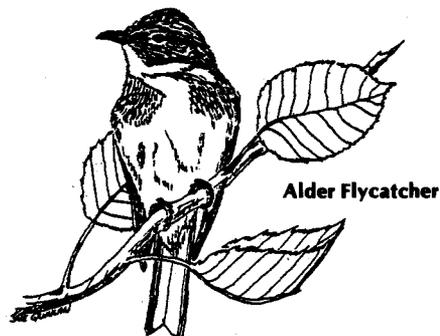


Northern Flicker

Northern Flickers are the noisiest woodpeckers. Their call sounds like a loud, long laugh. They often feed on insects and berries on the ground. They have bright yellow on the undersides of their wings and tails, bold spots on their breast, a red stripe on the back of their necks, a black breast band, and males have a black moustache. They live in open forests and recent burns.

Flycatchers perch quietly on open branches and snatch passing flies and other insects. Flycatcher species look similar but can be easily distinguished by their different songs.

Alder flycatchers are common throughout much of Alaska. Their "fitz-bew" call is easy to learn. They live in tall shrub thickets. Alder flycatchers are greenish gray on the head and back and light underneath. They have two white wing bars and an eye ring.



Say's Phoebes are the most colorful flycatchers in Alaska. They have a rusty belly and a black tail. They nest on ledges beneath bridges, under eaves, and along riverbanks.



Larks have slender bills. They usually land and walk on the ground in open areas, rather than landing in trees. Larks eat insects and seeds.



Horned Lark

Horned Larks are named for the two black tufts on their heads, but these "horns" are not always noticeable. They have a tan back and wings, a yellow face, a black breast band, and white underparts. Horned larks live in open areas such as fields and tundra.

Swallows are streamlined birds with long pointed wings, forked tails, and short bills that open wide. All these traits help swallows catch flying insects. Swallows fly erratically and in circles over open areas and water to catch insects. Often they occur in flocks. Swallows lay 4-5 eggs. Swallows are only in Alaska for a few months each year. They are often among the last migrant birds to arrive, and most head south in early August.

Tree and violet-green swallows nest in cavities of dead trees and in nest boxes. They are both iridescent green and purple.



Bank Swallow



Bank swallows nest in colonies. They dig round holes in cut banks along streams and roads and nest inside. Bank swallows are light brown on the head and back and white underneath with a brown breast band.

Cliff swallows nest in colonies, too. They build nests of mud under bridges and eaves of buildings. Cliff swallows have a beige patch over their bill, rust-brown chin and rump, black head and back, and white underparts. Some people complain about cliff swallow nests because they think the nests are messy or worry that the birds spread disease. However, the birds do not carry diseases transmissible to humans and do a service to people by catching flying insects, including mosquitos. Cliff swallows are fun to watch building nests and raising young.



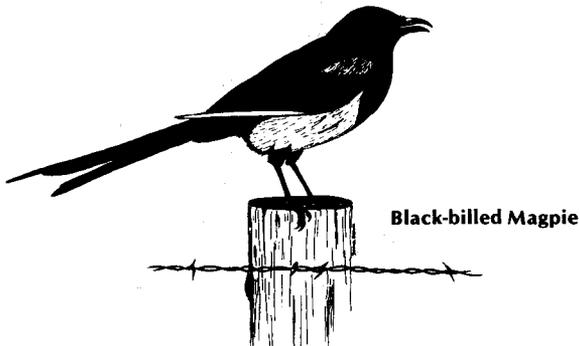
Cliff Swallow

Jays, magpies, crows, and ravens (all known as Corvids) are large birds that will eat just about anything from apples to zucchini. They usually scavenge dead animals but will also raid garbage dumps and picnic areas.



Gray Jay

The Gray jay is also know as the Canada jay or camp robber. These large, gray birds are quite bold and often visit campgrounds to steal scraps from picnic tables. Young gray jays hatch in early June when many other birds are just beginning to nest. Gray jays nest in spruce trees.



Black-billed Magpie

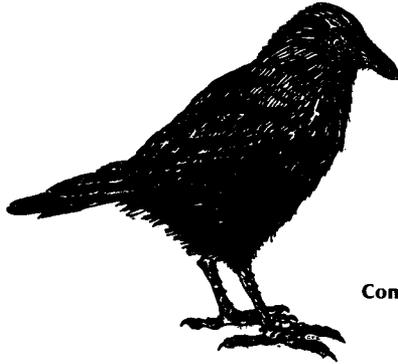
Black-billed Magpies are black and white with a long tail--a very striking bird to see in flight. They build large, domed stick nests with a hole in one side. The female lays 5-9 eggs inside. Both male and female take turns going inside to incubate the eggs.



Northwestern Crow



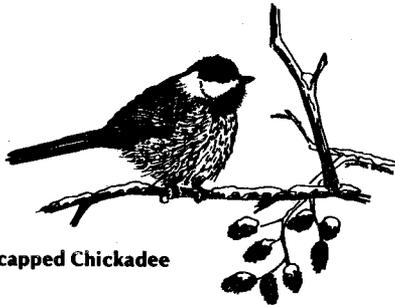
The Northwestern Crow is all black. This crow is smaller than a raven and has a shorter bill and squared tail. Northwestern crows live along the coast where they eat dead fish, shellfish, and berries. Crows carry shellfish into the air and then drop them onto rocks to crack them open.



Common Raven

Common Ravens occur throughout most of Alaska and are included in much of Alaskan folklore--probably due to their bold and playful antics. Ravens build large stick nests on cliff faces and in trees. Note the wedge-shaped tail of a raven as compared to the square tail of a crow.

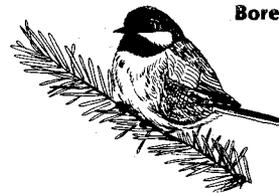
Chickadees commonly visit bird feeders. They live in forests throughout Alaska. Their name comes from their "chick-a-dee-dee-dee" call. Chickadees nest in old woodpecker holes and usually lay 4-9 eggs. They eat insects and seeds. Chickadees remain in Alaska year-round.



Black-capped Chickadee

Black-capped chickadees are found most often in deciduous forests. They have a black cap and are light gray and white on the back.

Boreal chickadees prefer coniferous forests. They have a brown cap and a reddish brown patch on their side. Both chickadees can be called very close if one stands quietly and makes a "psh-psh-psh" sound.



Boreal Chickadee

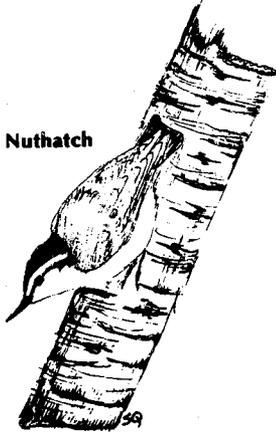
Chestnut-backed chickadees are found in the coastal forests of southeast and southcoastal Alaska. They have a cinnamon-brown back and brown cap.



Chestnut-backed Chickadee

Nuthatches and creepers are small, tree-climbing birds that spend their time in search of insects, larvae, and seeds among the branches and bark of trees. Nuthatches are most often seen climbing down tree trunks, and brown creepers are seen climbing up. Both occur mainly in southeastern and southcoastal Alaska, although brown creepers also occur in central Alaska. Both are year-round residents of Alaska.

Red-breasted Nuthatch



Red-breasted nuthatches have a short tail and a long straight bill. They have a blue gray back, black head, white eye stripe, and a reddish breast. They often climb headfirst down trees, and hang upside down on branches. The name nuthatch comes from the habit of placing nuts in cracks and hammering them with their strong bills until the nut cracks.

Brown Creepers have a long tail with stiff feathers, and a thin bill that curves downward. Creepers climb in a spiral up tree trunks from bottom to top. They look and probe for insects beneath the bark. Creepers nest on tree trunks behind strips of loose bark. They have a high-pitched call and song.



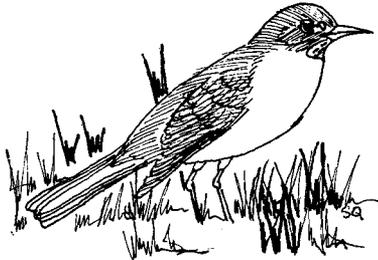
Brown Creeper

American dippers are small, gray birds. They continually bob up and down. Found along clear, fast-moving streams, dippers walk and flutter under water along the stream bottom. They grasp stones with their long claws and poke under rocks for aquatic insects and fish eggs. American dippers have long, strong toes for holding onto rocks, compact feathers, and special oil glands as adaptations for their unique feeding habits. American dippers often nest behind waterfalls. Dippers remain in Alaska year-round.



American Dipper

The thrush family includes the American robin and some of the finest songbirds in the bird kingdom. Thrushes have slender bills and feed on insects. Most thrushes lay bright blue eggs. All thrushes in Alaska migrate south for winter. Hermit and gray-cheeked thrushes migrate to Central and South America.



American Robin

The American robin is one of the best known birds in North America. Robins are a type of thrush. Their red breast makes them easy to recognize. They have a dark head, white throat with black streaks, and gray-brown back, wings, and tail. Robins feed on earthworms, insects, and other invertebrates. Robins spend the winter in the Lower 48 and Mexico.

Hermit, Swainson's, and gray-cheeked thrushes are all light brown on the back, and have white spotted breasts. Hermit thrushes can be separated from the other two species by their reddish tail. All three species have beautiful flute-like songs.



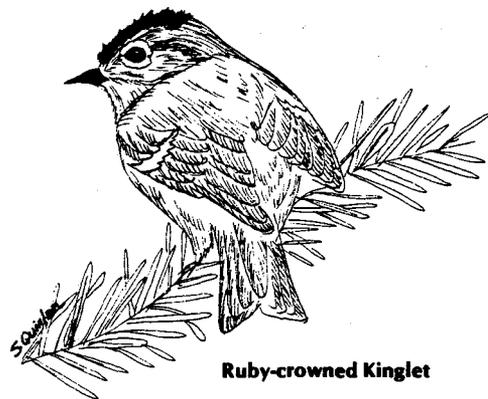
Hermit Thrush



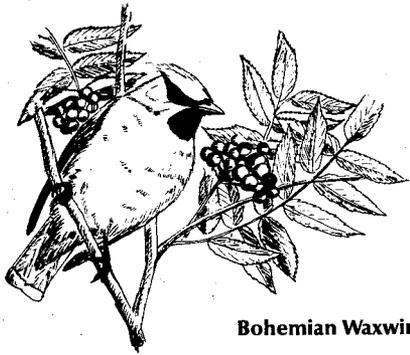
Varied Thrush

Varied thrushes differ from robins by their black breast band. Varied thrushes sing long buzzing notes of varying tones and harmonies. Varied thrushes build nests of sticks in spruce and other coniferous trees. They lay 4-5 eggs.

Kinglets are tiny, olive-green birds with brightly colored crowns. Golden-crowned kinglets have a white, gold, and (males only) red crown. They sing a high-pitched song that many people cannot hear. Male ruby-crowned kinglets have a bright red crown and a loud, melodious song. Though they are smaller than a chickadee, the ruby-crowned kinglet's song carries for almost one-quarter mile if there is no wind. Kinglets flit amidst the tree branches looking for insects to eat. Ruby-crowned kinglets migrate south for winter, while golden-crowned kinglets remain year-round.



Ruby-crowned Kinglet



Bohemian Waxwing

Waxwings are crested, black-masked birds with silky, smooth feathers. They are a light gray-brown with a blue mask and chin patch. They also have a yellow edge on their tail and yellow wing markings. They get their name from the bright orange, waxy tips on some of their wing feathers. Bohemian waxwings are the only species common in Alaska. Waxwings gather in flocks and feed on berries in winter.

Shrikes are gray and about the size of gray jays, but have a black mask and a sharply hooked bill. They constantly flick their tails when perched. Shrikes are often called "butcher birds" because they kill small rodents and insects, then leave them hanging from tree branches or barbed wire fences. Shrikes are uncommon throughout Alaska. They are year-round residents.

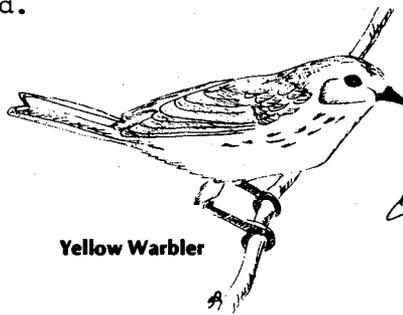


Northern Shrike

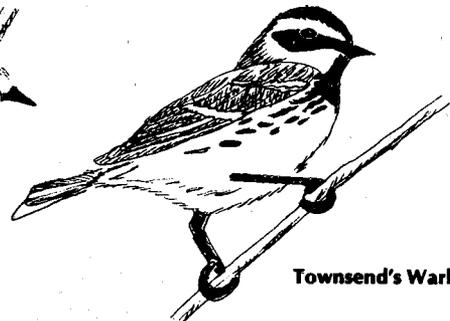
Warblers are brightly colored, active perching birds that are as small or smaller than chickadees. Males and females are colored differently. Warblers eat insects. Some species nest in trees, while others nest on the ground.



Yellow-rumped Warbler

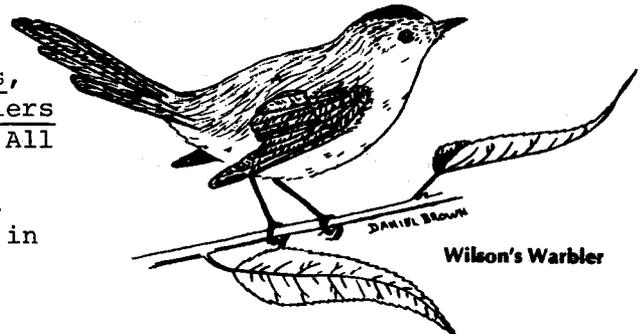


Yellow Warbler

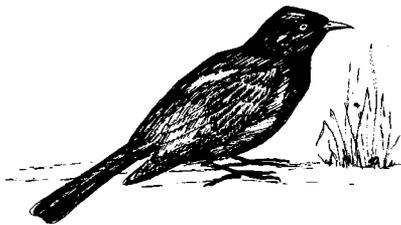


Townsend's Warbler

Yellow-rumped warblers, Yellow warblers, Townsend's warblers, and Wilson's warblers are common throughout much of Alaska. All have bright yellow and black markings. Warblers have thin, high-pitched songs. Many warblers migrate to South America in winter.



Wilson's Warbler



Rusty Blackbird

Blackbirds have sharp, cone-shaped bills and feed on insects, fruits, and seeds. Rusty blackbirds, the most common blackbird in Alaska, have yellow eyes and live in willows near coastal areas. In fall, they are brown, rather than black. Their call sounds like a rusty or squeaky hinge. After nesting, rusty blackbirds are often seen feeding on lawns, open fields, and garbage dumps. Red-winged blackbirds and brown-headed cowbirds are other blackbird species occurring in Alaska.

Finches and sparrows have short, heavy, conical beaks used for cracking seeds.



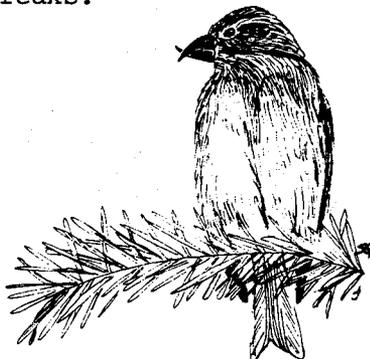
Pine Grosbeak

Pine grosbeaks are plump, robin-sized birds. Males are rose-colored, while females are pale yellow. Grosbeaks remain in Alaska all winter, feeding in flocks on berries, spruce seeds, and willow and birch buds. They will come to bird feeders to eat sunflower seeds.

Redpolls are small finches. In winter, redpolls often travel in flocks. They eat seeds of birch, alder, and other plants. They nest in low shrubs or other places above ground. Redpolls get their name from the red patch or "poll" on their forehead. They have a black chin patch and are mottled brown on the back. Their breast may be white or rosy with black streaks.



Common Redpoll

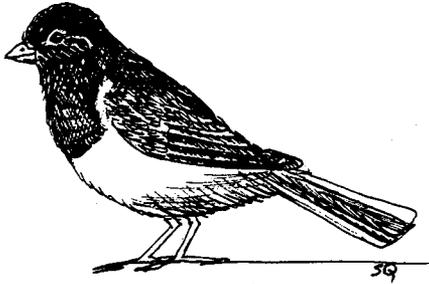


Red Crossbill

Red crossbills and white-winged crossbills have specialized conical bills for extracting seeds from pine cones. The tips of the bill are crossed. Both species are found in coniferous forests and may be found nesting almost any time of year. Male crossbills are red. Females are gold.



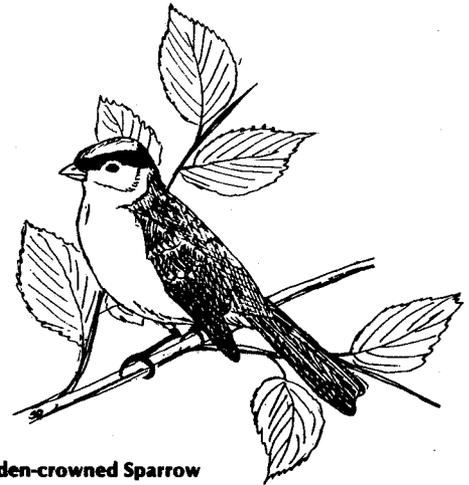
Note the tip of a crossbill's beak.



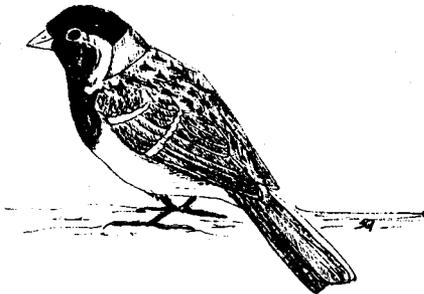
Dark-eyed Junco

Two different kinds of dark-eyed juncos live in Alaska. One is dark gray on the face, breast, and back. The other is almost black on the face and breast and reddish brown on the back. Both have dark tails with white outer tail feathers, which makes them easy to identify in flight. Dark-eyed juncos are about twice the size of a chickadee. They nest on the ground and often line their nests with moose hair. Juncos have a long, trilling call.

Golden-crowned sparrows have golden crowns bordered on each side by a black stripe. They are light gray on the breast and mottled brown on the back. This sparrow lives in willow and alder near treeline and nests on the ground under shrubs. Its song is only three notes long and sounds like the first three notes of the song, "Three Blind Mice."



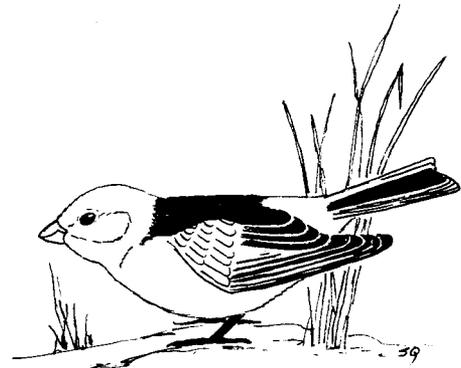
Golden-crowned Sparrow



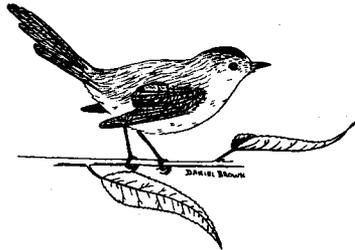
Lapland Longspur

Lapland longspurs nest on the tundra in central and northern Alaska. They have a black face mask and breast, a red-brown collar, and a white stripe behind the eye. Their courtship song sounds like ice tinkling in a crystal glass. They nest on the ground and line their nests with ptarmigan feathers. Longspurs migrate to the western plains of the Lower 48 in winter.

Snow buntings are small, white and black birds. In most of Alaska, they may be seen during spring migration when they travel in large flocks through open fields. They nest in crevices in tundra areas of Alaska. Male and female snow buntings look alike.



Snow Bunting



Activities

1. Look through a bird book to find out which passerines and other birds occur in your area. Make a list. Which are woodpeckers, thrushes, warblers, or sparrows? How many stay in Alaska during winter?
2. Visit a forest or tall shrub area in May or June to see how many small birds you can see. How many different colored ones can you see? Did you hear any you can't see? Describe their songs. Write a story about looking for birds in the woods.
3. Visit a tundra area in June. See how many passerine birds you can find. Do you hear any singing? Can you see any nests?
4. Pick one bird that lives near you to be your favorite bird, then find out everything you can about it. Where would you go to see it? What does it sound like? Where does it nest? What color are its eggs? Do the male and female look alike? Write a story about your favorite bird using the information you gathered. Try to find one of these birds and watch it to find out what it does.
5. Listen to a record or tape of bird calls. Could you learn to imitate one bird? Listen especially to the thrush songs. Have you ever heard one sing? Learn to recognize songs of three different birds.

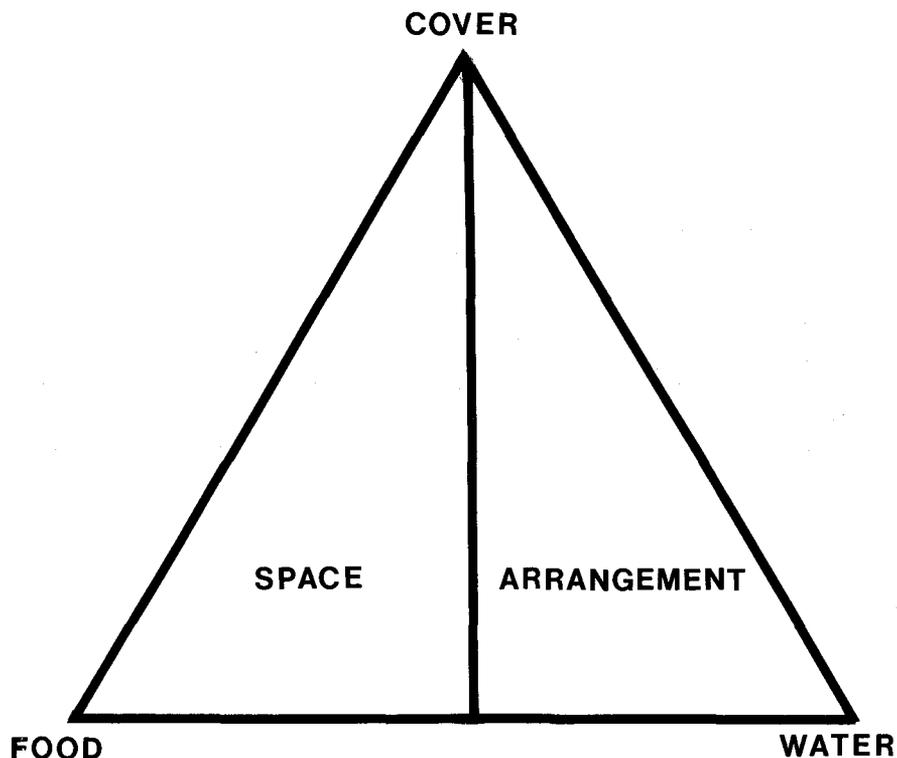
WHERE DO BIRDS LIVE?

As you know by now, some birds are found just about everywhere, but different birds live in different places. In other words, each species lives in a particular habitat. What is "Habitat?" Habitat is a word describing any place that provides all the requirements of life. Dry tundra, white spruce forests, and freshwater streams are examples of habitats in Alaska. Each of these habitats provides the necessities of life for the animals and plants that live in it. These necessities are food, water, cover, and space in the proper arrangement.

Every species of bird requires specific kinds and amounts of food, water, cover, and space in a specific arrangement. Because of these specific habitat requirements, different species live in different habitats.

Let's take a closer look at the necessities of life and a few examples of "wildlife habitat."

Good wildlife habitat provides these necessities:



Food - of the right kind, in the right amount, and available for the animal to use without danger to itself.



the right kind...

Three-toed woodpeckers live in forests where they feed on insects that live beneath the bark of trees. Why wouldn't a treeless area providing a variety of foods including seeds, fruits, and flying insects be a suitable habitat for these woodpeckers?

in the right amount...

Great horned owls eat small mammals like voles and shrews. Small mammals occur in recently burned areas, but their populations are small because there is little food or cover. Would a recently burned area be a good place for these owls to live?

available without danger...

If an animal must face severe danger or senses severe danger when obtaining food, the food source is not adequate. Imagine a patch of highbush cranberries and raspberries on one side of busy four-lane highway. A ruffed grouse lives on the other side of the highway. Would the berry patch be a good source of food for the grouse? Why or why not?

Water - in the right amount and available for the animal to use without danger to itself.

in the right amount...

Water is needed by animals for drinking, bathing, and other uses. Different animals require different amounts. What is one reason ducks live in different habitats than grouse?

available without danger...

Would a backyard containing a birdbath guarded by a resident cat provide a suitable water source for a junco?



Cover - protects the animal from bad weather, provides a place to escape from predators, and a place to mate and raise young.

Cover describes the plants or landform providing an animal with protection. Different species require different types of cover. An individual animal also may require different types of cover during different parts of the year and for different purposes.

shelter from bad weather...

Chickadees, woodpeckers, and small owls roost in holes in dead trees to get out of the wind, snow, and cold of winter. A young forest usually contains few dead trees and most of these are too small for roosting cavities. Does a young forest provide these birds winter cover?

a place to escape from predators...

Ducks molt their wing feathers all at once each fall. During molting, they are unable to fly so they escape predators by swimming away. What kind of cover do ducks need during molting? (Hint - cover can be a landform as well as vegetation.)

a place to mate...

Ruby-crowned kinglets search for mates each spring by singing from a conspicuous songpost. Would a clearcut provide good cover for this species to search for mates?

and to raise young...

Cover for raising young is particularly important to animals because the survival of every species depends on successful reproduction. Golden-crowned sparrows lay white eggs and nest on the ground beneath grasses and shrubs. Why wouldn't they build a nest on a bare gravel bar?

Spotted sandpipers lay brown-speckled eggs that look like sand and gravel. Why does a gravel bar provide good nesting cover for them?



Space - An area must be large enough to supply adequate quantities of food, water, and cover to support the animal for the length of time the area is needed, and large enough to minimize conflicts between animals of the same species.

large enough to meet the animal's needs...

The amount of space needed by any animal varies between seasons, years, and habitats. Many birds require larger areas in winter than in summer because food is less abundant and shelter from weather is more important. In a year of drought, a sparrow may need a bigger area to survive since the bird may need to search a larger area to find enough food. A single tree might provide adequate cover and food for a migration stop, while several acres of trees might be needed during nesting.

to minimize conflicts...

Another reason animals need space is to avoid conflicts with other animals over food, water, or cover. Fighting with other animals wastes energy and time and may result in injury. Animals usually spread out to avoid contact and fights with others of the same species. Many birds defend areas (called territories) from other birds of the same species. Birds use songs to tell other birds where the edges of their territory lie. Different birds defend different size territories.

Territory size depends upon many things, such as the size of the bird. Sparrows defend much smaller territories than bald eagles because a sparrow can fulfill its needs for food, cover, and water in a smaller area. Territory size also depends upon the quality of the habitat and the density of the population within the habitat. When food, cover, nest sites, and nest materials are abundant, territories can be smaller than when such requirements are scarce or spread out.

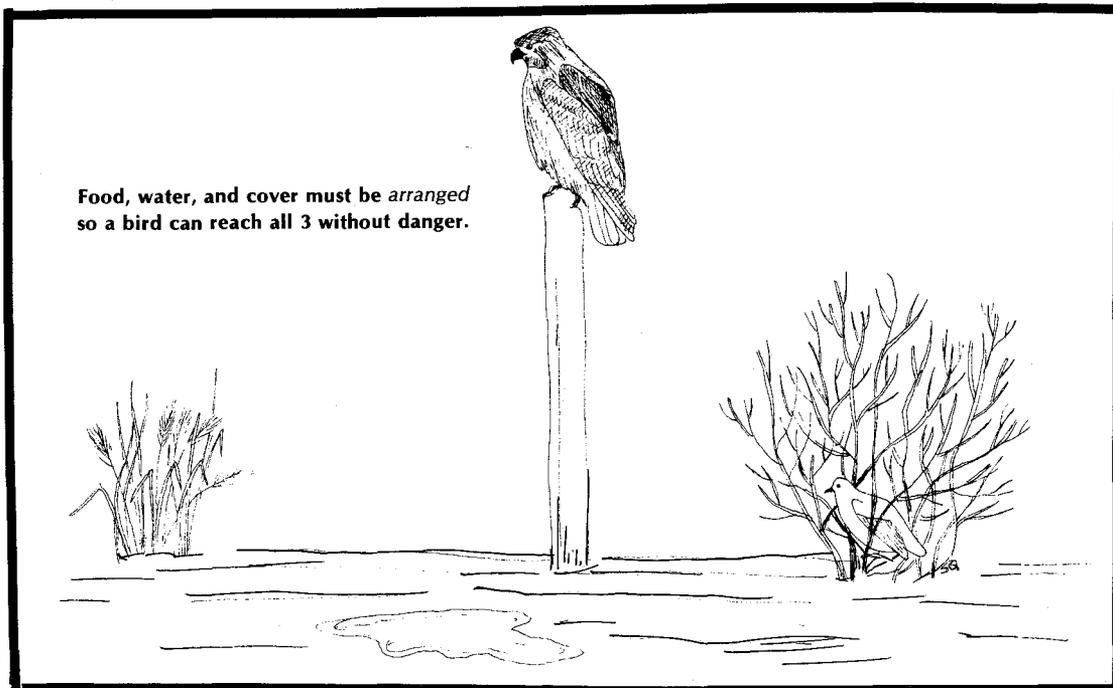


Arrangement - Unless food, water, and cover are all easily available, animals will not be able to use the area.

all easily available...

Travel over long distances requires energy and often exposes an animal to danger. Thus, animals prefer to live in areas where food, water, and cover are close together. Often if food, water, and cover are interspersed, an area can support more wildlife than if each necessity were supplied in a separate patch. This is known as the "edge effect."

A 50-acre forest provides good nesting and roosting sites and adequate water for a pair of northern goshawks. Imagine one such forest that contained few hares, grouse, or songbirds. If an open area nearby supported many hares, northern goshawks could still use the forest for nesting and hunt food near the forest opening. Together, the forest and opening would provide good habitat. But, if the open area with many hares were 2 miles from the forest with good nest sites, neither area would provide sufficient habitat for northern goshawks.

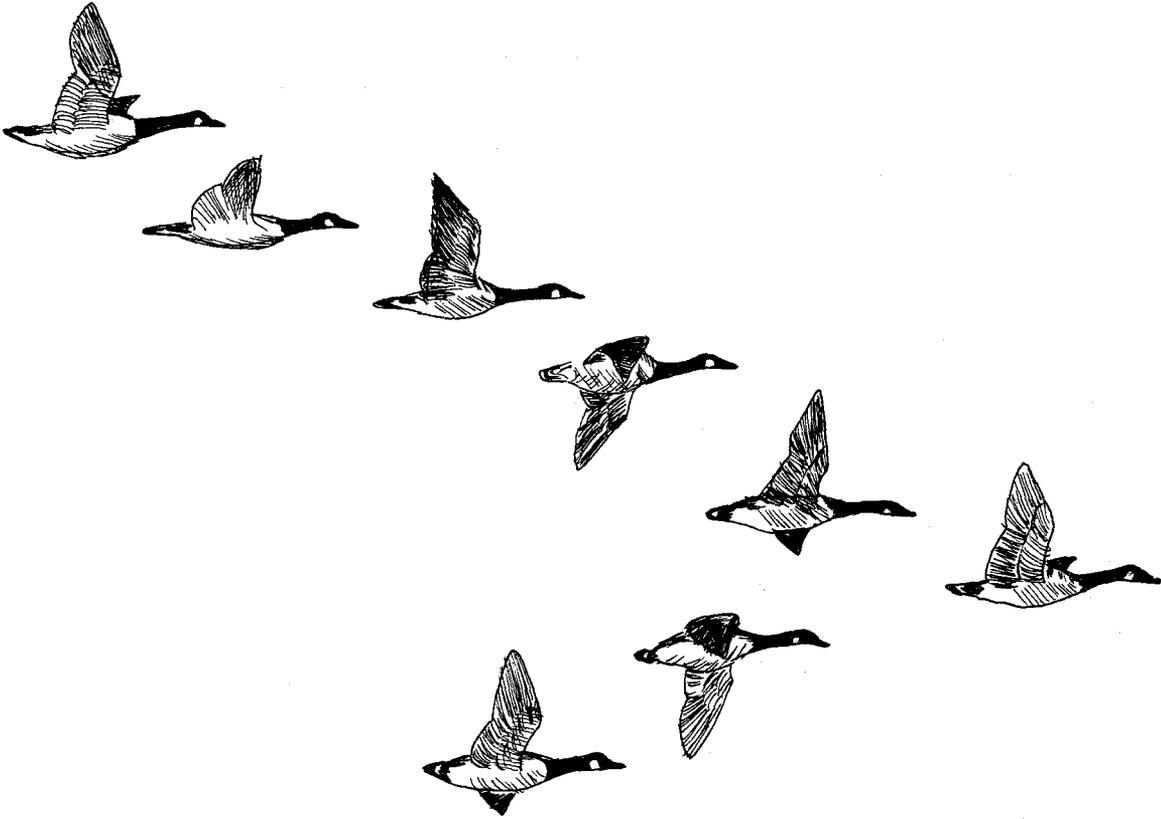


The diagram illustrates the importance of arrangement. Though less obvious than food, water, and cover, the arrangement of these necessities is equally important.

Activities

1. What are your habitat requirements? Think about the place where you live; does it supply the necessities of life to you?
2. Name some of the wildlife habitats around your home. What birds live in each one?
3. Think of your favorite bird. Find out its specific habitat requirements. Describe the food, water, cover, space, and arrangement requirements of the animal. What is the bird's habitat?





BIRD MIGRATION

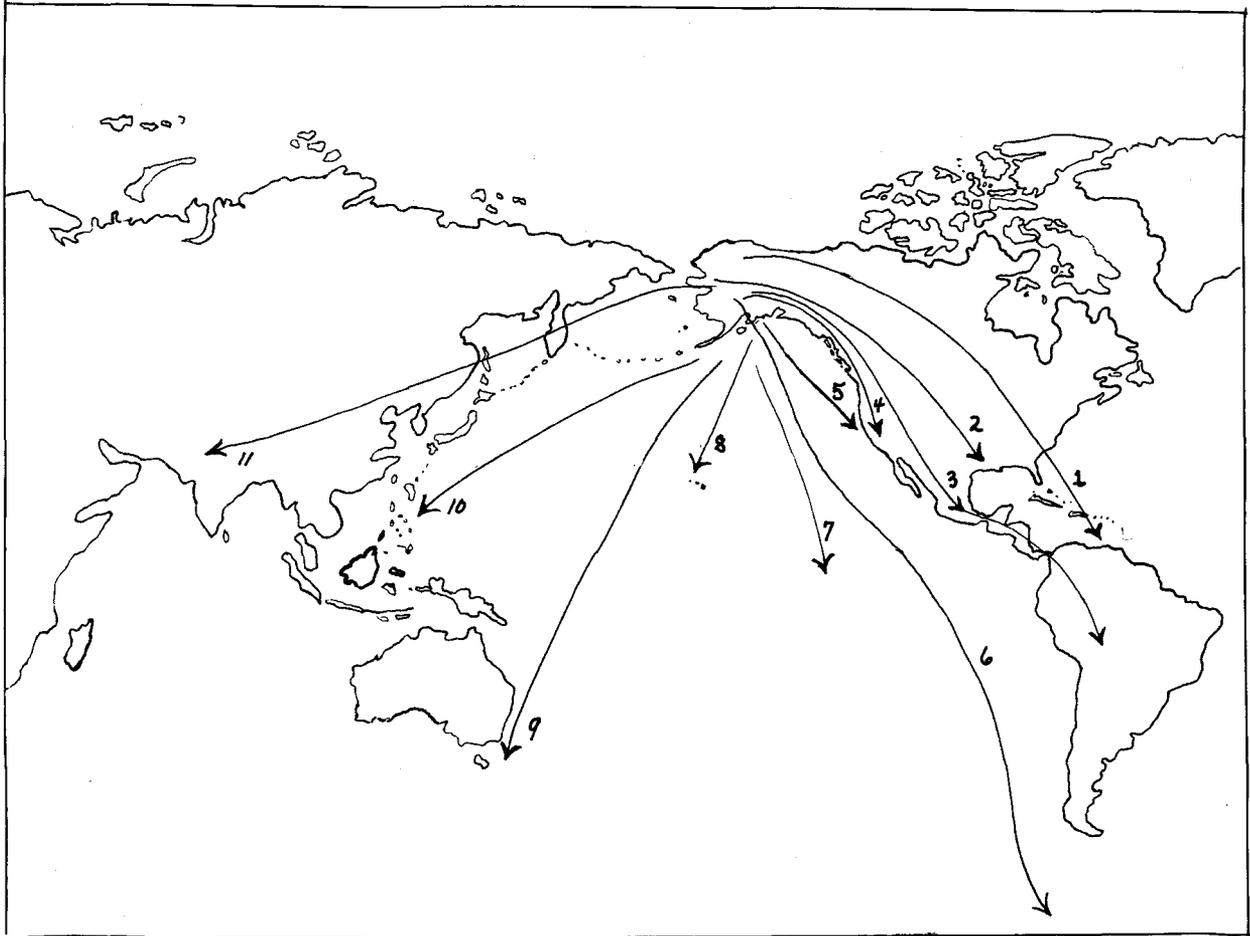
BIRD MIGRATION

Bird migration is one of the most fascinating and mystifying of natural occurrences. Of 325 regularly occurring birds in Alaska, over two-thirds migrate. Some, like willow ptarmigan, migrate only a few miles from mountain tops to more sheltered subalpine or forest areas. Other birds migrate thousands of miles. Arctic terns are the long distance migration champions; they migrate south from nesting areas at the northernmost tip of the United States--Barrow, Alaska--to winter in Antarctica, some 10,000 miles south. Each spring they return to Alaska, thus, making an annual trip of 20,000 miles. Even Alaska's smallest birds, rufous hummingbirds, migrate over 1,000 miles to winter in California and Mexico. All of Alaska's tiny warblers migrate long distances, too. Blackpoll warblers migrate to South America for the winter. Townsend's warblers winter along the west coast of North America from California to Central America, and Wilson's warblers make a long journey to Mexico and Central America. Several small Alaskan birds including the arctic warbler, yellow wagtail, and bluethroat migrate to Asia to winter. Golden plovers head to Hawaii and the West Indies, while the bar-tailed godwit migrates to the south Pacific. Most of Alaska's waterfowl head to the central valley of California or parts of Mexico, although the eiders, oldsquaw, scoters, scaups, and some other diving ducks spend their winter off the southern coasts of Alaska.

What causes birds to migrate? Clearly, birds leave Alaska in winter to visit places where the winter weather is warmer, water is open, and food, particularly insects, is more available. But most birds begin migrating south before the temperature drops or food is scarce. In addition, the 100 plus species that remain in Alaska during winter never get the urge to migrate. As a general rule, birds from the far north "leapfrog" past birds of their own species during migration to winter in areas farther south; thus, they travel farther than seems necessary to find better weather and food.

Scientists have found that in most birds the urge to migrate is caused by changes in day length. However, some birds like crossbills and waxwings migrate in some years but not others. Apparently, these birds get the urge to migrate only when the weather is exceptionally cold or food is scarce.

For many years, biologists have been trying to figure out how birds are able to find their way during migration. Different birds seem to use different methods, and even an individual bird may use different methods under different weather conditions or in different areas. Many birds use the moon, sun, and stars to find their way. Scientists have found that birds will try to migrate in the wrong direction in a planetarium if the pattern of sun, stars, and moon in the planetarium sky are changed. Many birds follow mountain ranges, sea coasts, and rivers during migration.

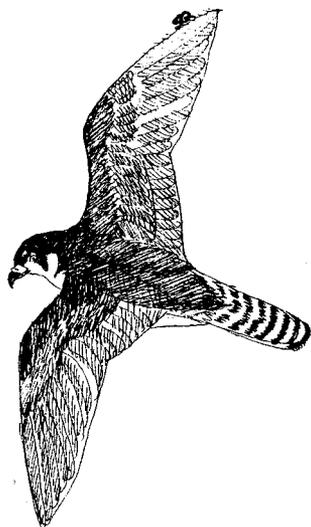


This map shows some of the bird migration routes from Alaska to other parts of the world. Can you name a bird that follows each route?*

- * 1. Semipalmated sandpiper, blackpoll warbler
- 2. Sandhill crane, peregrine falcon, some dabbling ducks
- 3. Swainson's hawk, buff-breasted sandpiper, violet-green swallow, western wood peewee, yellow warbler, Wilson's warbler
- 4. Northern pintail, mallard, American wigeon, greater white-fronted goose, long-billed dowitcher, tree swallow, orange-crowned warbler, yellow-rumped warbler, rosy finch
- 5. Red-throated loon, arctic loon, red-necked grebe, horned grebe
- 6. Arctic tern
- 7. Red phalarope, red-necked phalarope, Leach's storm-petrel
- 8. Golden plover, wandering tattler
- 9. Short-tailed shearwater
- 10. Bar-tailed godwit, bristle-thighed curlew
- 11. Wheatear, baird's sandpiper, yellow wagtail, arctic warbler

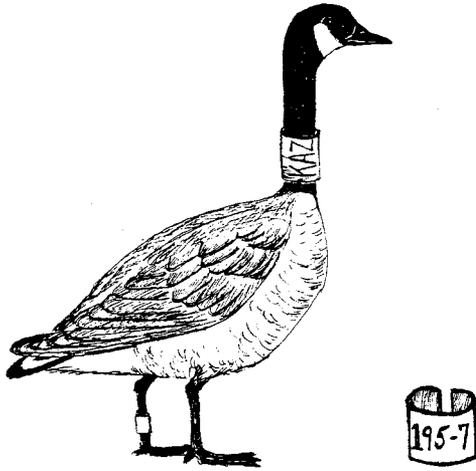
When clouds and bad weather obscure the sun, moon, stars, and landmarks, however, most birds are still able to navigate accurately. Some birds are able to detect changes in the earth's magnetic field and perhaps use this ability to keep on course. Sunspots and radar, which affect magnetic fields, are known to confuse some migrating birds. Other birds are able to detect very low frequency sounds over long distances. Low-frequency sounds, or infrasounds, are created by winds over mountain ranges and by pounding surf along a shore; possibly birds use these infrasounds to guide their migrations.

Most small birds like sparrows, warblers, and thrushes migrate mainly at night and stop during the day to feed and rest. Larger birds like raptors and herons often migrate by day. Loons, geese, gulls, terns, and shorebirds migrate at night and during the day. Most birds migrate at altitudes less than 7,000 feet, but migrating birds have been observed flying at altitudes over 20,000 feet. Most birds migrate at about 18 to 50 miles per hour. Most small perching birds travel at 18 to 25 miles per hour, while ducks and geese travel at 35 to 60 miles per hour. Migrating sandpipers have been clocked at 110 miles per hour, although 50 to 60 miles per hour is probably their usual speed.



Some birds (passerines, shorebirds, ducks, and geese) migrate in flocks, while other birds (particularly hawks and owls) often make the trip alone. Some species will flock only with other birds of the same species (waxwings, geese, and cranes) while other birds (shorebirds, thrushes, and warblers) may travel in flocks of mixed species. Flocking provides protection against predators and possibly a better chance of finding food, water, or cover.

Though birds may be able to survive winter better or find better places to nest by migrating, most migrations are difficult and hazardous journeys. During migration, thousands of birds are killed by storms and by flying into man-made obstructions like TV antennas, towers, skyscrapers, and lighthouses. In addition, as habitat change occurs rapidly throughout the world, migrating birds face more and more difficult times locating safe places to stop over to feed and rest. Drainage of potholes and marshes leaves migrating water birds without places to stop, while many forest areas that were once used by warblers and thrushes are now cities and farms with few trees.



Much of what is known about migration has been learned by banding birds. Leg bands with numbers are placed on birds so that individuals can be identified. Birds that are banded on the breeding grounds are recaptured during migration or on the wintering grounds (or vice versa), and thus, we learn where different birds go to nest and winter. Scientists have found that many birds go to almost the exact same places each year to nest and often go to the same wintering areas each year. In addition to leg bands, scientists also use neck collars and tags and sometimes dye birds' feathers so they can be identified from a distance.

Since birds travel across national and international boundaries, various agencies and treaties are responsible for their protection. Within the United States, the U.S. Fish and Wildlife Service protects migratory birds through Federal laws. International treaties with Canada and Mexico offer protection for some of the international travelers. By cooperating with other countries, governments can work to ensure that bird populations are carefully managed on both their nesting and wintering grounds.

Birds are not the only animals that migrate. Can you think of some others?*

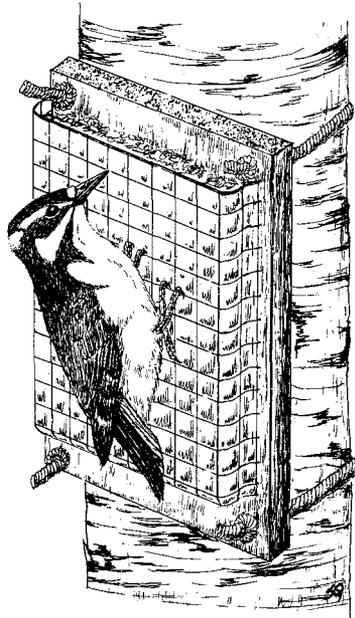
Activities

1. Name some of Alaska's resident bird species.
2. Find out when birds migrate through your area. Go out on a night with a bright moon and watch for birds flying across the moon. Other good places to watch for migrations are along ridges, coastlines, rivers and lakes, through mountain passes, along peninsulas, and from island to island.
3. Find out if anyone in your area bands birds. If so, ask him or her to give your club a presentation or find out if you could observe him or her banding birds.

*caribou, gray whales, humpback whales, salmon, and northern fur seals

HOW TO ATTRACT BIRDS

BIRD FEEDERS, BIRDHOUSES, AND LANDSCAPING



This chapter provides instructions for activities for you or your club to learn more about birds and attract them to your backyard or another area where people can enjoy them. These activities also benefit birds. You can do these activities by yourself: build a bird feeder or a birdhouse or plant trees and shrubs for wildlife in your backyard. Or, do these activities as a club project: build bird feeders to place around a nursing home or as gifts for senior citizens, build birdhouses to put up at a park or wildlife refuge, or landscape a park, fairgrounds, nursing home grounds, or any area for wildlife. More information on bird feeders, birdhouses, and landscaping for wildlife can be obtained from the Alaska Department of Fish and Game, Nongame Wildlife Program (1300 College Road, Fairbanks, AK 99701 or 333 Raspberry Road, Anchorage, AK 99503). Alaska Department of Fish and Game biologists may also be able to help your group plan a project to improve habitat for wildlife.

Building and Operating a Bird Feeder

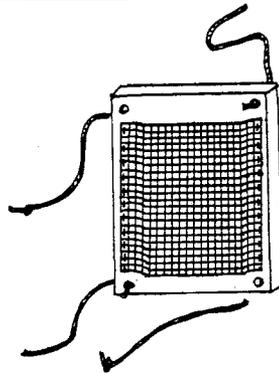
Bird feeding is a fun way to attract birds to an area where you can see and enjoy them. Some birds will visit feeders year-round once they are familiar with the location of a bird feeder, but birds are most easily attracted in winter. Bird feeders should be set up in late summer or early fall, so plan to build yours during that time of year.

There are two types of feeders, suet feeders and tray feeders. Build one of each type to attract the greatest variety of birds. Woodpeckers, chickadees, gray jays, and magpies use suet feeders. Chickadees, redpolls, pine grosbeaks, nuthatches, and jays use tray feeders.

Suet feeders - fill these with fat trimmed from beef, pork, moose, caribou, or other wild meat. Often butchers have extra suet they will give to you free or for a small price. Peanut butter can also be put in a suet feeder, but be sure to mix it with melted animal fat or vegetable oil and either rolled oats, cornmeal, or bird seeds because otherwise its sticky consistency may cause problems for some birds.

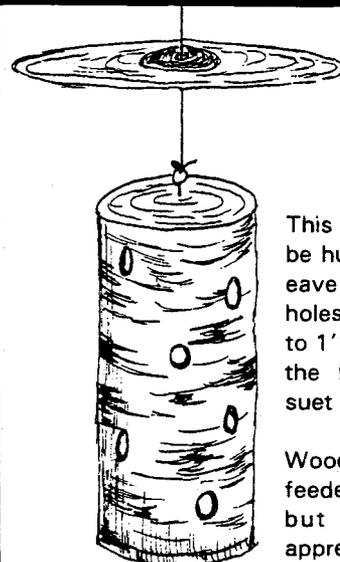
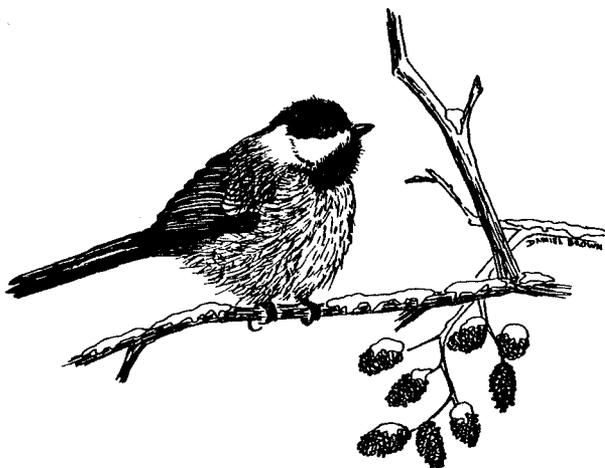


Fish net or old produce bags can be made into hanging suet feeders.



Staple 3 sides of a 8'' by 9'' sheet of ½'' hardware cloth* to a 6'' by 10'' board. Buckle the hardware cloth 1'' on the bottom and each side to form a 1'' deep pocket. Drill holes in the corners of the board for cords to go through. Fill the pocket with suet then tie the feeder on to a tree with the cords, 5 or more feet about the ground.

* In extremely cold weather, the tongues, eyelids, or feet of birds may stick to metal so plastic-coated hardware cloth may be preferable in western and central Alaska.



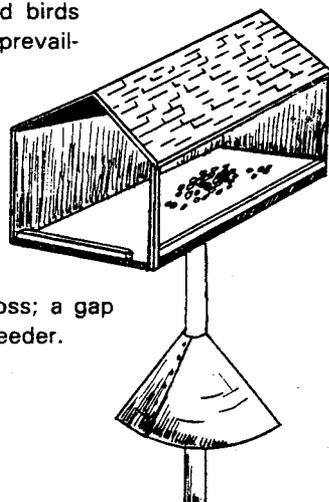
An old record or 2 may be used as a squirrel guard above a hanging feeder.

This birch log feeder can be hung from a tree or an eave near a window. 1½'' holes should be routed out to 1'' or more in depth. Fill the holes with suet, or suet and seed mixtures.

Woodpeckers will use the feeder without perches, but other birds will appreciate perches.

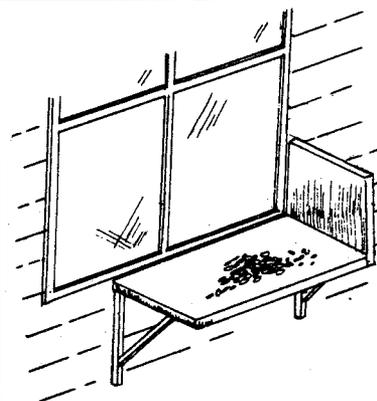
Tray feeders - fill these with seeds and/or food scraps. Unsalted sunflower seeds are popular with chickadees, downy woodpeckers, and pine grosbeaks, while smaller seeds may attract redpolls, juncos, pine siskins, and other finches. Table scraps attract Steller's jays and/or gray jays, magpies, crows, and often red squirrels. Never feed moldy food to birds as it may cause illness or death. Tray feeders should be cleaned and disinfected regularly. To prevent the spread of some bird diseases, do not spread food on the ground.

Enclose tray feeders with a roof and two or more walls to protect the seeds and birds from snow, rain, and prevailing winds.

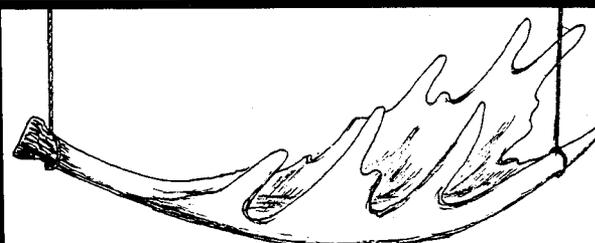


Use edging to prevent seed loss; a gap allows easier cleaning of the feeder.

An inverted aluminum cone can be used to prevent squirrels from climbing the pole to a tray feeder. If trees or shrubs are nearby, however, squirrels will leap onto the feeder.



A window feeder allows close-up bird-watching. Place a wall on the feeder to protect seeds and birds from prevailing winds.



An inverted moose antler hung from an eave makes a picturesque feeder.

Where to Place Feeders

Birds need protection from wind and predators. They need perches to use while waiting to use the feeder, so try to place your feeder near trees or shrubs. Put your feeders where you can see them from a window so you can enjoy the birds that visit. Be sure to keep your feeder stocked with food during fall, winter, and spring to ensure that the birds attracted do not die from starvation. If you go on vacation, get someone else to take care of your feeders while you are gone.



Landscaping for Birds

How to Plant Food and Cover for Birds

Habitat for native birds and small mammals can be created by supplying the necessities of life: food, cover, water, and space in the proper arrangement. Different species require different kinds and quantities of these necessities. Seed-, berry-, and insect-eating birds that need only small areas to live are the species whose needs can be most easily provided for by landscaping Alaska's communities.

Backyards, school, office, hospital and nursing home grounds, local parks, shelterbelts, fence rows, and abandoned fields can all be landscaped for wildlife. No area is too small for landscaping--if one of every 10 Alaskans created enough habitat for a least one pair of birds, our communities would be alive with beauty, movement, and song.

By following the simple steps in this chapter, you can make your community a more pleasant place for people and a better place for Alaska's birds.

Six steps to creating wildlife habitat:

1. Select an area.
2. Find out what wildlife and plants occur nearby.
3. Select plants adapted to your location that attract wildlife.
4. Prepare a landscape design.
5. Obtain plants, cuttings, seedlings, or seeds--then plant your own wildlife refuge.
6. Add water and bird feeders, nest boxes, or other features to meet special wildlife needs.

1. Select an area.



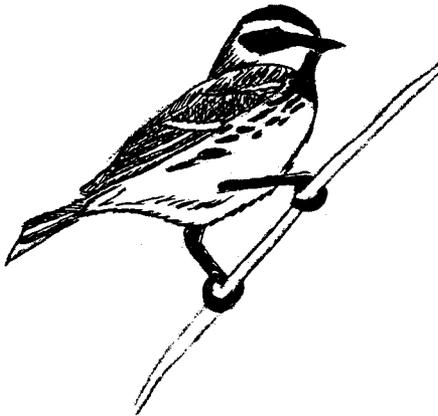
Small yards in the middle of cities can be easily landscaped to attract songbirds.

ANY AREA—LARGE OR SMALL—can be modified to create a better home for wildlife. The larger the area, the greater variety of wildlife may be attracted, but no area is too small. Several small landscaped yards combined will attract as great a variety of wildlife as a single large area—so neighbors may want to cooperate. Landscaping a local area—such as a park or nursing home grounds—would make a good service project for a club.

Make a drawing of the area you choose, including locations of buildings, powerlines, and any trees or shrubs already present. Imagine a seed-, insect-, or berry-eating bird visiting the area—could they find food? Water? Places to escape predators, or nest?

Make a list of the food, water, and cover already available, if any. Does any wildlife use the area now?

2. Find out what wildlife and plants occur nearby.



Make a list of the birds, mammals, and amphibians that occur in your local area, and try to learn a little about which plants they use for food and cover. Local biology teachers, Alaska Department of Fish and Game biologists, U.S. Fish and Wildlife Service staff, or a local Audubon Society can help you find out what wildlife occurs in your area and tell you some of the plants they use.

These are the animals you can expect to attract to the area you landscape. Animals that are rare or do not occur nearby are unlikely to be attracted.

3. Select plants adapted to your location that attract wildlife.

To create wildlife habitat, you must provide food, cover, and water. Plants provide food and cover to most animals. Select plants that (a) occur or will grow in your region, (b) are suitable for the soil, moisture, and climatic conditions at your site, and (c) provide food or cover for wildlife. You can attract the greatest variety of wildlife by planting several kinds of plants, since different plants provide different types of food and cover.

FOOD —CHOOSE A VARIETY of seeds and berry producing plants. White spruce trees provide seeds for crossbills and pine siskins, while redpolls prefer alder or birch seeds, and bohemian waxwings eat mountain ash berries. Similarly, snowshoe hares eat willow shoots, while a flying squirrel prefers spruce seeds and mushrooms. Insect-eating birds and mammals are also attracted by landscaping with a variety of plants, because many insects live on plants. If possible, avoid using insecticides, as these may be harmful to wildlife.



COVER — Food is of little value unless “cover”—places for nesting, escape from predators, and protection from bad weather — is also provided. Again, different species require different sorts of cover. Tall spruce trees provide nesting cover for Townsend’s warblers, but white-crowned sparrows nest on the ground and need the protection of low shrubs and herbaceous plants. Wilson’s warblers prefer to feed and nest in shrubs of medium height such as willow. You can attract the greatest variety of birds by planting patches of herbs, shrubs, and trees together so that distinct layers of tall, medium, and low vegetation are available.

Examples of plants that provide food and cover for Alaskan wildlife:

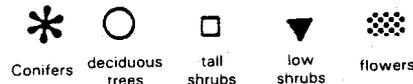
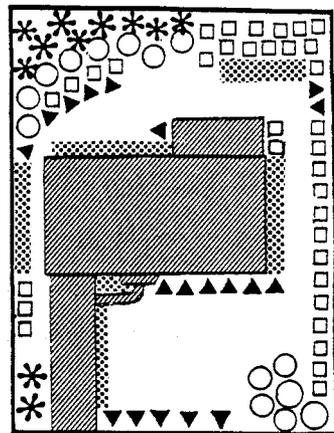
<u>Trees</u>	<u>Tall Shrubs</u>	<u>Low Shrubs</u>	<u>Ground Covers and Herbaceous Plants</u>
White Spruce	Willow	Willow	Dwarf Dogwood
Sitka Spruce	Alder	Dwarf Birch	Kinnikinnik
Larch	Mountain Ash	Wild Currant	Mountain Cranberry
Birch	Highbush Cranberry	Raspberry	Jacob's Ladder
Balsam Poplar	Chokecherry	Wild Rose	Buttercup
	Lilac	Common Juniper	Geranium
		Bush Cinquefoil	Aster
			Mountain Avens
			Larkspur
			Dock (sorrel)
			Artemisia

4. Prepare a landscape design.

Using the diagram you drew in STEP 1, draw several alternative landscapes. When possible, plant strips, patches, or clumps of trees, shrubs, or herbs. Always plant more than one individual plant of each species, and plant a variety of species. Incorporate any trees or shrubs already present by planting new plants around them. Remember to create distinct layers of vegetation including a tree, tall shrub, low shrub, and herbaceous layer. Be sure to include open meadows or lawns as this type of area is also used by wildlife (robins and swallows, in particular).

FOOD, COVER, and WATER must be interspersed. If food is in one corner of the yard, cover in the other, and water on the other side of a building, few species will be attracted. Place food, cover and water close together.

IN CHOOSING YOUR FINAL DESIGN consider the appearance of your arrangement. Intersperse plants that bloom or turn colors at different times. Avoid planting trees below powerlines, or in front of windows where they may block a desired view. If you are landscaping a yard or the grounds of a hospital, office, or other building, design the area so that visiting wildlife will be visible from the windows. Place tall trees and shrubs behind low shrubs and herbaceous plants, so that wildlife using low vegetation will be visible, also.



5. Obtain plants, cuttings, seedlings, or seeds—then plant your own wildlife refuge.

Check with local greenhouses to find out what plants, seedlings, cuttings, or seeds you can obtain locally. Also, check with the University of Alaska Cooperative Extension Service for a list of greenhouses and companies that stock native plants. Those plants that cannot be obtained commercially can be obtained from the wild, either by transplanting or by collecting cuttings or seeds. More information on transplanting and collecting cuttings and seeds can be obtained from the Alaska Wildlife Watchers Report Vol. 1 No. 2, which is available from the Alaska Department of Fish and Game.

6. Add water and bird feeders, nest boxes, or other features to meet special wildlife needs.

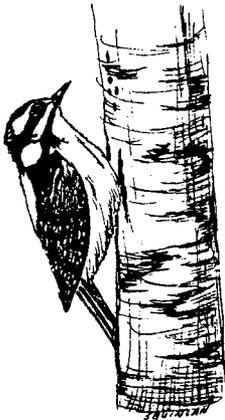
In addition to planting, you can make your area more attractive to wildlife by meeting other wildlife-habitat requirements. All species require water in addition to food and cover, and many species have special habitat requirements. If you are interested in attracting a certain species that occurs in your area, take time to research the animal's specific habitat requirements to find out if you could provide the particular food or cover it requires. Below are a few examples of features you can add to make the area you landscaped even more attractive to wildlife. These features can also be used to enhance areas that already attract wildlife.

WATER—Water is a necessity for wildlife. Though small birds can obtain drinking water from dew, rain, snow, and their foods, they use open water for drinking and bathing. Small pools of water on the ground may be more attractive than elevated bird baths, but birds are more exposed to roaming cats when bathing on the ground.

Land with natural or artificial ponds can be modified to attract a variety of wildlife associated with open water including frogs, ducks, and shorebirds. If you own a large parcel of land, you may wish to create a pond for wildlife. The feasibility of this will depend on the particular soil type, slope, local climate, and amount of money you want to invest. In general, ponds with shallow, gentle-sloping shorelines and of irregular shapes provide the best wildlife habitat. Logs and rocks along the pond edges, as well as small islands offshore, will enhance the value of the pond to wildlife. Thick grasses and shrubs along part of the pond will provide nesting and roosting cover for some birds.

BIRD FEEDERS — While you wait for trees and shrubs to grow, a bird feeder can attract a variety of birds particularly during winter. See ADF&G's Alaska Wildlife Watcher's Report Vol. 1, No. 1 for more information on bird feeding in Alaska.

SNAGS AND NEST BOXES —Dead trees, or snags are often cut down as they are presumed to be of no value. However, snags provide feeding and drumming sites for woodpeckers, songposts for a variety of birds, and hunting perches for owls and hawks. Woodpecker holes and cavities in snags provide nest sites and shelter from wind, snow and cold during winter for many birds and small mammals. Thus, dead trees should be left standing whenever possible, particularly snags 6 inches or more in diameter and any containing cavities. If no dead trees occur in your area, nest boxes can provide suitable nesting and roosting sites for some species.



CHICKADEES, WOODPECKERS, SMALL OWLS, SWALLOWS, NUTHATCHES, AND SOME WATER-FOWL nest in tree cavities and will sometimes use nest boxes. Nest boxes are most valuable if built the proper size, placed at the correct height, and faced in the right direction.

SAY'S PHOEBES, CLIFF SWALLOWS, and ROBINS will sometimes use small ledges placed under eaves of bridges.

See ADF&G's Alaska Wildlife Watcher's Report Vol. 1, No. 3 to learn how to construct and place nest boxes and ledges for Alaskan birds.

SONGPOSTS provide birds places to perch above other vegetation where they can see large areas, sing, be conspicuous, and detect predators. Fenceposts, clotheslines, or any pole will be used by singing birds, particularly in areas where shrubs and trees are sparse. Songposts should stick up one foot or more above surrounding vegetation.

ESCAPE COVER can be provided by a brush pile, a pile of rocks, or a log. **DARK-EYED JUNCOS** and snowshoe hares are particularly attracted by brush piles. In treeless areas, almost any sort of protection from wind will attract birds. A discarded Christmas tree can provide valuable cover.

GRIT provided by a patch of sand or gravel will often attract seed-eating birds like **PTARMIGAN, GROSBEAKS, SPARROWS, and CROSSBILLS**.

MUD PUDDLES will be used in spring by **CLIFF SWALLOWS**, if they are placed in open areas near buildings or cliffs where these birds can build their mud nests.

Homes for Birds—How to Build a Birdhouse

Chickadees, swallows, small owls, woodpeckers, nuthatches, and some waterfowl use tree cavities for nesting and roosting. Tree cavities are formed by tree decay and woodpeckers. Woodpeckers are only able to excavate cavities in dead and dying trees called snags. These trees are only found in recently burned areas and old forests. Many people do not realize the value of snags to wildlife and often cut them down. Snags with cavities are particularly rare. Thus, cavity-nesting birds are often unable to find nest sites and can be easily attracted by artificial cavities or nest boxes.

Though nest boxes provide alternate nest sites for some cavity-nesting birds, they are not suitable replacements for snags. Why? Because in addition to providing nest sites, snags provide feeding and drumming sites for woodpeckers, songposts for a wide variety of birds, hunting perches for hawks and owls, and hawking sites for flycatchers. Of the 30 cavity-nesting bird species in Alaska, only 21 will use nest boxes. Some mammals, including marten, porcupine, bats, bushy-tailed wood rats, and flying squirrels also use cavities in snags, but few will use nest boxes. Thus, snags should be left standing whenever possible.

You can attract the 21 species of Alaskan birds that will use nest boxes by building, placing, and maintaining birdhouses in your backyard, a local park, or wildlife refuge. When you build birdhouses, remember that well-built nest boxes benefit birds, but improperly built or maintained ones can become death traps.



Important things to remember when you build a birdhouse:

1. Build a house for a specific bird.

Build a birdhouse for a cavity-nesting bird that occurs in your region and lives in the habitat in which you plan to put a birdhouse. (See birdhouse dimension table to select a species.)

Build the right size house and hole dimensions. Different species of birds require different sized houses and entrance holes. Inside dimensions must be large enough to accommodate the incubating bird and a brood of growing young. Entrance hole size is especially important. If the hole is too small, the bird you built the box for won't be able to get inside. If the hole is too big, predatory birds and mammals will be able to get inside and reach the nest and cavity-nesting birds may not use the house.

2. Use the proper materials.

Wood is the best material for birdhouses. Other materials (like metal or plastic) may not insulate the nest enough, so eggs or young could become chilled in cold weather or over-heated in warm sunny weather. Use rough-cut wood slabs, tree sections, or 3/4-inch plywood. Never use creosote-treated wood as creosote may kill the eggs or chicks.

Use galvanized nails as these will not rust. Birdhouses need not be painted, but the box may last longer if you paint the outside. Never paint the inside of a birdhouse. If you paint the outside, use dull (not bright or glossy) colors that blend in with the surroundings. Nest boxes that don't match the vegetation may be easier for predators to find.

3. Build a box that will stay dry and warm.

Place the roof of a birdhouse at a slight angle and extend it over the sides and front of the box. In this way, the roof will shed rain or snow and protect the entrance hole and sides from dripping water.

Drill four, 1/4-inch holes in the floor of the box to provide drainage if water seeps in.

The sides of a nest box should extend down beyond the floor so water won't leak in.

4. Provide ventilation.

Drill small holes (1/8 to 1/4-inch diameter) through each side of the birdhouse just below the roof. This will provide better air circulation.

5. DO NOT add perches.

Perches allow predatory birds (like jays, magpies, ravens, and crows) better access to the eggs and young in a nest box. In contrast, cavity-nesting birds rarely use perches and prefer cavities without perches.

6. Be sure young birds will be able to leave the nest.

Roughen the inside of the nest box below the entrance hole or attach a sheet of 1/4-inch galvanized wire mesh, so fledging young can climb out easily.

7. Provide woodpeckers, waterfowl, and owls with nest material.

Many cavity-nesting birds will add their own nest material, but the species listed above prefer nest boxes with 2-3 inches of dry sawdust or woodchips in the bottom.

8. Place the box carefully.

Put your birdhouse up on a sturdy pole, post, tree, or under a house eave. Freely swinging birdhouses are rarely used. Be sure to place the birdhouse at the proper height and in the right habitat for the bird you want to attract (use the information provided in this booklet). Face the entrance hole away from prevailing winds.

9. Don't overcrowd an area with nest boxes.

Most cavity-nesting birds defend territories, so don't overcrowd an area with nest boxes for a single species. Usually, nest boxes should be placed 50 feet or more apart. Swallows however, will tolerate neighbors and will sometimes nest in "apartment" birdhouses.

10. Build your nest box so that it is easily maintained.

Construct the birdhouse with a roof or floor that is easily removed so that you can easily reach inside to clean it.

11. Maintain your nest boxes.

Nest boxes should be cleaned out each spring and disinfected to prevent the spread of avian diseases. Be sure to dry the inside and (if necessary) add fresh, dry sawdust or woodchips.

BIRDHOUSE DIMENSIONS FOR ALASKA'S CAVITY-NESTING BIRDS. Build a birdhouse for a species that occurs in your region and lives in the habitat in which you plan to place the house. Check the information on the following page to see what habitat the bird prefers. The right size house won't attract the desired bird if it's placed in the wrong habitat.

Species	Alaska Nesting Distribution					Habitats Used	Height	Size of Birdhouse Preferred (Inside dimensions in inches)		
	NO	WE	SW	SC	SE			Entrance Hole	Width	Height of Hole Below Roof
Bufflehead	X	X	X	X	X	A	16	7	2-7/8	2-3
Common Goldeneye		X	X	X	X	A	24	12	4 x 5*	2-4
Barrow's Goldeneye		X	X	X	X	A	9-52	6-9	3-4	2-3
Common Merganser		X	X	X	X	A	33-40	9-11	5**	2-10
American Kestrel			X		X	B	12-15	8	3	3
Boreal Owl		X	X	X		C	9-18	6-7	2½ x 4½-5	2-3
Saw-whet Owl			X		X	C,D	9-18	6-7	2½	2-3
Northern Flicker			X	X	X	B,C,E	16-18	7	2½	2
Hairy Woodpecker			X	X	X	C,E	12-15	6	1½	3
Downy Woodpecker			X	X	X	C,E	8-10	4	1¼	2
Violet-green Swallow		X	X	X	X	A,B	6	5	1½	1-4
Tree Swallow		X	X	X	X	A,B	6	5	1½	1-4
Black-capped Chickadee		X	X	X	X	C,E	8-10	4	1-1/8	2
Gray-headed Chickadee		X	X	X	X	C	8-10	4	1-1/8	2
Boreal Chickadee		X	X	X	X	C,D	8-10	4	1-1/8	2
Chestnut-backed Chickadee		X	X	X	X	C,D	8-10	4	1-1/8	2
Red-breasted Nuthatch		X	X	X	X	C,D	8-10	5	1-1/8	2
Mountain Bluebird			X	X	X	B	8	5	1-3/4	2
Snow Bunting		X	X	X	X	F	8	5	1½-2	6

Keys: Nesting Distribution

NO = Northern
 WE = Western
 SW = Southwestern
 SC = Southcoastal
 CE = Central
 SE = Southeastern

Birdhouse Shape

* Rectangular
 ** Square
 *** Elliptical

Habitats Used

A = Near lake, river or stream in forested area
 B = Open areas (forest opening, recent burned over forests, clearcuts, agricultural areas)
 C = Mixed hardwood-conifer forest
 D = Coniferous forest
 E = Deciduous forest
 F = Tundra areas

Placing Birdhouses

Birdhouses should be placed in fall or winter, if possible. Swallows may use nest boxes set out during late May or early June, but owls, chickadees, and woodpeckers begin looking for nest sites during February, March, and April. Always face the birdhouse so the entrance is protected from prevailing winds.

Waterfowl nest boxes must be placed on secluded posts or trees within 100 feet of lakes, ponds, or streams with surrounding dead trees or forests. Since young ducklings must walk to the water, place the nest box where there are no major obstacles (like roads or fences) between the nest box and open water. Mergansers prefer to nest on small islands. Buffleheads and common mergansers will use nest boxes a few inches to a few feet above ground or water, but nest boxes on the ground are likely to be raided by foxes, weasels, or other predators. Common and Barrow's goldeneye nest boxes should be placed 15-20 feet above the ground or water.

Kestrel nest boxes should be placed at the edge of a forest area or on a post in an open area 12-20 feet above the ground.

Boreal Owls prefer mixed spruce-hardwood forests, while saw-whet owls prefer to nest near the edge of spruce or deciduous forest groves.

Woodpecker nest boxes should be placed 6-20 feet above the ground, though hairy woodpeckers prefer nest sites 12 feet or more above the ground. Northern flickers nest in open areas and open park-like areas while hairy and downy woodpeckers prefer deciduous open forests.

Chickadee nest boxes should be placed on trees in wooded areas. Boreal and chestnut-backed chickadees prefer coniferous forests, while black-capped chickadees prefer deciduous woods. Chickadees nest 6-15 feet above the ground. Sawdust or woodchips may be placed in the bottom of chickadee nest boxes. Chickadees prefer split-log nest boxes.

Nuthatch nest boxes should be placed 6-20 feet above the ground on a tree in mixed coniferous-hardwood forest. Nuthatches prefer split-log nest boxes.

Bluebird nest boxes should be placed in open areas like field edges on poles or fence posts 5-10 feet about the ground. This bird is found in only a limited area of east-central Alaska and cannot be attracted in other areas.

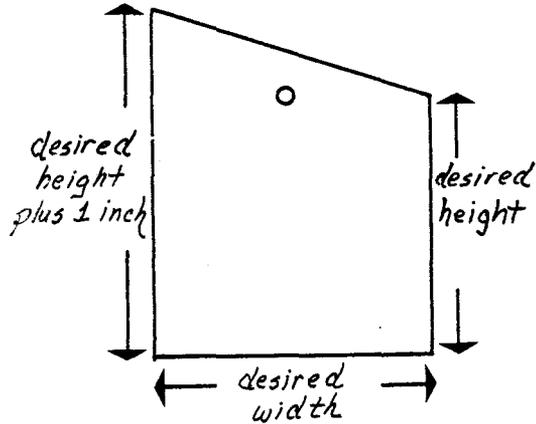
Swallow nest boxes should be placed in open areas including cities, field edges, open forests, lawns, or gardens. Place the boxes 10-20 feet above the ground on posts, trees, or beneath house eaves.

Snow Bunting nest boxes can be placed almost anywhere in tundra habitats. Snow buntings will nest in boxes on the ground, on posts, or on a house in alpine, wet, or moist tundra areas. However, nest boxes on the ground may allow easy access to predators.

Dimension-Board Construction:

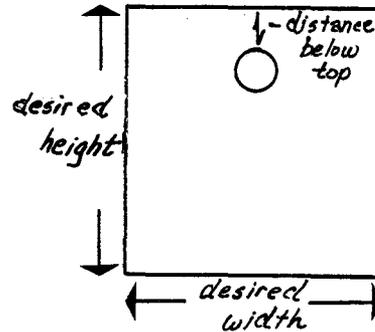
Saw 3/4-inch boards to the appropriate sizes and shapes.

1. Sides (Cut 2)



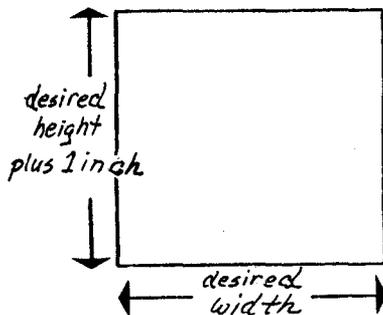
Cut the top edge of the side boards at an angle so the roof can be pitched. Drill 1/8-inch ventilation holes on each side about 1 inch from the top edge.

2. Front (Cut 1)



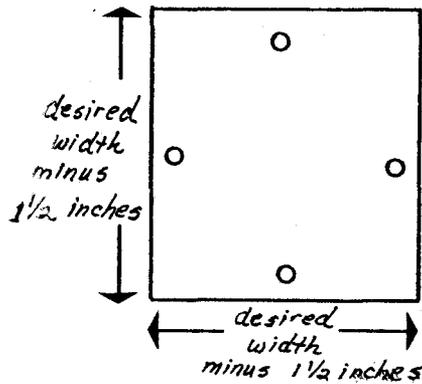
Cut the proper size entrance hole at the correct distance below the top. Roughen the board below the entrance or attach 1/4-inch mesh screen so that young birds will be able to climb out. Be sure to bevel the top so the roof will fit properly.

3. Back (Cut 1)



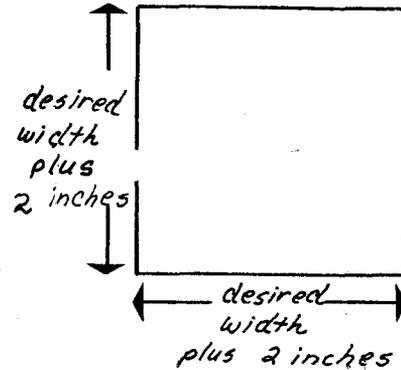
The backboard must be 1 inch taller than the front to allow a sloped roof. Be sure to bevel the top of the board so the roof will fit properly.

4. Bottom (Cut 1)

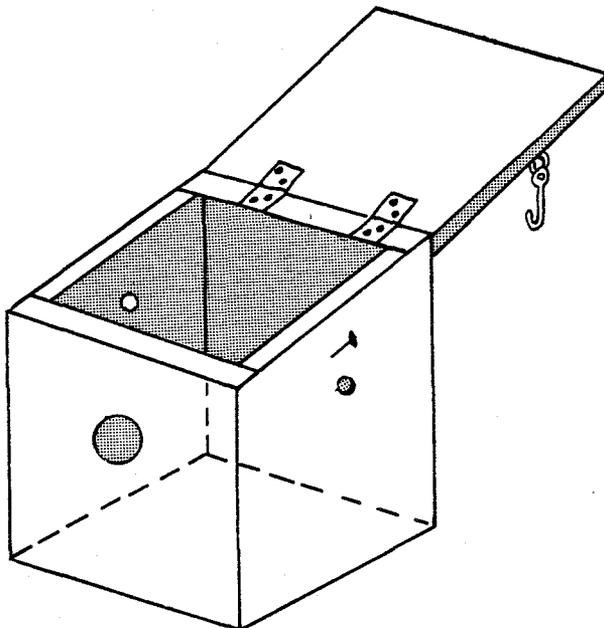


The bottom must be $1\frac{1}{2}$ inches smaller than the width and depth of the box, if you use $\frac{3}{4}$ -inch boards. Larger or smaller boards will alter the size slightly. When the box is constructed, the bottom should be surrounded by the other boards to prevent water from seeping in. Drill $\frac{1}{8}$ -inch drainage holes about 1 inch from the edge on each side.

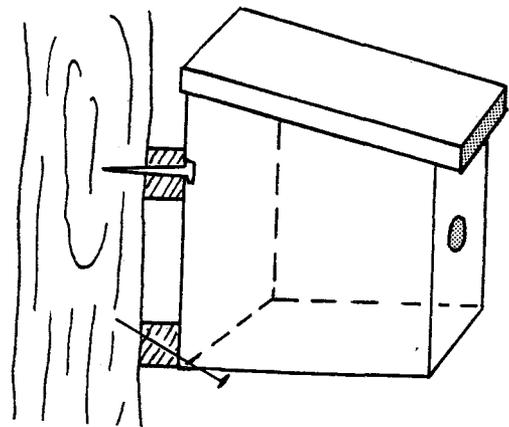
5. Roof (Cut 1)



Cut the roof large enough to overlap all four sides by 1 inch.



Nail the box together so that the bottom board is enclosed by the four sides. Hinge the roof on one side so that it extends beyond the edges of the four sides of the nest box. Place a latch on the roof so predators won't be able to pry the box open.



Attach the nest box to a post, tree, or house using a lag bolt and spike nail. The spacing blocks will allow you to open the box easily.

SUGGESTED REFERENCES

Alaska Department of Fish and Game. Wildlife Notebook Series.

Copies can be obtained individually or as a complete set from Alaska Department of Fish and Game (ADF&G) Offices, or ADF&G, Public Communications Section, P.O. Box 3-2000, Juneau, AK 99801. [This is a series of 1-page information sheets on many Alaskan birds. Each sheet includes a pen and ink drawing and basic information on size, life history, and habitat needs of the species. Currently, the series includes: accipiters, geese, Canada goose, eiders, swans, eagles, loons, puffins, plovers, gulls, woodpeckers, grouse, hawks, ptarmigan, sparrows.]

Arctic Audubon Society. 1981. Birds of Alaska Coloring Book. 40pp.

Available for \$3.00/copy plus \$1.00 postage from Arctic Audubon Society, P.O. Box 82098, Fairbanks, AK 99708. [Nice line drawings of species of Alaskan birds with short narrative on bird's identification and habits. Short introductory material on birds in general, and color key to drawings in back.]

Armstrong, R. H. 1980. A Field Guide to the Birds of Alaska. Alaska Northwest Publishing Co., Anchorage, AK. 309pp.

Available from publishing company and bookstores. [This book provides color photos of all regularly occurring birds and interesting notes on their life histories and habits. A revised 1983 edition includes recent bird name changes.]

Bellrose, F. C. 1976. Ducks, Geese, and Swans of North America. Stackpole Books, Harrisburg, PA. 543pp. [Details on the life history of waterfowl with good illustrations of various species.]

Gabrielson, I. A., and F. C. Lincoln. 1959. Birds of Alaska. Stackpole Books, Harrisburg, PA. 922pp. Out of print.

Check your library. [Provides pictures and detailed information on the bird's occurrence in Alaska and general life history notes.]

Gibson, D. D. 1983. Checklist of Alaska Birds. University of Alaska Museum.

A fold-out brochure available for 25¢ from University of Alaska Museum, 907 Yukon Drive, Fairbanks, AK 99701. [Lists common and scientific names of all birds seen in Alaska up to 1983.]

Hines, B. 1978 Ducks at a Distance--a Waterfowl Identification Guide. U.S.D.I. Fish and Wildlife Service.

Available for \$4.00 from the Supt. of Documents, U.S. Government Printing Office, Washington, DC 20402; Stock No. 024-010-00442-8. [This handy booklet is just right for students to use on field trips to wetland areas. Good color illustrations and short, easy to read text make duck identification easy. Also pictures other birds that frequent marshes.]

Johnsgard, P. A. 1981. Those of the Gray Wind: The Sandhill Crane. St. Martins Press, New York, New York.

[Accurate but fictionalized story of sandhill crane migration from nesting areas in the arctic to winter areas in Texas. Good reading for upper elementary or junior high students.]

Lincoln, F. C., S. R. Peterson, P. A. Anastasi, and B. Hines. 1979. Migration of Birds. U.S. Fish and Wildlife Service Circular No. 16. 119pp.

Available for \$6.00, Stock No. 024-010-00484-3 from U.S. Government Printing Office, Washington, D.C. 20402. [An excellent reference on how birds migrate including how biologists have studied bird migration, specific examples of bird migration routes, color illustrations, and maps.]

National Wildlife Federation. 1973. Birdwatching with Roger Tory Peterson. 16pp.

Color brochure on bird identification, including information on identification and habitats. Available from National Wildlife Federation, 1412 16th Street, N.W., Washington, D.C. 20036. Single copy is free.

Peterson, R. T. 1961. A Field Guide to Western Birds. Houghton-Mifflin Company, Boston. 309pp.

Available from publisher and bookstores. [Provides paintings of Alaskan and other U.S. birds and information on their life histories, identification marks, and where the birds live in summer and winter. Good source for migration information.]

Quinlan, S. E. 1984. Alaska Wildlife Week Education Packet-Unit 2: WATER, WETLANDS & WILDLIFE. Alaska Department of Fish and Game--Nongame Wildlife Program and Public Communications System.

Includes games and group activities related to birds. Available at school libraries throughout Alaska.

Robbins, C. S. B. Brunn, and H. S. Zim. A Guide To Field Identification: Birds of North America. Golden Press, New York. 340pp.

Available from libraries and bookstores. [One of the best field guides for beginning bird enthusiasts. Color illustrations, maps, and descriptions of birds of North America. A new 1983 edition includes revisions of bird names and distribution.]

Terres, J. K. 1980. The Audubon Society Encyclopedia of North American Birds. Alfred A. Knopf, New York. 1109pp.

Available from the publisher or bookstores. Check your library. [This volume has excellent color photos of most Alaskan birds and detailed, easy to read accounts of each species' habits and life history. The encyclopedia also explains nearly every concept and term of ornithology. Subjects are in alphabetical order.]

Birdsong Records

Bird Songs in Literature. 12 inch record. No. R19 available for \$4.25 from The Crow's Nest Bookshop, Laboratory of Ornithology, Cornell University, 159 Sapsucker Woods Road, Ithaca, New York 14850. [Songs of 50 birds accompany the poems and prose of inspired writers.]

Dawn in a Duckblind. 10 inch record. No. R28. available for \$5.25 from The Crow's Nest Bookshop, Laboratory of Ornithology, Cornell University, 159 Sapsucker Woods Road, Ithaca, New York 14850. [Colorfully pictured book album records the familiar ducks and waterbird species. Many Alaskan species.]

Field Guide to Western Bird Songs. 12 inch record. Three record set to accompany Roger Tory Peterson's Field Guide to Western Birds. No. R6 available for \$27.50 from The Crow's Nest Bookshop, Laboratory of Ornithology, Cornell University, 159 Sapsucker Woods Road, Ithaca, New York 14850. [Songs of over 500 species.]

Songs of Western Birds. 12 inch record. No. R5 available for \$4.50 from The Crow's Nest Bookshop, Laboratory of Ornithology, Cornell University, 159 Sapsucker Woods Road, Ithaca, New York 14850. [Common bird songs of the western states with accompanying booklet.]

Voices of the Loon. 12 inch record. No. R11 available for \$9.00 from The Crow's Nest Bookshop, Laboratory of Ornithology, Cornell University, 159 Sapsucker Woods Road, Ithaca, New York 14850. [Beautiful and eerie chorus of loons and other nature sounds on one side. Loon calls identified on reverse.]

Bird Posters

Waterfowl Poster - Available from Ducks Unlimited, 1190 Waverly Street, Winnipeg, Manitoba, Canada. [Large fold-out poster has color illustrations of common waterfowl with information on identification, reverse side has information on bird banding, migration, habitat, breeding, and the purpose of the Ducks Unlimited organization.]

Activity Ideas

Alaska Sea Weeks Curriculum Series - This set of seven booklets is being reprinted. Send a request for information costs and availability to Alaska Sea Grant College Program, Attention: Publications Department, 590 University Avenue, Suite 102, Fairbanks, AK 99709-1046. [A set of information and activity booklets designed specifically for grades K-6, emphasizing one or more aspects of the marine environment. One of the books, currently in preparation for reprinting, is about birds. These materials are highly popular among teachers who have used them.]

Free Publications

These publications on Alaskan birds are available free from the Alaska Department of Fish and Game (write to the ADF&G office nearest you).

Quinlan, S. E. 1981. Winter bird-feeding in Alaska. ADF&G Nongame Wildlife Program, Alaska Wildlife Watcher's Report Vol. 1, No. 1. 4pp.

Quinlan, S. E. and S. Cuccarese. 1982. Landscaping for wildlife in Alaska. ADF&G Nongame Wildlife Program, Alaska Wildlife Watcher's Report Vol. 1, No. 2. 12pp.

Quinlan, S. E. 1982. Birdhouses for Alaska--a guide to building and placing nest boxes. ADF&G Nongame Wildlife Program, Alaska Wildlife Watcher's Report Vol. 1, No. 3. 8pp.



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