

Trails. Online. 2021: Birds

Introduction: Ornithology

This month we are going to be focusing on birds!

Did you know that in the entire world there are more than 10,000 species of birds? In North America there are more than 1,900 species of birds, and here in Utah we have over 450 species of birds! That is amazing! Wherever you are, it is likely that you'll be able to spot one of these amazing creatures. The goal is not to identify all 450+ species that can be found in our state, but to learn what makes birds so special, hone our observational skills, and find out how we can help birds. We'll also learn how to identify ten different bird species found in the Cottonwood Canyons.

Have you ever heard the word ornithology? What does it mean? Based on the last paragraph, you might have guessed that ornithology is the study of birds. If you did, you'd be correct! An ornithologist is someone who studies birds. How can we become ornithologists? We can observe birds, record our findings, learn about them and the factors that impact them. The Cottonwood Canyons are a great place to go to observe birds, but you can find birds at home, at school, or at a local park!

Before getting started, we wanted to share a few birding spots in the canyons.

- Before it gets too snowy, consider heading up to Silver Lake in Big Cottonwood Canyon. This trail is a 0.8 mile loop that goes around the lake and is rated as an easy trail. This is a great location year round, but is best accessed after the snow melts in the springtime or before the snow starts to accumulate.
- At the mouth of the canyon, the Temple Quarry Trail and Little Cottonwood Creek Trail are great option year-round. The Temple Quarry Trail is a ¼ mile paved loop that is ADA accessible. The Little Cottonwood Creek Trail can be accessed from the same trailhead by first walking down the utility line. This trail is more than 5 miles round trip, but feel free to turn back when you are ready.
- If you are a skier, Alta has some great birding options! Stop by the top of the Collins Lift to check out their bird feeder! They also have several other bird feeders and periodically offer birding tours with Tracy Aviary.
- There are several picnic areas in the canyons that offer a great place to sit and spend part of an afternoon. Though you may be picnicking, please make sure not to share your lunch with the birds!

What makes a bird a bird?

Picture a few different kinds of birds that you have seen before. What sort of things do they have in common? Take a few minutes to write down your ideas in the student guide.

There are certain traits that all birds share – some of these traits we can see, while some of these traits are things we cannot see.

BIRD PHOTO & CITATION:

- Can See:
 - Feathers
 - Wings
 - Beaks/bills
 - Lay hard-shelled eggs
- Cannot see:
 - Efficient respiratory system
 - Strong, 4 chambered heart
 - Strong, lightweight skeleton

Let's take a closer look at some of these features!

Feathers

All birds have feathers, and those feathers are made of a special material called keratin. If we look around the natural world, we can find many other things that are made of keratin. Even our hair, skin, and nails are made of keratin!

Did you know that there are different types of feathers? They all have different structures and roles on a bird's body, Look at the photo below:



CITATION: Leach, Andrew & Szuc, Jeff 2004, Feather types, digital image, Cornell Lab of Ornithology Bird Academy, <https://academy.allaboutbirds.org/feathers-article/>

Wing Feather – These strong feathers are found on a bird's wing and are designed for flight! The shorter edge of the feather provides stability to prevent the feathers from twisting during flight.

Tail Feather – These strong feathers help the bird steer while flying. The wing and tail feathers both have a very special structure that gives the feather extra strength. On a feather, the central shaft is called the rachis. Individual barbs come off of the rachis. Each barb is secured to the barb next to it by tiny structures called barbules that act similar to velcro. If you find a feather, gently pull the barbs apart and look very closely – a magnifying glass can be helpful. Though you can pull the barbs apart if you apply enough force, you can see how far they can be stretched and if you look closely you can see some of the barbules. And although you can pull the barbs apart, you can manipulate the feather so that the barbules interlock again.

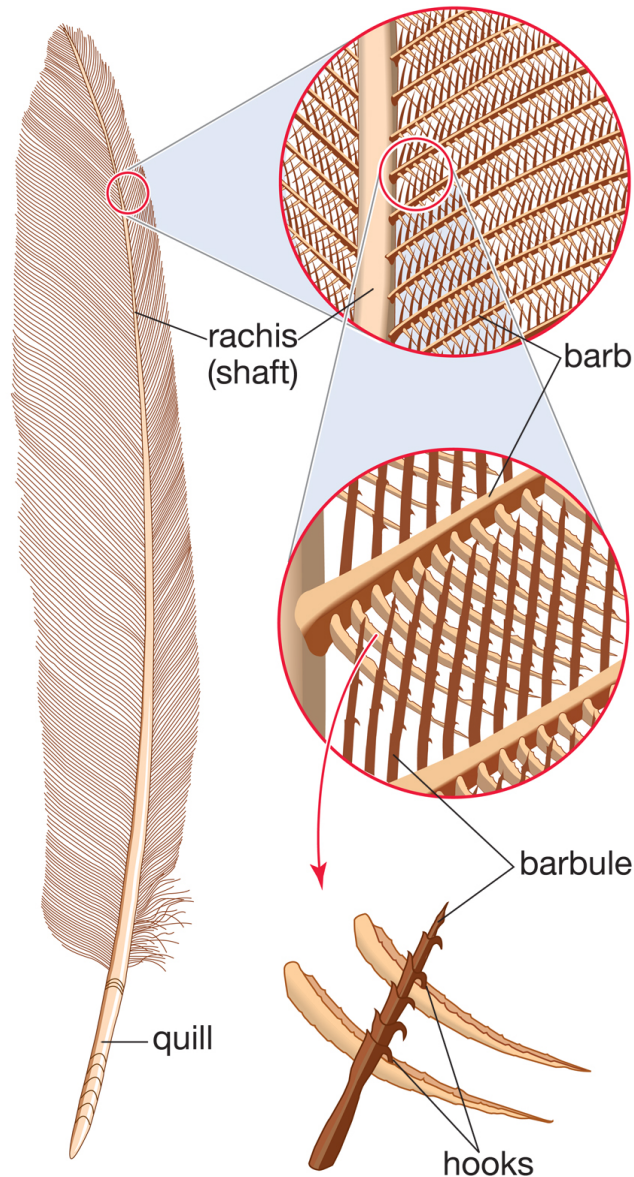


Image citation: The parts of a bird's feather, digital image, Encyclopedia Britannica, Inc. <https://www.britannica.com/science/barb-feather>

Contour Feather – These are the feathers that cover the bird’s body and they are layered so that they overlap like scales on a fish or shingles on a roof! These feathers help to streamline the bird’s shape and also offer a bit of waterproofing to keep the bird dry.

Semiplume Feather – These feathers can be found underneath the outer layer of contour feathers and they help provide insulation.

Down Feather – Short, fluffy feathers that are found closest to the bird’s body, they help to trap body heat.

Bristle Feather – Simple feathers that are found on the head, they help to protect a bird’s eyes and face.

Filoplume Feather – Simple feathers that act similar to whiskers on a cat or a dog, they help the bird sense the position of feathers and may help assess damaged or lost feathers.

ACTIVITY: Keep your eye out for feathers when you go outside. Once you have found a few good examples, try and determine which kind of feathers you have found. Put the feathers back outside when you are done.

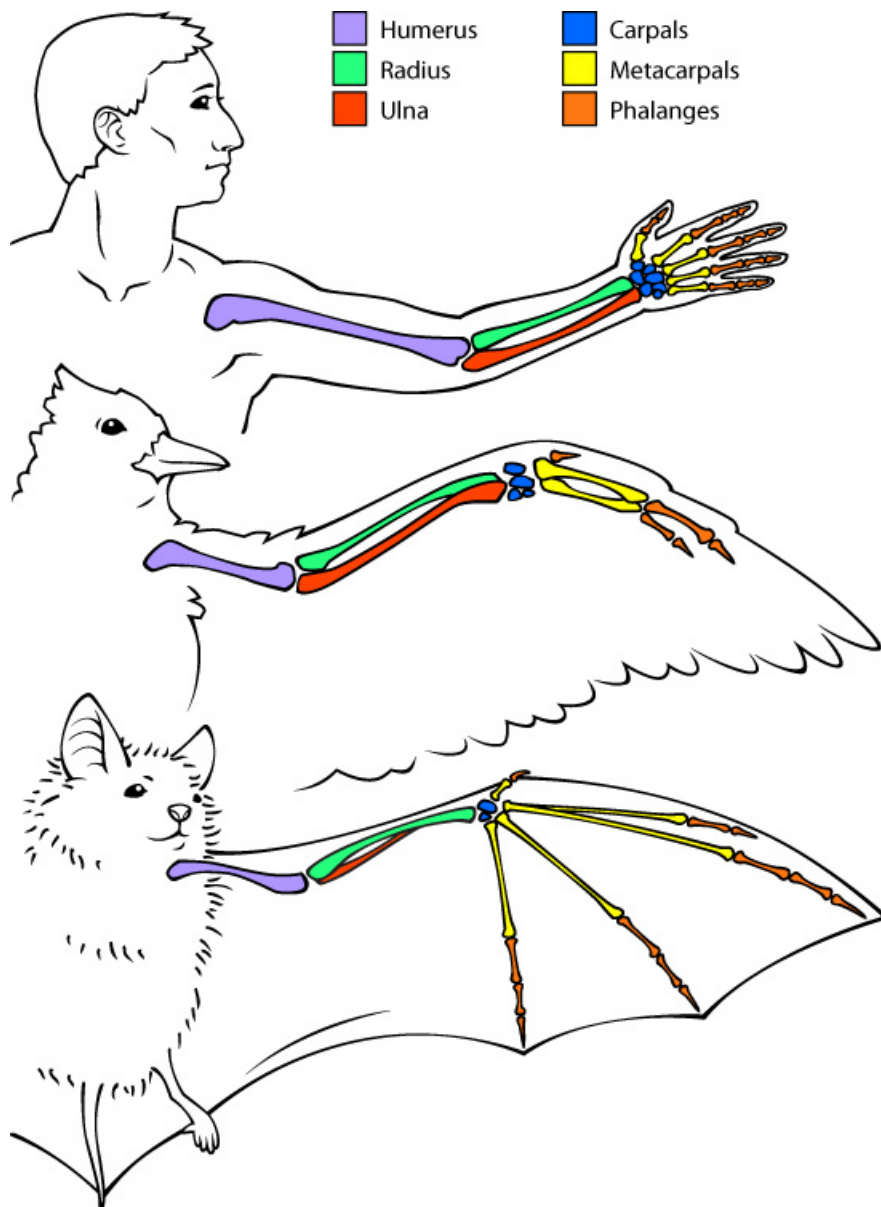
Be on the lookout for a blue feather (some blue birds in the Canyons and in the Valley include Western bluebirds, Mountain bluebirds, Lazuli buntings, Woodhouse’s scrub-jays, Pinyon jays, and Steller’s jays). Hold it up so that the feather is backlit, but be careful not to stare directly into your light source or the sun! You’ll notice that the feather will no longer appear to be blue. It will look gray!

Birds come in a variety of different colors, some are bright and vibrant while some are drab and help the bird blend into its surroundings. Where do these colors come from? Reds, oranges, yellows, greens, blacks, and browns all come from different pigments. However, there are no blue pigments. The blue is actually a structural color, meaning that it is produced by light reflecting off of the feather itself!

Wings

All birds have wings, even the birds that do not fly! Wings can vary greatly in their shape and size. Looking at a bird’s wing can tell us about how the bird flies – for example, the canyons have many trees that birds have to maneuver between, so it is helpful for them to have shorter, rounder wings to help steer between trees and brush at higher speeds while trying to evade predators or catch prey. Having a long tail to act as a rudder is also helpful in navigating forested areas!

See the diagram below to compare a bird’s wing bones to those of a human’s arm or a bat’s wing.



Citation: Human, bird, and bat bone comparison; digital image, Arizona State University Ask a Biologist, <https://askbiologist.asu.edu/human-bird-and-bat-bone-comparison>

Bills and beaks

The words “bill” and “beak” are interchangeable, though people tend to use “bill” for waterfowl like ducks and geese while they use “beak” for songbirds like robins and birds of prey like hawks. A beak/bill is made out of keratin, just like a bird’s feathers. A bird’s bill/beak can reflect their diet – for example short, conical beaks are often found on birds who crack open tough seeds. Look at some examples of bird beaks in the image below, what sort of food do you think that they eat? How do you think their beak helps them?



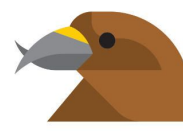
GENERALIST



INSECT CATCHING



GRAIN EATING



CONIFEROUS-SEED EATING



SCYTHING



FRUIT EATING



CHISELING



DIP NETTING



SURFACE SKIMMING



NECTAR FEEDING



RAPTORIAL



FILTER FEEDING



AERIAL FISHING



PURSUIT FISHING



SCAVENGING

CITATION: Bird beak illustrations, digital illustration, Raritan Headwaters, <https://www.raritanheadwaters.org/2020/03/28/eat-like-a-bird/>

For a hands-on way to investigate how different types of beaks help for eating different types of foods, have yourself a Bird Beak Buffet! Instructions can be found on the attached pdf.



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Zoom 100%

Bird Beak Buffet



One of the most important adaptations a bird has is its beak. Birds have specific beaks based on their diet, habitat, and behaviors. For this activity you can test different “beaks” on different types of “food” to discover which beaks are used for scooping, tearing, or cracking.

Materials

- Eyedropper or straw
- Chopsticks or two straight sticks
- Slotted spoon
- Ladle or soup spoon
- Forceps or tweezers
- Dry pasta
- Dry beans, small rocks, or beads
- Popped popcorn or small marshmallows
- Water
- Loose dirt or sand
- Tall cup
- Large tupperware or small aquarium
- Pan, tray, or shallow bucket
- Small tupperware or bowl

Things to consider

- ❖ *Have an adult present during the activity.*
- ❖ *Be careful with the sharp utensils and small items!*
- ❖ *Caution all items here are not intended for people to eat but for a game.*
- ❖ *Straw should only be used on the tall glass with water and it should be clean and safe for drinking in case ingestion occurs.*

Let's Begin:

1. Separate the items into a **"beak"** group and **"food"** group.
 - a. **Beaks** are the eyedropper or straw, chopsticks or sticks, slotted spoon, ladle or soup spoon, and forceps or tweezers.
 - b. **Foods** are dry pasta, popped popcorn or small marshmallows, dry beans, rocks or beads, and the vase or tall cup of water.
 - c. The Pan or tray and the tupperware will be used to hold some "foods."

2. Set-up the **"Buffet"**
 - a. **Wetland Buffet** - Fill the tupperware or small aquarium with water. Then place dry pasta in the container of water to float.
 - b. **Beach Buffet** - Fill the pan, tray or shallow bucket with some dirt or sand. Then place the dry beans or rocks in the dirt or sand.
 - c. **Flower Buffet** - Add water to the cup no more than half way full.
 - d. **Aerial Buffet** - Have the popcorn popper or the small marshmallows ready to go and someone to toss them in the air.
 - e. **"Bird Belly"** - Makes sure you have your small tupperware or bowl ready to hold all the "food" you collect with your "bird beak." Remember you don't want to fill your "bird belly" with too much sand or water, that will not make them feel good. The goal is to get as much bird food as you can, as quickly as you can, without losing food, or filling up on water or sand from the habitat. Also, you can't bring the cup closer to the food it has to stay on the table in front of you

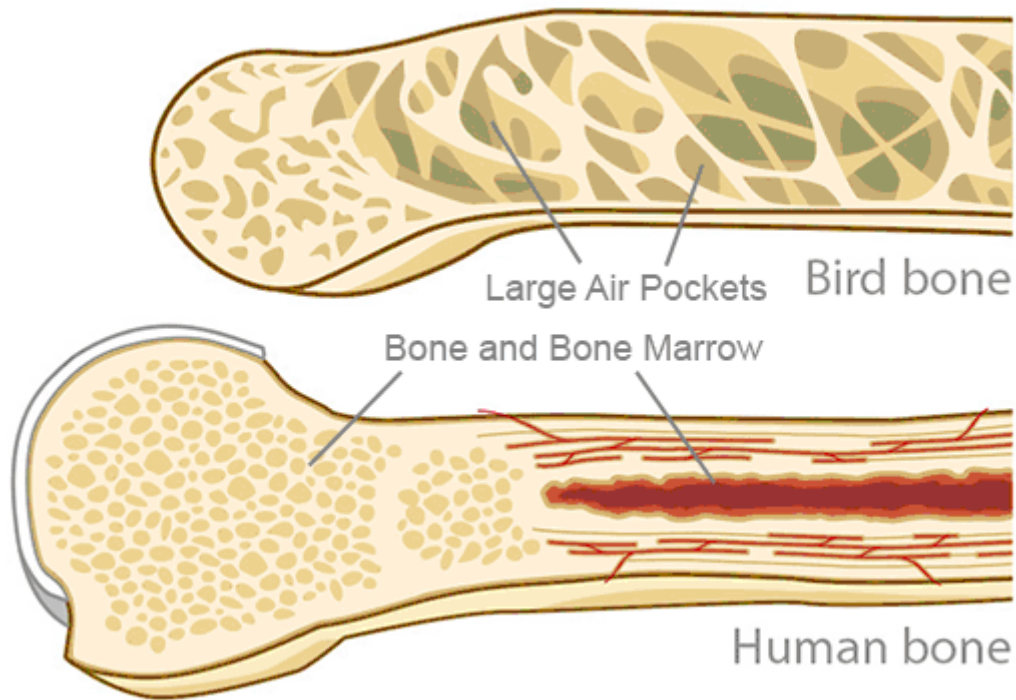
[Click here to download the Bird Beak Buffet activity PDF](#)

Eggs

All birds lay eggs, and if you've cracked a chicken egg to make breakfast, you'll have observed that they have a hard shell! Eggs can come in various sizes and colors, depending on the species. The Bee hummingbird lays the smallest eggs in the world, they're only about the size of a coffee bean! The largest eggs in the world belong to the Ostrich, and their eggs are about the size of a cantaloupe!

Things we cannot see

For flight, birds have a very strong, 4-chambered heart to help pump blood throughout their bodies. They also have an efficient respiratory system, with a system of air sacs all throughout their body that connect back to the lungs. They also have hollow bones! However, they aren't completely hollow - they have a criss-cross structure to give them strength and support while still being very lightweight



CITATION: Comparative diagram of bird bone and human bone, digital image, Arizona State University Ask a Biologist, <https://askbiologist.asu.edu/human-bird-and-bat-bone-comparison>

Meet Some Common Canyon Birds

We'll look at a few common canyon birds – focusing on field marks that can help us identify the bird, their size, habitat, diet, and some fun facts. The word habitat refers to the place where a plant or animal lives. A habitat provides food, water, shelter, and space. What does your habitat look like?

☒ Mountain Chickadee / Carbonero Montañés



Citation: Michael Woodruff / Macaulay Library at the Cornell Lab ([ML155067991](#))

a. How To ID:

- i. Black cap on top their head
- ii. White cheeks
- iii. Black throat patch or bib
- iv. White bands above each eye that resemble eyebrows
- v. Small bill or beak
- vi. Large head with round, gray body

b. Size

- i. Height: 4.5 inches
- ii. Wingspan: 7.5 inches
- iii. Weight: 0.5 ounces (or about the weight of two pennies!)

c. Habitat: Mountainous areas with pine, mixed conifer, or spruce-fir forests.

d. Diet: Insects, berries, seeds.

e. Behavior: Curious, active, and acrobatic. You'll see them hopping around and sometimes even hanging upside down!

f. Fun Fact: In the winter, you'll see them form foraging flocks with other small songbirds.

g. Lookalikes: Mountain Chickadees look similar to the Black-capped chickadee (Carbonero Cabecinegro) that you might see in the Valley. Take a look at both photos and write down how you would tell them apart.

- i. Black-capped chickadee: <https://macaulaylibrary.org/asset/47337851>

CITATION: Scott Martin / Macaulay Library at the Cornell Library ([ML47337851](#))

✚ Stellar's Jay / Chara de Steller



CITATION: Lauri Taylor / Macaulay Library at the Cornell Lab ([ML371247131](#))

- a. How To ID:
 - i. Deep blue body, black head and crest
 - ii. Small white "eyebrows"
 - iii. Shorter, rounded wings
 - iv. Long tail
- b. Size:
 - i. Height: 12-13 inches
 - ii. Wingspan: 17 inches
 - iii. Weight: 3.5-5 ounces (Or about the same as two tennis balls!)
- c. Habitat: Coniferous or coniferous-deciduous forests from 3,000-10,000 feet.
- d. Diet: Stellar's jays are omnivores, meaning that they eat plants and meat. They'll commonly eat seeds, nuts, berries, fruit, as well as small snakes, lizards, rodents, and even other bird eggs and baby birds.
- e. Behavior: Bold and loud! You'll likely hear their loud, raspy calls while out in the canyons. They also have dozens of different calls and can even mimic many different sounds, including the call of a red-tailed hawk!

- f. Fun fact: While the birds themselves can be described as “stellar”, their name actually comes from the German naturalist Georg Wilhelm Steller, who was the first European to record the species.
- g. Another blue jay that we have in Utah is the Pinyon Jay (*Chara Piñonera*). These birds like to live at lower elevations in pinyon-juniper woodlands, sagebrush, scrub oak, and occasionally in pine forests. Do you think these bird species often overlap? How would you tell them apart?
- i. Pinyon Jay: <https://macaulaylibrary.org/asset/366352601>
CITATION: Marcia Lincoln / Macaulay Library at the Cornell Lab ([ML366352601](https://macaulaylibrary.org/asset/366352601))

✚ Clark’s Nutcracker / *Cascanueces Americano*



CITATION: John Killiany / Macaulay Library at the Cornell Lab ([ML374804571](https://macaulaylibrary.org/asset/374804571))

- a. How To ID:
- i. Light to medium gray body.
 - ii. Wings are mostly black, with white feathers along the back edge of the wing.
 - iii. Short tail, black feathers on top and white feathers underneath.
- b. Size:
- i. Height: 10.5-12 inches
 - ii. Wingspan: 24 inches

- iii. Weight: 3.5-5.5 ounces (about the same weight as a baseball!)
- c. Habitat: High in the mountains, usually around the treeline. If you see limber pine, bristlecone pine, or whitebark pine trees, you'll likely see Clark's nutcrackers.
- d. Diet: Seeds from certain species of pine – here in the Cottonwood Canyons, it is primarily the Limber pine. Occasionally will eat insects, spiders, small mammals and amphibians.
- e. Behavior: Clark's nutcrackers use their strong beak to pry open pine cones and remove the seeds. They then store them in a special pouch underneath their tongue which can hold up to 150 seeds! They'll fly around and cache (or store) them for later, they have an amazing memory and can remember the locations of most seeds. The seeds that they don't find grow into new trees. Clark's nutcrackers are one of the only species that eats Limber pine seeds, and so we can call them primary seed dispersers. They have a very important job of helping to maintain populations of Limber pine trees by caching their seeds. Even though they have an excellent memory, they can't locate every seed they hide, and the seeds that they don't locate grow into new trees!
- f. Fun fact: Clark's nutcrackers are in the same family as Steller's jays, crows, ravens, and magpies.

✚ Osprey / Àguila Pescadora



CITATION: Brian Maxfield / Macaulay Library at the Cornell lab ([ML358644141](#))

- a. How To ID:

- i. White head with brown stripe extending over and past the eye.
 - ii. Large golden eyes.
 - iii. Hooked beak.
 - iv. Dark brown feathers on top, white feathers on the underside of the body.
 - v. Large and slender bird with long legs.
 - vi. Narrow wings – as they fly, they have a distinctive “M” shape when viewed from below.
- b. Size:
- i. Height: 22 inches
 - ii. Wingspan: 60-70 inches
 - iii. Weight: 50-70 ounces (or about the same weight as six soda cans!)
- c. Habitat: Along rivers, lakes, coastlines of either fresh or salt water.
- d. Diet: Ospreys are piscivorous, meaning that they eat fish!
- e. Behavior: It is truly amazing to see them hunt – they’ll circle high in the sky above a body of water, hover briefly, and take a dive! They dive feet first in order to catch their prey, and on average an osprey might catch a fish 1 out of every 4 dives. If you happen to see an osprey catch a fish, they’ll always fly away carrying the fish head first! If you were a fishing bird, what sort of things might help you? One neat thing about ospreys is they have tiny spines called spicules on the bottom of their feet. How would these be helpful? It helps them hold on to slippery fish! You can often spot an osprey hunting at Silver Lake in Big Cottonwood Canyon!
- f. Fun fact: Ospreys migrate in the winter, and over the course of a lifetime an osprey may travel more than 160,000 miles! Most ospreys overwinter in Central or South America. Ospreys live all over the United States and birds that live in the Eastern U.S. tend to spend the winter in South America, while birds in the Western U.S. tend to spend the winter in Central America.

 White-crowned sparrow / Chingolo Coroniblanco



CITATION: Craig Fosdick / Macaulay Library at the Cornell Lab ([ML33038521](#))

a. How To ID:

- i. Gray face with white and black stripes on top of the head
- ii. Small beak, yellow or pale pink
- iii. Long tail
- iv. Brown wings and back, gray belly

b. Size:

- i. Height: 6 inches
- ii. Wingspan: 9 inches
- iii. Weight: 1 ounce (about the same weight as a slice of bread!)

c. Habitat: They prefer habitats that are open, with shrubs nearby for cover. You'll see them around high alpine meadows and forest edges.

d. Diet: insects, seeds, other plant matter.

e. Behavior: White-crowned sparrows forage on the ground, so you'll see them hopping or running around on the ground in open areas with cover nearby.

f. Fun fact: The male white-crowned sparrows learn the songs that they grew up with and they don't venture too far from home when they are grown up, often breeding near where they were raised. Because of this, dialects often form between birds of different areas. So a white-crowned sparrow song that you hear up in the canyons may be slightly different than one that you hear elsewhere!

g. The juveniles (younger birds) do not have the characteristic white crown until they reach adulthood!

Juvenile: <https://macaulaylibrary.org/asset/37603343>

CITATION: Louise Coutemanche / Macaulay Library at the Cornell Lab ([ML376033431](#))

✚ Great-horned owl / Búho Americano



CITATION: Cheryl & Scott Taylor / Macaulay Library at the Cornell Lab ([ML374294271](#))

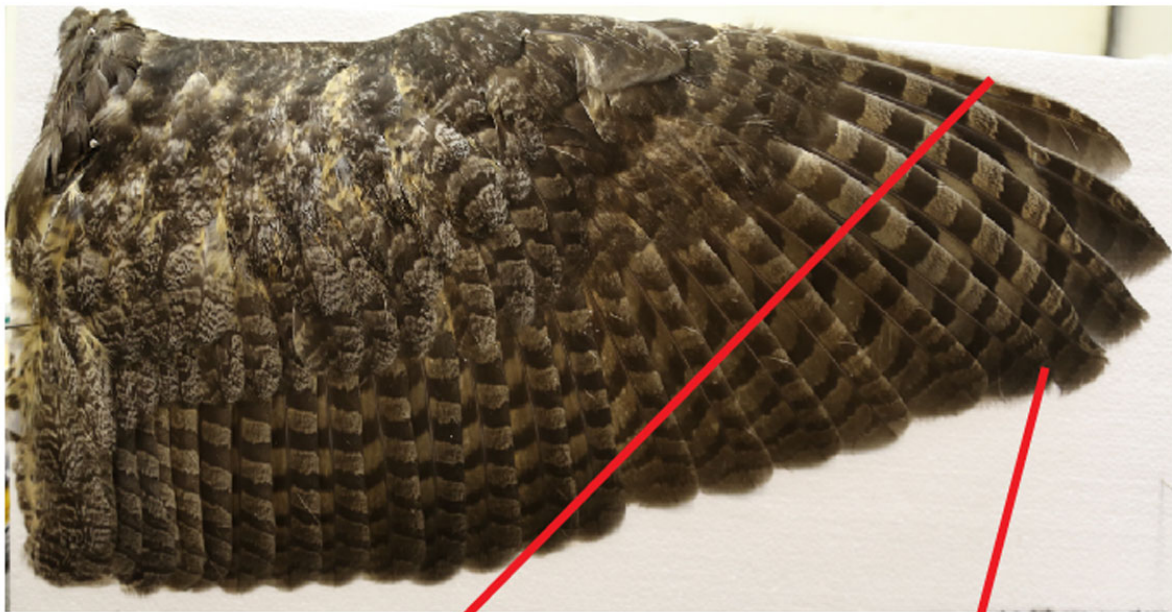
a. How To ID:

- i. Large tufts that look like ears. These tufts have a special name, they are called plumicorns!
- ii. Large yellow eyes
- iii. Mottled gray-brown body color
- iv. Reddish brown facial disc

b. Size:


- i. Height: 18-24 inches
- ii. Wingspan: 40-57 inches
- iii. Weight: 50 ounces on average (about the same as a two-slice toaster!)

- c. Habitat: Great-horned owls live all across the United States and can be found in a wide variety of habitats including forests, swamps, deserts, and urban areas like cities.
- d. Diet: Mammals like rabbits, hares, mice, and even skunks. They'll also eat reptiles, amphibians, and even other birds. Great-horned owls are amazing predators and can take down prey larger than they are!
- e. Behavior: Great-horned owls are nocturnal, meaning that they are active at night.
- f. Fun fact: Owls are capable of silent flight! They have small bristles on the front edge of their wing that look like tiny eyelashes. These help to break up the wind passing over the wing. Any noise from the wind is also dampened by the texture of the wing feathers and by a fringe along the back edge of the wing.
- g.



CITATION: Le Piane, Krista. Close-up image of a Great-Horned Owl's wing, digital photograph, National Audubon Society, <https://www.audubon.org/news/the-silent-flight-owls-explained>

To get an idea of how owls compare to other birds' flight, check out this video:
<https://www.youtube.com/watch?v=-WigEGNnuTE>

 Mallard / Ànade Azulón

CITATION: Stephen Taylor / Macaulay Library at the Cornell Lab ([ML376068521](#))

a. How To ID:

i. Male

1. Iridescent green head, white collar, dark brown chest
2. Bright yellow bill
3. Gray-brown wings, light gray belly

ii. Female

1. Mottled brown feathers
2. Darker orange and brown bill

iii. Both

1. Iridescent blue patch with white borders on the wings.

b. Size:

- i. Height: 20-25 inches
- ii. Wingspan: 32-37 inches

- iii. Weight: 35-46 ounces (or about the same as two basketballs!)
- c. Habitat: You can find mallards in almost any habitat with water including lakes, rivers, municipal parks, and even your own backyard.
- d. Diet: Will eat mainly plant material from a variety of aquatic (water) and terrestrial (land) plants, and will eat seeds and grains. Will also consume insects and insect larvae, tadpoles, worms, small fish, and crustaceans.
- e. Behavior: Mallards do not dive, they “dabble”. This means that while floating on the water, they'll lean forward and dip their heads underwater to reach their food.
- f. Fun fact: When the male and the female of the same species look different, that is called sexual dimorphism. Sometimes this can make bird identification a little bit tricky! When the male and female look the same, it is called monomorphism.

✚ Western tanager / Piranga Carirroja



Left: Male, Right: Female

Citation (Male): Simon Boivin / Macaulay Library at the Cornell Lab ([ML162391961](#))

Citation (Female): Brad Vissia / Macaulay Library at the Cornell Lab ([ML177828651](#))

a. How To ID:

i. Male

1. Yellow body with black wings, back, and tail.
2. Bright red head
3. Have two bars across the wings that are yellow and white.

ii. Female

1. Body is yellow-green color
2. Wings, back, and tail tend to be a more muted black.

b. Size:

- i. Height: 6-7.5 inches

- ii. Wingspan: 11.5 inches
- iii. Weight: 1 ounces (about the same as a pencil!)
- c. Habitat: Coniferous forests like juniper-pine and spruce-fir forests.
- d. Diet: Mostly insects, but will also eat fruit and berries.
- e. Behavior: They like to forage high up near the tops of trees, so sometimes they can be harder to spot! They'll peer around for insects, and sometimes will catch them mid-flight.
- f. Fun fact: The brilliant red color of the male tanager's head is not from a pigment that is produced by the bird, instead this pigment - called rhodoxanthin - comes from their diet and the insects that they eat!

✚ Flammulated owl / Autillo Flamulado



Citation: Pitta Tours / Macaulay Library at the Cornell Lab ([ML371372541](#))

- a. How To ID:
 - i. Very small body size
 - ii. A mix of gray, brown, rust, and white feathers that allow them to blend in well with their surroundings.

- iii. Dark eyes
- iv. Rectangular head
- b. Size:
 - i. Height: 6-6.7 inches
 - ii. Wingspan: 16 inches
 - iii. Weight: 1.5-2.2 ounces (or about the weight of a tennis ball!)
- c. Habitat: Open pine or mixed coniferous-deciduous forests with mature trees.
- d. Diet: Mostly eats insects like moths, crickets, and beetles.
- e. Behavior:
- f. Fun fact: Flammulated owls are migratory and they tend to spend their winters in Mexico and Central America!
- g. Flammulated owls look somewhat similar to the Western screech owl/Autillo Californiano, look at both photos. How would you tell them apart?
<https://macaulaylibrary.org/asset/372256291>
Citation: Michael Hingerty / Macaulay Library at the Cornell Lab ([ML372256291](https://macaulaylibrary.org/asset/372256291))



Downy Woodpecker / Pico Pubescente



CITATION: Fred Wamboldt / Macaulay Library at the Cornell Lab ([ML369301401](#))

a. How To ID:

- i. Males have a red patch on the back of their head, females do not.
- ii. White belly, chin, and stripe down the back.
- iii. Black stripes on top of head, extending beyond eye, and extending beyond corners of beak.
- iv. Black wings with white checkered spots.

b. Size:

- i. Height: 5.5-6.5 inches
- ii. Wingspan: 10-12 inches
- iii. Weight: around 1 ounce (or the same as five quarters!)

c. Habitat: Can be found in a wide range of habitats, from forests to backyards. They do tend to prefer deciduous trees.

d. Diet: Mainly insects but will also eat berries, acorns, and seeds.

e. Behavior: Active and acrobatic. You might catch them moving horizontally or downwards on a tree trunk, perched on tall grasses or weeds, and sometimes you may see them hopping around on the ground.

- f. Fun fact: Downy woodpeckers are the smallest woodpeckers in North America and they use this to their advantage by going after the insects that larger woodpeckers cannot get to. You might see them pecking at small twigs of trees or shrubs, or even the stems of weeds!
- g. Lookalike Alert! The Hairy woodpecker/Pico Velloso very closely resembles the Downy woodpecker. While they appear almost identical, the Downy woodpecker is smaller (about $\frac{2}{3}$ the size of the Hairy woodpecker). If you can get a good look at the beak, the Hairy woodpecker's beak is longer.
- Hairy Woodpecker: <https://macaulaylibrary.org/asset/350614791>
CITATION: Ben Johnson / Macaulay Library at the Cornell Lab ([ML350614791](https://macaulaylibrary.org/asset/350614791))

Sources: <https://www.allaboutbirds.org/guide/> - <https://www.audubon.org/field-guide/>

Birding

What is birding? Birding is not a complicated activity, it is simply the act of observing birds! Birding is a wonderful activity because you can go birding for any amount of time, at almost any time of day, and in almost any location!

Tips and Tools. The only thing you'll need in order to go birding is your eyes and perhaps a little bit of patience. It might be helpful to have a pair of binoculars in order to get a closer view of the bird you're looking at, or you can make your own recycled DIY binoculars out of two toilet paper rolls and some string. It is also helpful to have a notebook and writing utensil if you'd like to record what you see. If you don't know the names of birds, that's okay! A quick sketch or just taking note of distinguishing features can help you identify your bird later.

When you go out birding, make sure to keep yourself and the birds safe. Please watch the birds from a distance. We like to use something called the Rule of Thumb. This means that when you give a thumbs up and have your arm stretched all the way out, your thumb should cover the entire body of whatever bird or animal you are observing. Never try to approach or touch wildlife. Any animal, no matter how big or small, can lash out and cause harm if they feel threatened.

Identification Tools – There are many ways to improve your bird identification! You can use a variety of books or apps, or you can even find a local guided walk with an experienced birder or ornithologist to learn firsthand.

If you or your adult has access to a mobile device, there are a few free apps that you can use. These apps are free, though eBird and Audubon Bird Guide do require you to sign up for an account and Merlin Bird ID does require an email address.

- eBird – this app allows you to record your sightings, and the data you record can help with Citizen Science projects all over the country!
- Merlin Bird ID – if you know the bird's relative size, main colors, and select behaviors, then Merlin will recommend possible matches.
- Audubon Bird Guide – providing a bird's size and color helps refine a list of local birds that might be a match.

If you prefer a physical guide to the birding world, there are many different field guides out there available for purchase or for loan at your local library. Some of our favorites include *The Sibley Guide to Birds* by David Allen Sibley for a comprehensive guide to North American birds. For the beginner or for someone who likes a quick reference, we love using the *Birds of Utah Field Guide* by Stan Tekiela. This book is pocket-sized and has birds organized by color for easy identification.

On a desktop or laptop computer, The Audubon Guide to North American Birds (<https://www.audubon.org/bird-guide>) is a great free resource if you want to learn more about a specific bird. Birds are listed alphabetically.

Lend an Ear! Did you know that you can also identify birds by sound? Birds can be differentiated from one another by listening closely to their calls and songs. Get started by playing The Cornell Lab of Ornithology's Bird Song Hero game, where you listen to audio recordings and match them up with the corresponding spectrogram visualization. Many of the species featured in the game can be found here in Utah. See if you are a bird song hero by clicking the link here: <https://academy.allaboutbirds.org/bird-song-hero/>

Of course, you don't have to identify your birds at all. Just taking a moment to watch and observe is perfectly fine! Find a nice quiet spot in your yard, at a local park, at your school, or in the canyons and start watching.

Birding Journals – One thing that might enhance your birding experience is having a dedicated birding journal. In it, you can record the time of day, current weather, and location of where you are birding. As you watch, write or sketch what you see. If you know the names of the birds you are seeing, great! If not, write down a few things about them. How big are they? What color are they? What are they doing? How many did you see? These are all valuable observations. Here are some more ideas for your birding journal:

- Compare and contrast different birding locations. If you are able, pick one birding spot in the canyons and one birding spot at your home, school, or local park. What birds do you see at each location? Are there any birds that you see at both places? Are there some birds that you only see at one location and not the other?
- If you can't make it to a spot in the canyons, find two places with different habitats. For example you might pick an open grassy area and a forested area, or perhaps an area near a river and an area away from water. Take notes about each habitat before you start birding. What does this space look like? What kind of plants are around? Remember that a habitat provides food, water, shelter, and space. How do you think each area provides those things to the birds that live there? After you've taken those notes at each location, time to watch for birds! Write down or sketch what birds you see, and compare and contrast between each location.
- Try birding at different times of day. Use the same birding spot, but choose different times of day. What kind of birds do you see in the morning? What are they doing? How does this compare to what you see in the early afternoon, or around dusk?
- Close your eyes and bird by ear. Even if you're not sure which bird is making which sounds, try and write down the calls and songs that you hear. For example, a chickadee makes a call that sounds like *chick-a-dee-dee-dee* and one that sounds like *cheese-bur-ger*, while another bird called the American goldfinch makes a call that sounds like they're saying "potato chip". Close your eyes and listen. What words or phrases do you hear?
 - A bit of movie magic: Did you know that whenever you are watching a movie and hear the majestic cry of a Bald eagle, most of the time you are actually hearing a Red-tailed hawk! The Bald eagle actually has a weak-sounding call that resembles a high-pitched whistling. We do have Bald eagles and Red-tailed hawks here in Utah, so keep an eye (and an ear) out for them!
- Pay attention to the birds that you see over the next few months. Many bird species are beginning their migration, and are either passing through on their way to southern locations or some birds even migrate and stay here in Salt Lake or up in the canyons for the winter! Try birding on the same day each week throughout

the fall and winter and record what you notice. If some birds are staying for the winter, has their behavior changed? Are they eating different things?

Since we are between seasons, what are birds doing right now? How are they preparing for winter? Some birds will stay where they are, while some will migrate. Many people think that birds migrate because of the cold, but this actually isn't true. Birds migrate due to food availability. They can't go to the grocery store to stock up on food like we can, so if the food they eat is not available in the wintertime then they'll have to go somewhere where it is. We learned a little bit about bird diets when we learned about the ten common canyon birds. Which of those food options might not be available in the winter? Things like insects or fish. Up at Silver Lake, the water freezes over so the osprey are not able to hunt. Flammulated owls eat mostly insects, and it is tough to find insects in the winter! What kind of food sources are still available in the winter? Seeds! And for birds that are predatory like the Great-horned owl, they can still find small rodents, hares, and other mammals. When we think of migration, we tend to think about birds leaving and going elsewhere. But did you know that some birds migrate from places even further north, and they spend the winter here in Utah? One of our winter residents is a small songbird called the Black rosy-finch (Pinzón Montano Negro). You can see them up in the canyons at Alta Ski Area, and they love inclement weather – you have a better chance of seeing them on a whiteout day! If you are near a river or other body of water, you might notice some waterfowl that are a bit different than you are used to seeing, like a Common goldeneye (Porrón Osculado). If you can take a trip up to the Bear River Migratory Bird Refuge, you may even see a Tundra swan (Cisne Chico)!

Now we mentioned that birds don't migrate because of the cold. But how do they stay warm? They have some pretty cool adaptations! An adaptation is something about that animal that helps it survive and thrive in its environment – an adaptation can be something on its body (a physical adaptation) or something that it does (a behavioral adaptation). Birds have a pretty neat combination of both!

Remember when we learned about the different types of feathers? Other than for flight, a bird's feathers work together to keep them warm and dry. How do you keep warm in the winter? You might put on a waterproof jacket with a sweater underneath. The bird's down feathers act like your warm underlayers – your sweater, sweatshirt, or maybe you even have a down puffy jacket. The contour and wing feathers create a strong, wind and waterproof layer to keep them dry, just like your winter coat or windbreaker would keep you dry and protected from the wind. What about your hands? You can put on gloves or mittens. Some birds – like Great-horned owls – have feathers on their feet to help keep them warm! What do you do if you forgot your gloves? Perhaps you'd put your hands inside your pockets, and birds can do the same thing. On a cold day, you might see a bird perched and standing on just one leg. That other leg is tucked up close to the bird's body underneath the wind and waterproof layer of feathers, where the soft and insulating down feathers are. What else do you do if you are still cold after putting on your gloves, sweater, and winter coat? You might shiver! Birds will sometimes shiver, too! That miniscule muscle movement can help generate more body heat.

But what about cold nights? Small songbirds might huddle together with other birds for warmth. Some birds can also go into torpor, which is a little bit like temporary hibernation. The bird can lower its body temperature for the night in order to conserve energy. Birds like chickadees can lower their body temperature by as much as 22 degrees Fahrenheit! That is incredible considering how sick we would get if our body temperature varies but just a few degrees. While this strategy saves energy at night, it is risky. If the bird didn't eat enough calories the day before, they may not have enough energy to raise their body temperature back up in the morning.

Of all the strategies mentioned, which would be considered physical adaptations and which would be considered behavioral adaptations?

Photos for winter birds section

- Black rosy-finch: <https://macaulaylibrary.org/asset/369551701>
 - CITATION: John Lewis / Macaulay Library at the Cornell Lab ([ML369551701](#))
- Common goldeneye: <https://macaulaylibrary.org/asset/376424411>
 - CITATION: John Jackson / Macaulay Library at the Cornell Lab ([ML376424411](#))
- Tundra swan: <https://macaulaylibrary.org/asset/376324491>
 - CITATION: Syd Cannings / Macaulay Library at the Cornell Lab ([ML376324491](#))

If you are birding in in your yard or at your school, here is a list of some common birds you might see here in Salt Lake:

- American Robin / Zorzal Americano
- American Goldfinch / Jilguero Yanqui
- House Sparrow / Gorrión Común
- House Finch / Camachuelo Mexicano
- Red-winged Blackbird / Sargento Alirrojo
- European Starling / Estornino Pinto
- American Crow / Cuervo Americano
- Mourning Dove / Zenaida Huilota
- Black-capped Chickadee / Carbonero Cabecinegro
- Northern Flicker / Carpintero Escapulario

Now on this list are two birds that are considered *invasive*. What does that mean? When we think about plants and animals, they are often described as being native, non-native, or invasive. A native species is one that occurs naturally in an area. A non-native species is one that was introduced, either accidentally or intentionally by people, to a place where they were not previously found. An invasive species is also considered a non-native species, but they are also harmful to local ecosystems, the economy, and perhaps even human health. All invasives are non-native, but not all non-natives are invasive. Just because a species was introduced doesn't mean that it is automatically considered harmful. Two birds on this list, the House sparrow and the European starling, are both considered invasive species here in the United States. How did they get here? House sparrows were released in New York in the mid-1800's to help control larvae that were damaging Linden trees, but also because there were some people who thought that New York could benefit from having birds that people were used to seeing in Europe. In the late 1800's, European starlings were released in New York by people who loved Shakespeare's plays! They wanted all of the birds mentioned in his works to have a home in North America. After these birds were introduced, the populations of both species rose dramatically. One problem with invasive species is that they can outcompete native species. This means that the invasive species beat the native species to limited resources, and that is what happens in regards to cavity-nesting sites. If you see either of these birds, and you might because they are abundant, what do you notice about them? How would you describe the way they look to someone who has never seen one? What kind of habitats do you find them in? What are they eating? What are they doing?

House Sparrow Photo:

Male: <https://macaulaylibrary.org/asset/155039851>

Female: <https://macaulaylibrary.org/asset/69514291>

CITATION: August Davidson-Onsgard / Macaulay Library at the Cornell Lab ([ML155039851](#))

European Starling Photo: <https://macaulaylibrary.org/asset/377506691>

CITATION: Alfons Lawen / Macaulay Library at the Cornell Lab ([ML377506691](https://macaulaylibrary.org/asset/377506691))

Art

Another great way to explore the natural world is through art! Click on the link below to learn a little bit about artist and naturalist, David Allen Sibley. Can you think of any other famous nature artists?

<https://www.audubon.org/birds/about-david-allen-sibley>.

Now let's make our own bird art! Gather some paper and art materials of your choice – colored pencils, crayons, markers, paint – anything goes! To get started, click on the link below to follow along with David Allen Sibley while he sketches a chickadee. Remember that the Black-capped chickadees can be found in the Valley, while we see the Mountain chickadees up in the canyons.

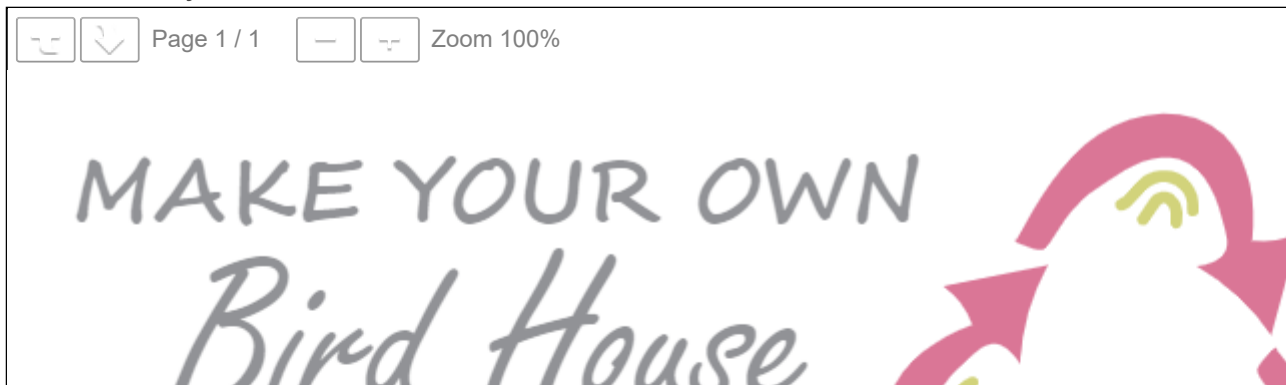
<https://vimeo.com/400372522>

Now it's your turn! Create your own bird art using the photos of birds in the canyons or in your area, or by going out into the field and sketching the birds that you observe!

Now that we have learned all about birds, identified some common canyon birds, and honed our birding skills through observation and art, let's learn about some threats to local bird populations and some things that we can do to help!

Here are some ways that we can be friends to our feathered friends

- **Plant native plants in your yard or at school.**
 - Native plants provide food and shelter for local birds and for birds passing through during migration.
 - You can also help create a good space for birds by offering a bird house for nesting birds. You can even make your own birdhouse out of recycled materials, here are directions from our friends over at Alta Community Enrichment!



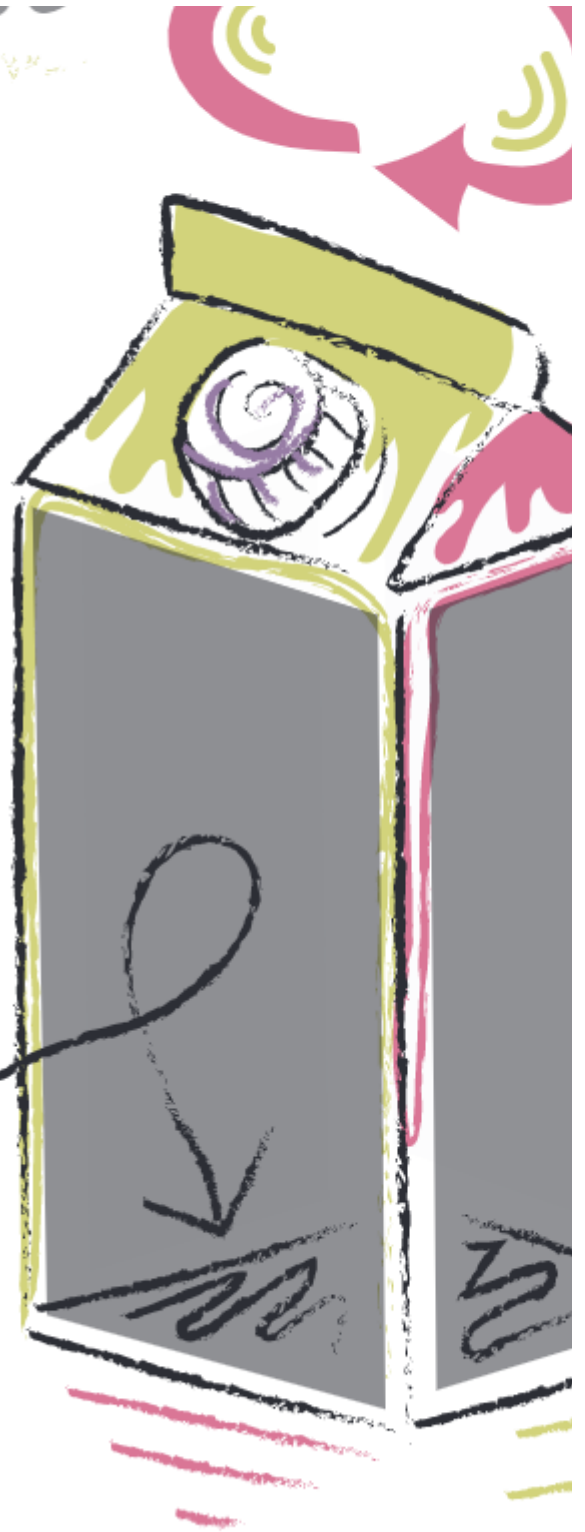
-Recycle a milk/juice carton and cut out all four sides.

- Poke a hole in the top and attach yarn/string, in order to hang the bird house.

-Paint/decorate the carton how you like.

-Put bird food in the bottom of the carton, and hang it up!

BIRD
FOOD



[Click here to download the activity PDF](#)

- **Provide or protect water sources.**

- In your yard or at school you can provide birds with fresh water by installing a birdbath. You can also help birds by protecting water sources. Birds need to be able to access fresh, clean water whether that is in the canyons or down in the valley. The Cottonwood Canyons are both considered protected watersheds because they help supply the drinking water for everyone in Salt Lake. Keeping the

watershed clean and healthy doesn't just benefit us, it benefits all the plants and animals (including birds!) that live in the canyons.

- **Participate in Community Science projects by submitting your observations.**
 - Your observations can be helpful in providing critical data to scientists working on a variety of projects! Recording your birding observations on eBird is a great way to contribute. One local project that you and your family can volunteer for is [Sageland Collaborative's Rosy-Finch Study](#). The aim of their project is to collect data to help understand the Black rosy-finch. Scientists don't know a lot about these birds, but you can find them here in Utah in the wintertime! If you are a skier, you can help monitor bird feeders at Alta Ski Area or even at the Town of Alta building. However, you can volunteer to watch any bird feeder. Even if you don't see a Black rosy-finch, no data is still data! If you enjoy keeping a dedicated eye on a local bird feeder, you can also contribute to the [Cornell Lab of Ornithology's Project FeederWatch](#). And if you don't have a bird feeder at home or at school, or you'd like to observe birds up in the Cottonwood Canyons, don't worry! You can record and submit observations from any area that is a habitat for birds.
- **Create bird-safe windows.**
 - It is estimated that window collisions kill about 1 billion birds every year! You can help make windows safer by asking an adult to put up screens on the outside of the windows. You can also put up decals to help break up the reflection. Find some instructions for DIY window decals here: <https://www.audubon.org/news/make-migration-friendly-window-decorations>
- **Turn your lights off during migration.**
 - While birds are migrating, bright lights can be disorienting. You can help at home by closing your blinds and turning off any lights that you don't need between 11pm and 6am during peak migration during September-November and March-May.
- **Keep your cat indoors.**
 - Cats are predators and commonly hunt and kill birds. It is best for birds, and other wildlife, that you keep your cats indoors. If your cat loves being outdoors, supervising their outdoor time or building an enclosed "catio" is a good way to protect local birds.
- **Use less plastic.**
 - Plastic is a particular hazard for birds as they can become tangled in it or mistake it as food. Limiting your use of plastics can help to keep it out of landfills and the environment at large.

Birds & Climate Change

One thing that will certainly impact all bird species is climate change. As our planet gets hotter and drier, some species will be more negatively impacted than others.

Click on the link here to see "How Climate Change Will Affect Utah's Birds":

<https://www.audubon.org/climate/survivalbydegrees/state/us/ut>

At the top of the page, look at the photo grid under the header "Vulnerable Birds in Utah"

Note that you can select different warming scenarios under 1.5°C, 2.0°C, and 3.0°C. For each warming scenario, write down which of the ten canyons birds would be considered highly vulnerable, moderately vulnerable, low

vulnerable, or stable. Recall that our list of birds includes the Mountain chickadee, Steller's jay, Clark's nutcracker, Osprey, White-crowned sparrow, Great-horned owl, mallard, Western tanager, and Downy woodpecker.

What do you think makes some species of birds more vulnerable than others?

Next, scroll down to the map underneath the title "Climate Threats Facing Birds and People in Utah".

First, find the icons for the nine factors that can threaten bird species and read about why they are harmful. List the nine factors:

Which of these factors do you think are the biggest influences on birds where you live?

On the interactive map, zoom in on the Salt Lake City area. The Cottonwood Canyons are located east of Salt Lake City which means that if you are looking at the map, the canyons are to the right. Zoom in a little more to find Big Cottonwood Canyon and Little Cottonwood Canyon.

- Hint! Big Cottonwood Canyon has locations that include Gobbler's Knob, Desolation Peak, Solitude, and Brighton. Little Cottonwood Canyon has locations including Twin Peaks, Alta, Snowbird, and Albion Basin.

Use your mouse to navigate up and down the canyon roads. A small box will appear where your cursor is – this box will tell you how many, and what specific threats are in this area. For each canyon, write down which threats are present.

Now use the map to find your home or school (you may need an adult to help you). Which threats are present?

Wrap up some way, come back to this later.

Conclusion

Birds are amazing creatures with amazing adaptations. We sincerely hope that you get out and try birding for yourself – whether you go birding in the canyons or in your own backyard, you are sure to observe something amazing! Upon closer inspection, even the most ordinary bird can seem extraordinary. After we've learned so much about them and gotten the chance to make our own observations, which of the ten canyon birds is your favorite? What about the birds in your backyard, schoolyard, or neighborhood park? Take some time to do some research about that bird and share with a family member or friend. Additionally, next time you go birding, take a family member or friend with you and share the experience – and your knowledge – with them!

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