Ask a Biologist's

Beginning Birders' Guide

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INTRODUCTION

It is fun to explore the virtual aviary at the Ask a Biologist web site. It is even more fun and rewarding to go out into the field to see these birds in their wild habitat. At first it may seem overwhelming to figure out which one of several hundred bird species you are looking at or listening to. However, with a little effort, patience and persistence, you soon will soon be able tell a sparrow from a finch.

Here are a few tips to help you with your birding adventures and help you to identify birds.

Am I looking at a Cactus Wren or a Mockingbird?

Do all hummingbirds look the same?

If I am in the desert southwest am I seeing a Summer Tanager or a Scarlet Tanager?

THE ESSENTIAL GEAR

The most important piece of gear to learn bird identification is probably a good bird book or field guide. A close second is a pair of binoculars. If you have only a small budget, a field guide is more affordable and will get you on the right path faster than having only a pair of binoculars. Very soon, however, you will want to invest in a pair of binoculars as well, because naked-eye birding can quickly become frustrating.

Field Guides

Field guides have descriptions of birds that allow you to identify the bird you are seeing. You will have to choose between a guide that uses photographs and one that uses color paintings. Although many beginners are attracted to guides with photographs, accurate paintings are usually more desirable because a good artist can integrate all the variations of lighting and posture and show how a bird typically looks. You will have to choose a guide that covers the region you want to bird in. Some local guides will include only the most common species. This approach makes life simpler and it is often a good way to start out. However, these small guides can become frustrating to use when the birds you are trying to identify are not the common ones. Other guides include all the species, rare and common. They can be very confusing for a beginner, but virtually every species you see will be in the guide.

Here are some examples of regional and local bird field guides we think are good for beginners:

- **A Field Guide to the Birds of Eastern and Central North America** by Roger Tory Peterson
- **A Field Guide to Western Birds: A Completely New Guide to Field Marks of All Species Found in North America West of the 100th Meridian and North of Mexico** by Roger Tory Peterson
- **The Sibley Field Guide to Birds of Eastern North America** by David Allen Sibley
- **The Sibley Field Guide to Birds of Western North America** by David Allen Sibley

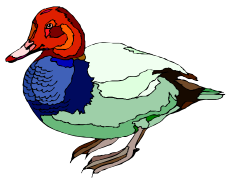
- **All the Birds of North America (American Bird Conservancy's Field Guide)** by Jack Griggs
- **50 Common Birds of the Southwest** by Richard Cunningham

The Order of Things

Once you have a guide, you have to find the bird you are seeing in the guide. It would make no sense to arrange the guide alphabetically, since you do not know the name of the bird. Instead most guides are arranged by putting groups of evolutionarily related birds, called families, together.

Hey, the birds in the book are not in alphabetical order!

For instance, the loon family, the warbler family, or the duck family share similar shapes, structures and behavior because they are closely related. The families are then arranged in the guide based on their evolutionary history from most evolutionarily ancient, such as loons and grebes, to most evolutionarily recent, such as sparrows and blackbirds. This is called the phylogenetic order.



It is very helpful to learn something about the different characteristics of the families and the order they are placed in the book before you go out into the field. Familiarize yourself with what makes members of each family peculiar. Most field guides will have a list of families or color-coded pages to help you find the families of birds you are seeking. Within a family, bird species that share even more similar appearances are placed together into a smaller group called a genus (pleural genera).

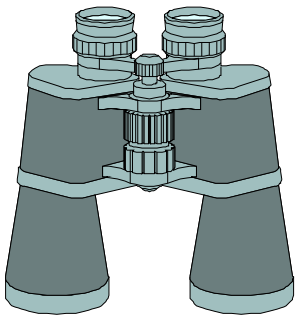
This means that of the 700 or more species within a field guide to North American birds, they will be grouped into about 300 genera within 80 families. More local guides, will, of course, have fewer choices.

Suggestion for improving your birding skills

Start out trying to identify the common and easy-to-see species around your home. You will quickly learn that the large water bird families, such as ducks and herons are at the beginning of the book. Large birds, such as hawks and woodpeckers are next, and the many families of small perching birds, or passerines, are arranged throughout the last half of the book.

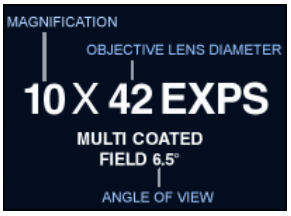
Binoculars

Binoculars will greatly increase your enjoyment of birding and make identification easier by giving you close-up looks at birds. However, there are hundreds of variations among binoculars available today and not all are suitable for birding. For a beginner, the choices can be narrowed down relatively easily. Here are the simple things you should be aware of:



Power of magnification -

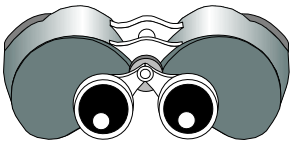
All binoculars come with two numbers separated by an "x", such as 8 x 30 or 10 x 50. The first number is the magnification power of the binoculars. A bird or other object will appear 8 or 10 times closer depending on the magnification power. Higher powers give closer views of the bird, but are difficult to hold steady and show you a smaller field of view making it harder to find the bird. Most beginners would be best off with a pair of 7 or 8 power binoculars.

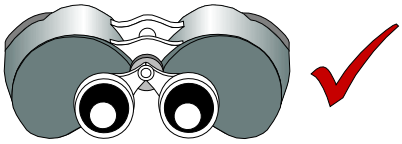


Light-gathering ability -

The second number, such as the 35 or 50 following the "x" is a measurement of the width of each lens in millimeters. A wider lens gathers more light but also makes for a bigger, heavier binocular. Many beginners are attracted to compact binoculars such as 8 x 20 because they are so small. However, these binoculars do not gather enough light. We recommend binoculars with a 35-42 mm lens. Commonly available binoculars are 7 x 35 and 8 x 42 and these are very good choices. To calculate the exit pupil size you divide the objective lens size by the magnification power of the binoculars.

Some examples of exit pupil sizes		
Binocular Power	Objective Lens Diameter	Exit Pupil
7	35	5mm
8	20	5.25mm
7	50	7.1mm





A larger exit pupil size (bottom image) provides for a brighter image.

An easy way to judge the light-gathering ability between binoculars is by looking at the size of the exit pupil. If you hold a pair of binoculars at arms length, you can compare the size of exit pupils. The larger the exit pupil the brighter the image will be. Image brightness is as important as binocular power and sharpness. We recommend an exit pupil size of no smaller than 5mm.

Single-circle viewing -

The lens barrels are hinged so you can adjust your binoculars to fit the width of your eyes. Move the two lens barrels together or apart until the image you see through them is a single circle.

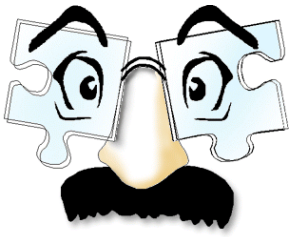
Alignment -

The two lens barrels also need to be perfectly parallel or aligned by the manufacturer. Cheap binoculars often have poor alignment or can easily get knocked out of alignment. If the two lens barrels are badly misaligned, you will see double. If only slightly misaligned, your eyes will struggle to merge the two images. Sometimes they will succeed and the image will look right, but the struggle causes eyestrain and headaches. Before you buy your binoculars, holding them steady, look through them at a distant telephone pole or some

other simple vertical object and first close one eye then the other. As you blink back and forth, the telephone pole should stay in the same place. If it jumps up and down or left to right as you wink, the binoculars are out of alignment. If you drop your binoculars, use this technique to make sure that they are still aligned. Only a repair shop can realign binoculars.

Eyeglasses -

Most birders who wear eyeglasses prefer to leave them on to use binoculars because it is quicker. If do this, you want to have the binoculars as close to your eyes as possible to maintain a wide angle of view. Most binoculars come with eyecups that fold back or screw in to bring the binoculars closer to your eyes when you wear glasses. Be sure to make this adjustment or the view will be very poor. Some binoculars are better for eyeglass wearers than others. How far the binoculars can be held from the eyes and still see the whole field of view is called eye relief. If you wear eyeglasses, look for binoculars with 15-22 mm of eye relief. Some eyeglass wearers get around this problem by first pushing up their eye glasses onto their forehead before looking through the binoculars with the unfolded eye cups directly up to their eyes.



Eye differences -

Your binoculars have a mechanism to adjust the focus of one eyepiece so you can adjust for slight differences in the strength of your eyes. The adjustable eyepiece should have a tiny ruler on and the other should not. Look at an object with your binoculars and close the eye that looks through the adjustable eyepiece. Focus on the object using the main focus wheel while looking only through the eyepiece with no ruler on it. Keep the other eye closed. Then close the first eye and open the other. Twisting the eyepiece itself and not the center focusing knob, refocus on the same object with only the eye open on the eyepiece with the tiny ruler. Now open both eyes. The object should be in perfect focus for both eyes.

Other details -

Virtually all binoculars today have center-focus knobs that simultaneously focus both sides of the binoculars. Individual-focusing binoculars are popular with boaters but should not be considered for birding. Special coatings that give the lens a color tint add to the expense of binoculars but also improve resolution and color fidelity. Roof prism binoculars (two straight tubes) are more expensive, but they are sealed against water and dust and usually lighter in weight. When you really get into birding, you may want to invest in a more powerful spotting scope and tripod to identify birds at great distances.

How much to spend? -

More expensive binoculars have better optics and are more durable. Really cheap binoculars can be very frustrating to use. Decent binoculars for birding usually cost $100-200. Much better binoculars can be found in the $300-400 range. Cost-no-object binoculars can cost $500-1500.

Practicing in the field -

Seeing a bird with your naked eye and then being able to find that same bird in your binoculars is at first harder than you might expect, but gets easier with practice. The bird is often moving around as you are trying to find it and focus on it. Don't look down at the binoculars as you are putting them to your eyes. Most experienced birders learn to keep their eye on the bird as they lift their binoculars to their eyes. Imagine a rope tied tight between you and the bird. Try to lift your binoculars to your eyes and put the barrel of the binoculars around the rope. Sometimes you can most easily find a distinctive branch or other structure you know the bird is perched on and then follow that branch out to where the bird is. If you are looking for a skulking bird that you know is in a certain bush, first focus on the bush. Then when you see the bird with your naked eye, you will already be focused on the right distance. All these techniques demand practice, so expect to make mistakes at first.

Clothing

What you wear on you birding trips can make a difference. The wrong color of cloths or type of boots can reduce you chances of observing birds in wild. Here are some recommendations.

Avoid bright colors including clothing that is white. This will help you get closer to the bird you want to observe without alerting them to your presence.

Stay away from noisy clothes and Velcro straps. Many outdoor clothes are made from fabrics that make quite a bit of noise when you move. This is especially true for rain gear. Velcro straps and pockets can also make quite a racket when you want to pull out your bird guide, or binoculars from their case. Avoiding these materials will help you get closer to birds for better observations.

Wear a broad-brimmed hat or cap. Birds have a knack of being in line with the sun. A broad-brimmed hat will help to shield you eyes from the sun and allow you to see birds easier. The extra shade over your eyes, also helps when using binoculars.

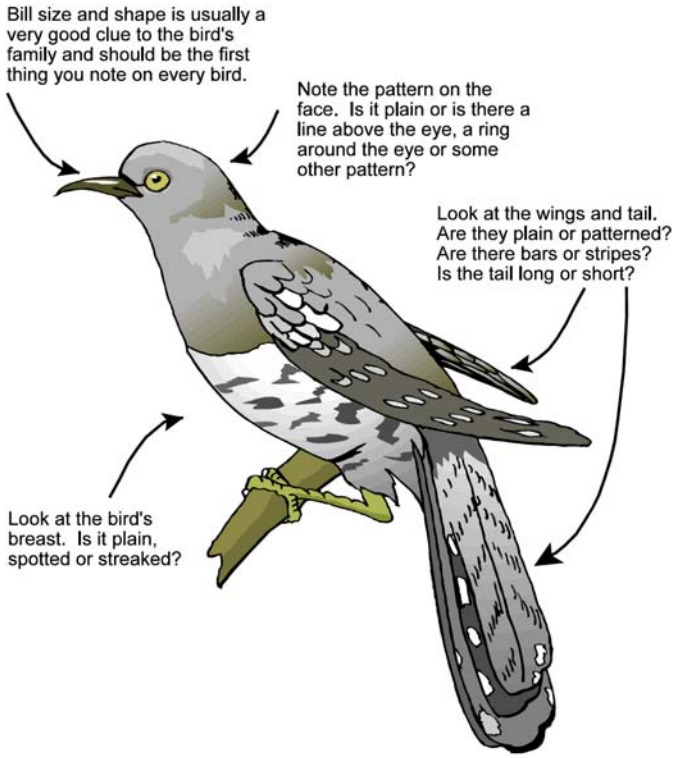
BIRD IDENTIFICATION SKILLS

Know what species to expect -

When you have become familiar with using your field guide and your binoculars, it is time to combine them with some basic birding identification hints. Use habitat and distribution as well as time of year to eliminate many possibilities when trying to put a name to a bird. If you are birding in an Arizona desert during the summer, you can be pretty sure the reddish finch you are looking at is not a Pine Grosbeak. They occur only in pine forest in the mountains. More likely you are looking at a House Finch. Expect the species to most likely be a common species for that habitat and season. Although finding rare birds outside their normal range is exciting, they are called rare for a reason. Use local published species checklists and study them. This way you will be better prepared to know what to look for. Don't be afraid to mark up your field guide with notes and codes so you can quickly home in on the most likely species to fit the one you are looking at in the field.

Field hints to identification -

Most beginners focus on the bird's color, but it is often not the most important mark. Here are some key features to look for when identifying birds.



With this information and the range maps in your field guide you should be able to get pretty close to an identification, at least to a group of similar birds. Even if you only get a group of similar birds, you can then read more about specifically how to tell those similar birds apart and be better prepared next time. This way you skills improve.

As you learn the common species, they become a basis you can use to remember the less common and more difficult species. The Robin, for instance, is easy to learn. The Spotted Towhee, however, is a bit sneakier and harder to learn. However, if you remember the Spotted Towhee looks very much like a Robin, but the back is spotted and the red doesn't cover the center of the breast. Use this comparative method to quickly accumulate identification clues to many species.

Remember that a single illustration in a field guide will not always perfectly match the bird you are looking at. Simple picture matching can lead to misidentifications. Focus on the critical field marks described in the guide instead. Just like among human beings, every bird species shows lots of differences among individuals. Some will be brighter, darker, or larger than others of the same species. Sex, age, time of year, and different parts of the geographical range all increase this variation, and the field guide cannot include every variation. As your skills grow, be prepared to

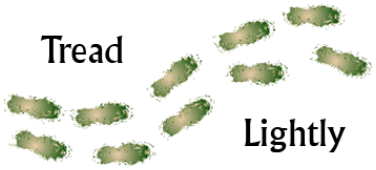
also use peculiar behavior, habitat, voice, and other more subtle characters to identify the species. One character that often is misleading is size. Size is very hard to estimate. Rather than trying to estimate a bird's size, compare it to other common nearby birds if some are around. "Bigger than a mallard" or "smaller than a mourning dove" can be very useful information. Try and use combinations of identifying characters rather than a single one.

Most new birders and many more experienced birders rely almost completely on visual clues. However, as your skills improve, songs and calls can often be better clues to identification. If you can learn to identify a friend's voice on the telephone, you can learn bird calls as well. Watch common species singing and try to remember their songs. Field guide descriptions of songs often include useful ways to remember songs. Using CDs of bird songs available commercially or off the Internet is another way to practice. The Ask a Biologist web site has a large collection of songs from birds found in the Southwestern United States. Learning the basic songs of common species also makes it easier to expand your repertoire quickly by comparing them. Thus the common Robin song serves as a reference, and the Black-headed Grosbeak sounds like a "drunk" Robin, the Western Tanager sounds like a "burry" Robin, and the Plumbeous Vireo sound like a "hesitant" Robin. If you see a bird that you think might be a Plumbeous Vireo, but it sounds nothing like the familiar Robin, you know you are on the wrong track.

Social birding-

Of course you can develop all these bird identification skills on your own, but the one way guaranteed to increase your learning rate is to bird with friends, especially if some of them are more experienced. Birders in general love to share these skills. Local birding groups, schools, and educational field stations are all likely places to make contacts with birders to help you develop your skills.

When you are out either alone, or in a group, be sure you know the state and local laws regarding public and private property. You should never enter into private land without gaining an owners permission. The difficult part is knowing when land is private. In some states signs must be posted to show that land is private. In other states public land must have signs posted. Without knowing the local and state laws you might end up on private land, which can lead to some angry encounters with land owners. When in doubt, do not enter a fenced property.

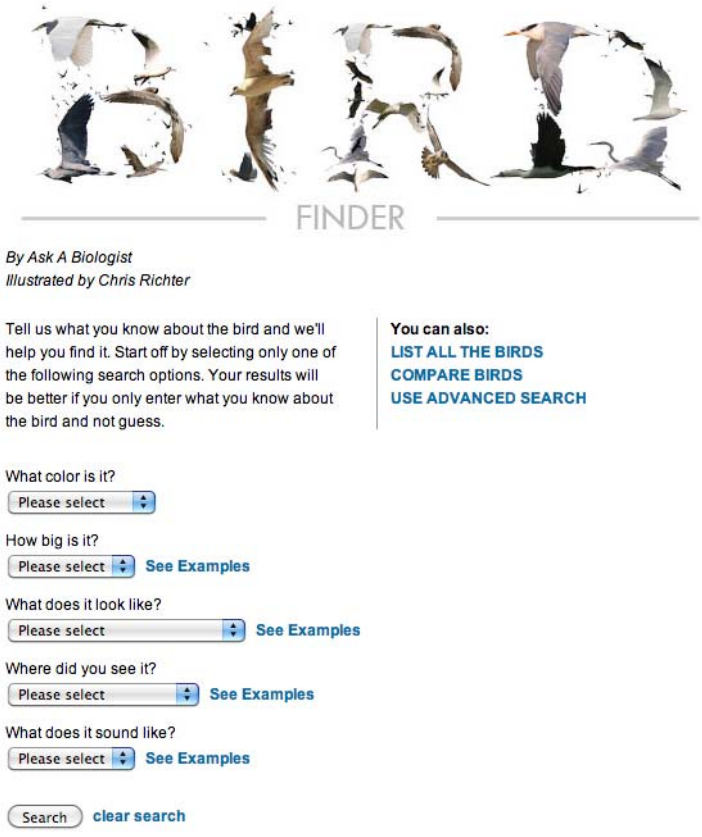


Tread lightly on the earth. No matter if you are on public or private land, be kind to the environment. Whatever you have carried in with you, should leave with you. Take care not to leave bottles, cans, or container behind. Leave gates as you found them. If they are closed be sure to close the gate behind you.

BIRDS OF THE SOUTHWEST WEB GUIDE

If you have printed this guide out, you have most likely visited the virtual aviary on the web site. Besides being a fun resource for birders of all levels, it can help you before and after your birding trips. Before you leave you can check to see which birds are likely to be found in the area you will be visiting. You can check on the habitat, range maps of species, along with seeing a picture of the bird. In addition, you can listen to the various bird songs. All of these will help you locate and identify birds while on your trip. When you return you can also use the web site to confirm what you found. Below is a quick tour of the aviary and how the content is related.

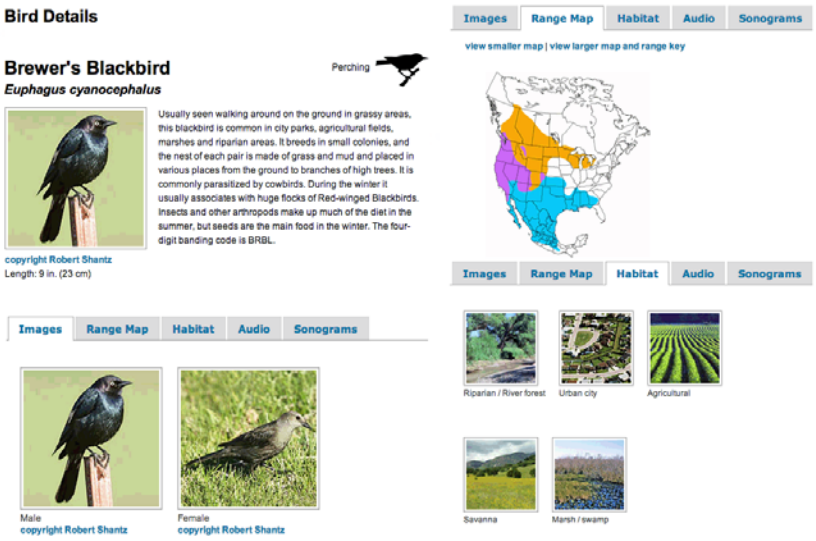
Bird Finder Search Tool



Bird Finder allows you to search for birds. It includes individual descriptions, maps, songs, calls, habitats, and sonograms.

askabiologist.asu.edu/activities/birds

Data cards



Bird Finder data cards help you focus on individual birds. It brings together all the basic information you can use to locate and identify birds either by sight or sound. Bird images, their size, and descriptions of their habitat are included in each card. You also have access to range maps, recordings, and sonograms of the recording.