

Birdsong *for the* Curious Naturalist

Your Guide to Listening

Accompanied by 734 recordings and over 75 hours of fine listening
on the companion website, BirdsongForTheCurious.com

Donald Kroodsma

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1. Beginnings

THE MAGIC AND MYSTERY OF BIRDSONG

Birdsong fills our lives with beauty and wonder. The beauty is everywhere and inescapable: a robin caroling after a rain, a thrush fluting in the forest, a wren babbling in the brush, any bird with an unknown name who moves us. Autumn and winter are dreadfully quiet, and we eagerly anticipate the return of spring and song. Singing birds are happy and sing for joy, we want to conclude, but all we can know for sure is our own happiness and joy in hearing them.

And the curious among us wonder, beginning with simple questions that inevitably take us on unanticipated adventures. Just what is a bird? Why does it sing or call? How does it sing, and what does it hear? Where does a bird get its song? Is it inborn or learned? If learned, when and where and from whom does the youngster learn? How do learned songs change from place to place, in the form of dialects? Which birds mimic other species? How many different songs can a bird sing? How do birds go to roost, or awake, or sing so energetically at dawn, or sing through the night? Which birds do what? And in all the listening, what is it about birdsong that we find so beautiful, so musical?

It is the wonder that drives this book, as a quick scan of the Contents will reveal. In the following pages are great joy and happiness, just waiting for you—and adventure, too. Explore the listening projects, and your appreciation and love of birdsong and the natural world will unfurl.

WHERE AND HOW TO LISTEN

Throughout the book, we listen to hundreds of singing and calling birds. You can access the sounds and more information about them in two ways:



1. As you encounter the numbered recordings in the text of this book, go directly to the website BirdsongForTheCurious.com and find the corresponding numbered recording. The text in the book and on the website will guide you in your listening.

2. Alternatively, you can go directly to the recordings on the internet by using the QR (“Quick-Response”) codes provided throughout the book. With a QR code reader (free, available for download to smartphones), simply scan the QR code, and you will be whisked to the appropriate page on the website, where you can play the chosen sound and read all about it. Try that for the QR code to the left and you will find yourself at the home page for this book’s website.

When you listen, for best effect please use headphones. You minimize extraneous noises this way, and it is then just you and the bird singing directly into your ears. The stereo effect of many of the recordings is also better heard with headphones.

Altogether, more than 75 hours of fine listening and exploring await you. I invite you to linger and listen, to enjoy a sage thrasher singing through the night (p. 127), to marvel at the variety of songs a brown thrasher offers over several hours (p. 92), to appreciate the masterful performance of a western meadowlark (Explore 70). I challenge you to listen to this singing planet as you have never listened before. Don’t settle for a few brief sound bites that provide the minimum clues needed to successfully identify a bird to species. No, strive for a deeper understanding of each singing bird, trying to fathom who it is, what’s in its head, why in this moment it is singing the way it is. A singing robin is never “just a robin,” for example, but an individual expressing his mind, maybe even a “thought.” So I pause and I listen, often for hours, and sometimes for days to a single bird, out of admiration, respect, and wonder. The depth and range of recordings in this guide provide you with opportunities that you can find nowhere else, and you can choose to explore as deeply as you wish.

EXPLORE ON YOUR OWN

In 77 places throughout the book, after introducing a topic and providing some examples from common birds throughout North America, I invite you to **Explore** on your own. Although this guide contains a wealth of recorded songs that you can study, there is nothing more satisfying than exploring the natural world firsthand, on your own.

The text for 48 of these **Explores** is provided in the book, and another 29 are on the website (BirdsongForTheCurious.com).

For some of those explorations you do not need to immediately name the bird you are hearing. It is liberating to be free of naming, and exploring a world without labels can be mind expanding. That idea runs counter, of course, to the primary goal of many birders, which is to pin a label on a bird as quickly as possible and with minimal clues (and then move on). I simply suggest that you first try truly listening, and only second consider the name of what you are listening to. To rephrase one of my favorite book titles, I believe that “Hearing Is Forgetting the Name of the Thing One Hears.”

For most invitations to **Explore**, however, finding birds of a particular species is necessary. If you know your birds and where to find them, that’s great; perhaps find someone to share your knowledge and fun with. For others, finding a few common birds might be relatively easy, but finding other species may be more challenging. Fortunately, countless bird enthusiasts will be eager to help you. Find a local bird club or Audubon Society, or visit the website of the American Birding Association (<http://www.aba.org/>). If you are youngish, you are sure to find inspiration and help from the ABA’s Young Birders program (<http://youngbirders.aba.org/>). Ask around and you will discover that a thriving community of bird enthusiasts awaits you.

In all of this listening, I encourage you to engage your eyes as well as your ears, because nothing improves one’s hearing more than being able to hear and see a sound simultaneously. “I hear with my eyes,” I sometimes say to emphasize the point. Once I *saw* the difference between the songs of an American robin and a scarlet tanager, for example, my ears could never forget. Our eyes are so much better tuned to the world than are our ears, and it is our eyes that can help bring our ears along. A half century ago I began studying sounds with my eyes, but it was a cumbersome, laborious process back then, and it took me about five minutes to print a two-second graph. Now, these graphs (called sonagrams, which I think of as “musical scores for birdsong”) scroll by in real time on our computer monitors. I highly recommend that you engage both your ears and your eyes and download Raven Lite, a free program from the Cornell Lab of Ornithology (see “How to Hear and See Birdsong,” p. 178).

One final thought about these **Explore** sections: Countless ornithologists have already done extensive research on birdsong, but this book does not explicitly reference all their work. Instead, I refer you to

the Birds of North America (BNA) series (<https://birdsna.org/>), which you can subscribe to for pennies a day or access for free at your local library. There you can find all the latest information on every species mentioned in this book, including references that credit the ornithologists who have done the work. Once you begin exploring a given topic, you will inevitably wonder how your effort aligns with that of others, and the BNA is your entry into this literature. See also Chapter 10, “Additional Resources” (p. 179).

DOING SCIENCE? YES!

Curious naturalists are natural scientists, but then, one might ask, just what is “science”? Here’s a pretty standard definition: “Science is the search for truths about the natural world.” That’s rather abstract, so I’m left wondering how to get started finding those truths. One approach is embodied in this simple statement: “Science is the art of collecting interesting numbers.” I like that, because it describes so well the process of exploring (combined with a healthy dose of inspiration and ingenuity, of course!). Scientists collect numbers and count for all kinds of reasons—to understand how often something happens, to help estimate the probability of an event, or simply to describe what we are seeing or hearing.

Pick any species that intrigues you, or any individual that intrigues you, and count something, *anything*. The simplest of questions, such as “How many songs does he sing in a minute?,” inevitably leads to more questions, such as “How about the next minute, or another minute at another time of day?,” and you will be on your way. How many *dees* are in the *chick-a-dee-dee-dee* call? How often does that woodpecker or grouse drum, or the snipe winnow? Draw a graph, showing how the event occurs over time, because seeing patterns in the simplest of graphs leads to even more questions.

Question, then describe and explore as you attempt to find an answer; next, refine the question or ask another, based on your best answer. Some of the best science is done in this simple progression, and so much of what you could learn about birdsong in this way would make you the world expert on your chosen species and question, as so little is known about birds. In the **Explore** suggestions, I give you a start, but there are limitless opportunities for you to devise your own counting and listening projects.

2. Birds and Their Sounds

BIRDS!

We know a bird when we see one: It has feathers, flies, and maybe sings. We are not likely to confuse birds with frogs and toads (amphibians), lions and mice and us (mammals), or alligators and lizards and dinosaurs (reptiles). But those reptiles deserve a second thought, because scientists have learned that birds descended from dinosaurs. We now actually think of birds as living dinosaurs with feathers. Technically, in the grand classification of animals, birds are considered to be a special, recently evolved group of reptiles.

The 10,500 species of birds in the world are classified by ornithologists into about 40 major groups, or orders. Some of the common groups in North America include the following, arranged in the most recent “field guide sequence,” from those most recently evolved (passerines) to the oldest groups (ducks and geese; read down each column):

passerines	herons, bitterns	cuckoos
(“perching birds”)	cormorants, anhingas	doves
parrots	shearwaters	grebes
woodpeckers	loons	chickens, grouse
kingfishers	shorebirds, gulls	ducks, geese
owls	rails, cranes	
osprey, hawks	hummingbirds, swifts	
	nightjars	

The passerines, relative newcomers to the flock, are extraordinary. They are only one of many orders yet contain most of the species, about 6,200. Of those, about 4,900 are in a remarkable group called “oscines,”

or “true songbirds,” such as jays and crows, swallows, chickadees, wrens, thrushes, warblers, sparrows, and so many more. These songbirds have brains that guide song learning (see “Singing in the Brain,” p. 32) and especially intricate voice boxes that enable complex singing (see “Not One But Two Voice Boxes,” p. 38). The other 1,300 passerine species are called “suboscines,” or “not true songbirds,” which in North America are all flycatchers, such as pewees, kingbirds, and phoebes (in Central and South America are several other suboscine groups: woodcreepers, manakins, cotingas, antbirds, and others). Given their abundance and their abundant singing, the passerines, and especially the songbirds, are the primary focus of this book, but many examples will also come from nonpasserines (see “Who’s Who?,” p. 170).

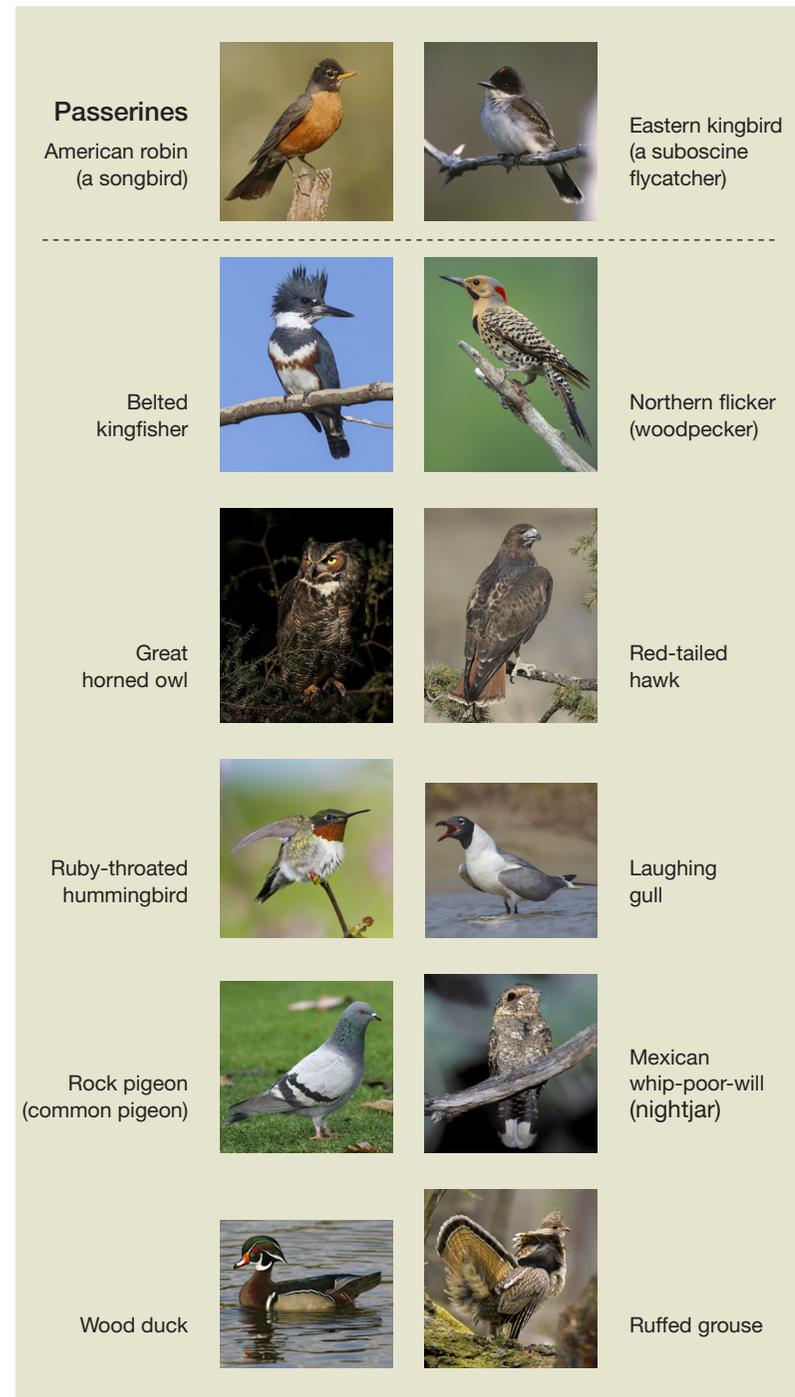
Some inevitable confusion about terms is worth addressing head-on here. The thousands of true songbirds (oscines) are classified into a single group *not because they sing* but because of anatomical (e.g., structure of voice box, sperm) and genetic features that they inherited from their common ancestor. These 4,900 (true) songbirds are an evolutionarily cohesive group, and when I use the term “songbird,” I refer specifically to this special group. But some of these songbirds do not sing, at least in the usual sense (p. 104), and birds in many other groups certainly sing, such as all of the suboscine flycatchers that we know in North America. So not all songbirds sing, and not all singing birds are songbirds!

With the older groups at the bottom, the most recently evolved groups at the top, the arrangement of 12 representative birds on the opposite page implies an evolutionary tree. Birds near the bottom are from more ancient groups that originated before groups above them.

BIRDS SING AND CALL

After a long winter (the “Big Silence”), our spirits are renewed by the lengthening days and the surge of birdsong in spring. Most often it is the male who rises to the treetops to voice something relatively long and loud and complex, as if he is eager to broadcast his important message far and wide. We hear the beauty and music in his efforts and say he is “singing.” (As to why he sings, see “Why Sing?,” p. 26.)

We try to distinguish those songs from calls. Calls are typically shorter sounds that are used in specific contexts by both males and females of all ages. A young bird in the nest calls for its parents to feed



it. Always alert, birds call to warn of danger from predators. Foraging birds chatter softly to keep in touch with each other. Songbirds often call high overhead as they migrate during the night. Birds are truly noisy creatures! But a small warning is in order here: ornithologists don't all agree on what constitutes a "song" for many species (see examples in the next section, p. 14).

Here are six songbird examples, with male songs and typical calls.

Black-capped chickadee



SONG: Most black-capped chickadee songs in North America consist of brief, pure whistled notes, *hey-sweetie* (or *fee-bee-ee*; mnemonics in italics), the *sweetie* lower and with a slight waiver midway (♫1). For other versions of the song, see "Song (and Call) Dialects," p. 63.

CALLS: *Chick-a-dee-dee-dee*, the call for which the chickadee is named, is given by both males and females in a variety of circumstances; with predators, the more *dee* notes, the more dangerous the predator (compare ♫2, ♫3, ♫4). Chickadees have a variety of other calls as well, one of which is called "the gargle" (♫5).

For more about the black-capped chickadee, see "Song (and Call) Dialects" (p. 63) and "The Music in Birdsong—Pitch-Shifting" (p. 155).

Explore 1: *Chick-a-dee* calls of North American chickadees.

Chickadees occur in one form or another throughout most of North America (besides the black-capped, the four others most frequently encountered are the Carolina, mountain, chestnut-backed, and boreal chickadees). They are common birds, especially at our winter feeders, and they all *chick-a-dee-dee-dee* in their own style (faster, slower, hoarser, etc.). Get to know chickadees better by counting the number of *dee* notes in their calls under a variety of circumstances. Then maybe try to manipulate the circumstance. Introduce a plastic owl near a feeder, for example, and listen to how the chickadees react. Or introduce a cat into the yard (but, heavens, only briefly!). Use your imagination as to what you think might be of concern to a chickadee, and then

document how they adjust their *chick-a-dee* calls. You can practice your listening and counting with the *chick-a-dee* examples I provide on the website for the book.

White-breasted nuthatch

SONG: The white-breasted nuthatch's song is relatively soft, a rising, somewhat nasal note repeated, *waah-waah-waah-waah-waah*, or faster, *whi-whi-whi-whi-whi-whi*, with each bird apparently singing at two different speeds. In ♫6, hear five slow, then five fast songs. Test your ears to hear how he delivers his slow and his fast songs in these four recordings: ♫7, ♫8, ♫9, ♫10.



CALLS: Amid a chorus of other species, a male and female nuthatch converse intimately in *yanks* and *twitters* as they forage near one another (♫11).

Sounds of the white-breasted nuthatch vary geographically, a possible clue that this one species could be considered two to four different species. See other examples of this kind of geographic variation within a species in "Each Species Has Its Own Song" (p. 140).



Explore 2: White-breasted nuthatch songs.

A male white-breasted nuthatch is believed to have just two songs, one slow, one fast, and he repeats one song many times before switching to his other (see "How a Repertoire Is Delivered," p. 94). But how many times? Does he favor one song over the other? Just a few minutes of concentrated counting with a nuthatch will take you places where it seems that no one before has explored.

A more advanced project for the curious naturalist might ask if all birds in a population sing at the same slow and fast rates. You will need to record and measure songs, all readily doable if you are interested (see pp. 178–179). I have wanted to do this project for years, as I have suspected that "just two songs per male, one fast and one slow" is oversimplified and might not accurately reflect what nuthatches actually do (see also p. 169, on the red-breasted nuthatch). This listening project is good for late winter or early spring, as nuthatches have an especially early singing season.



Veery

SONG: The male veery sings in a loud, breezy, downward spiral, *da-veeyur, veeyur, veeer, veer*, echoing as if he sings into a metal pipe (♫12).

CALL: Simple *veeer* notes are slurred downward, given here by a small flock of migrants descending from a night of flying during early September

(♫13). About an hour before sunrise, veeries awake on the nesting grounds and immediately engage in a calling chorus, before they begin singing (see “How Birds Go to Roost and Awake,” p. 108).



American robin

SONG: It’s “the all-American Robin,” singing several low caroled phrases, *cherrily, cheer-up, cheerio*, followed when excited by a high, screeching *hisselly* (or *eek!*), a brief pause, then continuing. How fascinating to listen how he chooses to combine the two phrase types, with no two sessions ever alike—I never tire of listening. Try these three examples: ♫14, ♫15, ♫16.



SONG WITHOUT THE CAROLS, ONLY HISSELLYS: (♫17) What? For what purpose? Why leave out the carols? This robin sang quietly in the top of a tree, with a second robin nearby (the second bird can be heard calling at 0:11, 0:14, and more). What was the mood of this *hisselly* bird? He seemed agitated, highly conflicted with that second robin so near.

CALLS: Robins are so expressive!

A host of robins settling into a winter roost, with howling wind and hooting great horned owl (♫18).

Agitated calling when a nest is threatened by a human (♫19).

A robin sounding not at all pleased as an adult, predatory northern hawk owl perches above (♫20).

A “hawk alarm,” of the kind given by many songbirds when a hawk is sighted, so high and thin that the hawk has trouble hearing and locating the calling bird (♫21).

More about robins: “How a Repertoire Is Delivered” (p. 94).

Explore 3: American robin songs.

Discover something about robins that no one else seems to have explored. A robin sings “several” low, caroled phrases in a series before pausing or offering a high, screechy note (a *hisselly*, though some hear it as *eek*), but exactly how many carols does he sing? Or how many *eeks*? Do the numbers change through a singing session, or from early morning to midmorning to midday to afternoon to evening? Or from one week or month to the next? And how about the ratio of carols to *eeks*? What might you learn about the mind of a robin by simply counting his songs like this? No one yet knows.

You can listen to patterns in robin singing anywhere, thereby documenting a general pattern in robin singing for whatever time scale you choose. Even more satisfying, however, might be to learn how an individual robin sings over time. Many robins can be recognized as individuals by a unique carol or two (see “How a Repertoire Is Delivered,” p. 94), and you can use those unique carols to ensure that you are listening to the same robin from hour to hour or day to day.

Gray catbird

SONG: The male gray catbird offers a seemingly endless variety of squeaks, whines, rattles, whistles, and gurgles, about 90 per minute (♫22).

CALL: A simple cat-like *meow*, the call that gave the bird its name (♫23).

More about catbirds: “Improvised Songs” (p. 47).



Common yellowthroat

SONG: The common yellowthroat’s song is a bright, rolling, well-enunciated *wichity-wichity-wichity*, typically a three-syllable phrase repeated several times (♫24).

CALL: A split-second, single note, low and husky, *tchep*, gives away the yellowthroat in the tangles (♫25); less often one hears a chatter, suggesting aggressive intentions (♫26).

