

Eastern and Central North America

The
**BACKYARD
BIRDSONG**
GUIDE

A Guide to Listening
by **Donald Kroodsma**

A  CORNELL LAB of ORNITHOLOGY AUDIO FIELD GUIDE


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INTRODUCTION:

THE WORLD OF BIRDSONG

*P*icture our planet Earth as dawn's first light and a burst of birdsong sweep the globe, racing continuously and endlessly from east to west at a clip of a thousand miles per hour, repeating every twenty-four hours. In North America, imagine riding this wave of light and song as it sweeps across eastern forests, the prairies, and western mountains. A few years ago I had the opportunity to ride this wave of birdsong as my son and I biked from the Atlantic to the Pacific coast. We began our trip in Virginia in early May and rode along with the crest of the birdsong season to finish in Oregon by mid-July. On the best days, we began biking an hour or two before sunrise, feeling the power of this dawn wave approach and then pass over us.

I love the visual image of a perpetual dawn with an endless promise of a new day, but it is the aural experience that I live for. I rode across the country not with binoculars but with wide-open ears, listening to all the birds had to say, relishing their every peep. As with my human friends, I do enjoy seeing them, but I'm less interested in seeing them than in hearing what is on their minds.

My hope is that you'll use this book to identify birds by their appearance and also learn how to "bird by ear," recognizing them by their sounds. But this book is not a mere guide to identifying particular species; no, my goal was instead to create a guide to *identifying with* birds—to come as close to understanding these amazing creatures as we can by interpreting the way they express themselves in calls and song.

Let me give a human analogy. Suppose you move to a small, friendly town of about a hundred people, and you want to get to know your neighbors. One approach would be to start with a mug shot and voice clip of every person so that each could be identified by sight or sound, maybe even by using binoculars at a distance of a hundred yards. Most of us, however, would find that a rather shallow experience; we might start with some pictures, but very quickly we'd want to move on to more intimate experiences with selected individuals. Maybe we'd linger over a lunch or go for a walk together, all the while truly listening to what is on the mind of each newfound friend. As you come to know these people, never again do you think of *identifying* a person or of confusing one person with another, because you know him or her so well.

This book reveals the joy in that kind of deep listening to birdsong, of coming to understand birds by how they express themselves—it is a guide to *identifying with* birds.



WHY BIRDS SING

First, it helps to understand why birds make sounds. The great eruption of song that we hear in spring is mostly the sound of males trying to impress females. For most species, it is the male who “sings” and the non-singing female who chooses a mate based, in large part, on his singing prowess. A bachelor male will sing all day long, but he sings far less often after he attracts a female to pair with him. Even a paired male continues to sing throughout the spring and summer, however, because females often make additional mating choices after pairing. Although she initially chooses and pairs with a social partner to help raise her offspring, there’s no guarantee that he will be the genetic father of all of her young. It’s not atypical for a male to father only half of the young in his nest (as revealed by DNA fingerprinting), the other young being fathered by male neighbors who for some reason impress his mate. Thanks largely to these kinds of mating choices made by females, males continue to sing long after pairing, so throughout the spring and summer, we are eavesdropping on some of these most fundamental and complex rituals in the lives of birds.

How females make their choices remains one of the great mysteries of birdsong and is the focus of much current research. She probably listens for clues that tell something of his history: Has he been in this neighborhood long enough to learn the local dialect? She’d also do well to know his age, as older birds are more experienced and have proven that they can survive from year to year: Does there remain any hint of his babbling stage, suggesting he’s just a yearling, or are his songs steady and perfect, like those of an older male? She must listen for clues to his overall health: How many different songs has he mastered, how intricate are his songs, how consistently can he sing a precise tune, or how much singing stamina does he have? She’d want to know what other males think of him, too, and how he fits into the local hierarchy of singing males: Do other males “trash” him by singing over him and overlapping his songs?

Whatever her standards, it is the non-singing female songbird we can thank for all of the song that we hear. Over evolutionary time, females have chosen males who sing in certain ways; those males father the offspring, who then inherit the genes to sing like their fathers or be as choosy as their mothers. She is the silent composer of the male orchestra that we hear and enjoy throughout the spring and summer.

While a primary function of birdsong is to impress females, it can serve other purposes as well. As a male sings, he announces his presence on a territory and warns other males that he will defend his space. (Singing isn’t necessary for territorial defense, however, because territories in many species are defended by both males and females without song during the non-breeding season.) It’s tempting for birdsong lovers to conclude that male birds sing “for joy,” but that is scientifically questionable for several reasons. Scientists dismiss such an anthropomorphic thought outright, for example, because it attributes human emotions to birds. The “for joy” explanation is also male-centered, as if he sings for himself, and I view it as an insult to every female songbird and all her female ancestors who have, by their mating choices, designed his songs and how he delivers them. In addition, if a male bird sings largely for joy, we’d then have to explain why females of most species are such joyless creatures, or why males are joyful for such a short time each year. It is possible, of course, that birds experience some pleasure in singing; perhaps endorphins surge through the body of a singing bird so that it experiences something comparable to a “runner’s high.” In the end, though, it’s all rather simple: He sings “for her.”

In the end, though, it’s all rather simple: He sings “for her.”



WHERE EACH BIRD GETS HIS SONG

How a bird gets the particular song that he sings differs among birds. In most groups, the sounds that birds make are believed to be inborn; birds like ducks, geese, loons, herons, and hawks, for example, have encoded genes that tell a young bird what kinds of sounds it is to make from the moment it hatches. Not so with the songbirds, such as larks, starlings, warblers, sparrows, finches, and many more, whose young birds must *learn* their songs from singing adults, much as we learn our speech from adult humans.

We often take this learning ability for granted, perhaps because we are so adept at learning our own speech, but the songbirds' ability to imitate sounds is rare in the animal kingdom. This ability seems to be absent in our closest relatives, for example, the chimpanzees, gorillas, and orangutans. And it's absent in the songbirds' closest relatives, too, the flycatchers, including wood-pewees, phoebes, and kingbirds. Indeed, so rare is song learning among bird groups that it seems to have evolved independently only a few times, as in the ancestors of songbirds, parrots, and some hummingbirds.

Thanks to this song learning by songbirds, our listening pleasure is greatly enhanced. Although we can certainly enjoy listening to a non-songbird such as an Eastern Phoebe, a flycatcher with inborn songs, he has a limited song repertoire consisting of only two simple variants of his *fee-bee* song; because the genes of Eastern Phoebes are much the same everywhere, their songs are, too. What a contrast the phoebe is to the mockingbird, a songbird that can sing one hundred to two hundred different songs. Because songbirds aren't limited by how much can be encoded in their genes, some have developed impressively large song repertoires (though not all songbird species have taken advantage of that ability).

Song learning leads to all kinds of song variation that we can learn to appreciate and enjoy. Listen to different mockingbirds, for example, and

you'll hear how males differ in the songs they have chosen to mimic. Listen carefully to robins or individuals of almost any other songbird species as well, and you can hear how each bird sings with his own voice by varying his songs in either small or large ways from nearby birds of his own kind.

Each bird of a given species will be somewhat unique in the songs that he learns, but in most species he still conforms to the local dialect, just as we humans differ individually yet conform to our local speech dialect. (Native New Englanders, for example, often drop their r's, as in "Go pa'k the ca'," or they add r's where not needed, as in "That's a good idear.") All of this versatility and variety among individuals and from place to place may make songbirds harder to identify but so much the easier to identify with.

A bird's song depends not only on how he has developed it during his lifetime, but also on the genetic heritage passed down to him from his ancestors. Take chickadees, for example. The two species included in this book (the Carolina and the Black-capped) sing very differently, but if we could follow the lineage of each species back through time, listening to how they've changed over a million years or so, we'd eventually come to an ancestral chickadee, the single species that gave rise to our two modern ones. Since that ancestral chickadee, why have the songs changed the way they did, so much so that we now have two strikingly different kinds of singers in the two species? Most likely, the two lineages somehow became geographically isolated, and females in these isolated lineages began to prefer slightly different singers. It's likely that all the females were seeking essentially the same kind of information about the quality of their potential mates, but there are many forms that songs and singing behaviors can take to convey such information. Over time, the cumulative choices made by females in the two lineages were sufficient to produce two distinct species, each with its own sets of genes that dictate how to sing. As you get to know the birds in this book, pay attention to which species are closely related (especially those in the same genus), and you'll start to appreciate the bigger picture of how or why each species has come to be as it is.

Young birds must learn their songs from singing adults,
much as we learn our speech from adult humans.

SONGS AND CALLS

Most of the sounds that we hear, especially from songbirds, are what we consider to be “songs.” These songs are typically loud, complex, and broadcast from the treetops because they are designed to impress females far and wide. Both males and females also use a variety of other sounds in their daily lives throughout the year, not just during the breeding season. We think of these other sounds as “calls,” sounds used in specific contexts to convey certain messages. When songbirds spot a flying hawk, for example, they often utter a “hawk alarm,” a high, thin whistle that for us is difficult to hear and for the hawk might be especially difficult to locate. In contrast, when songbirds flock around and harass (i.e., “mob”) a perched owl, they typically use harsh, noisy calls. As a paired female and male forage together, they might use soft, subtle notes to stay in contact, their bantering much like a quiet conversation that would be expected between partners. When songbirds encounter a predator at the nest, they use still other types of calls.

For most species, this distinction between songs and calls is straightforward. Almost all flycatchers and songbirds have identifiable songs and calls, for example, but some songbirds, such as the jays and crows as well as the waxwings, lack a typical “song.” Although a Northern Flicker does sing a typical *wik-wik-wik-wik* song, all woodpeckers also drum what might be considered a “mechanical song.” Woodcocks sing with their voices, but the noises they make

with their wings could also be considered a song, and snipe “sing” with their tails. In short, almost all birds have some special sound that seems to be used to impress a mate or, secondarily, to defend a territory, and we can think of that sound as the “song”; all the other sounds a bird makes are considered its “calls.”



THE PRACTICE OF DEEP LISTENING

In general, the key to good listening begins with locating one bird, preferably when he is singing at his best early in the season or in the hour before sunrise. (Sunrise is the moment the sun peeks over the horizon, the time widely available in local newspapers or online at *The Old Farmer's Almanac* Web site, www.almanac.com/rise. I use the word *dawn* loosely as the hour or so before sunrise.) As he sings, listen intently to each sound, comparing each song to the next. For each song, try to memorize the tone and rhythm in an attempt to grasp its essence.

It helps me to grasp the song if I envision a mental image of it that I can read from left to right—a crude musical score that depicts the ups and downs, the slow and fast parts, the tonal versus noisy parts, *anything* that varies over the length of the song. For a pure tone, I see a line left to right, the line being horizontal if the pitch is constant, rising or falling if the tone is slurred up or down. Noisy elements, such as a woodpecker drum, are vertical marks in my mental image. The song of a Veery spirals downward, that of its relative the Swainson's Thrush upward, and I see the scribbled spiral in my mental image. The ultimate song, an eight-second masterpiece of a Winter Wren, might be a blur to human ears—except, say, for those slow, low notes in the fourth second, the high, fast notes in the sixth second, and the sustained high note at the end—so my eight-second-long mental scribble acknowledges those parts that I can hear. Maybe I jot down some notation of this image in a notebook; anything that helps to remember is good practice.

“Seeing is believing,” as the old adage goes, and “seeing” birdsongs like this improves our hearing and memory enormously. If these visual exercises are useful to you, I am confident you'll find it enlightening to look at the “sonogram” for a song. A sonogram is simply a musical score for birdsong, showing a range of frequencies over time. In the “More Fun With Birdsong”

section at the back of this book, you can learn more about sonograms and how to make them for free on your computer. You can then watch songs come to life visually as they dance across your computer's screen.

As your listening skills develop, you'll hear not only the loud birds nearby, but also a whole community of singers. Some songs will stand out clearly, but others will be far away and soft, and others will linger at the very edge of your hearing; learning to hear individual voices in the entire chorus is a valuable skill. Closing your eyes might help your concentration on the visual and aural images of the song, too.

It is these kinds of listening exercises that will become the basis for all that you hear, the basis for not only identifying the singing bird, but also for identifying with the individual. Because most males are territorial and tend to hold the same territory throughout a season, you can revisit the same bird at different times of the day or season, getting to know him better. You can also visit with other individuals of the same species, at either the same or more distant locations. You can learn to recognize each bird by its songs, perhaps recognizing a certain Wood Thrush just back from Central America as the same male who sang near your home last year, for example, or knowing several Red-eyed Vireos who seem to be swapping territories in the forest around your home. One bird at a time, species by species, you will come to know them, just as you get to know people so well that you could never possibly confuse any of them with another.

Now for some specific examples: The song of the Chipping Sparrow is described as a chipping trill, rather dry, mechanical, and rapid, a single split-second phrase repeated ten to twenty or more times over two to three seconds. Visit almost any cemetery or tree-lined street during the daytime and listen to one of these sparrows. He most likely sings song after song from high in a tree at a leisurely rate of about four songs per minute, each song essentially identical except for slight variations in length, with a brief phrase simply repeated more times in some songs than in others. Stand in his territory an hour before sunrise, however, and you'll come to know another side of him; now he sings from the ground, sputtering short songs consisting of just a few phrases, as many as sixty such sputters per minute.

As you listen to your chosen Chipping Sparrow, most likely you'll also hear others on neighboring territories. Walk over to each in turn, savoring the quality of their songs, comparing the song of each Chipping Sparrow with the songs

of others that you can hear in the distance. Hear how different each individual is from the others, how some have hard, dry trills but others are far more tonal, more musical. During the daytime, each male sings from some high perch in his own territory, but at dawn they often gather, three or four of them sputtering their songs within just a few yards of one another on the ground or from a gravestone in a quiet cemetery. And as you compare the songs of different Chipping Sparrows, realize that about one out of ten neighbors whose songs you compare will sound identical. What you're hearing is something special about Chipping Sparrows, as most likely you're hearing a yearling who has copied precisely the songs of an older neighbor. Get to know Chipping Sparrows like this and you'll never mistake these friends for anyone else.

Even though males of many songbird species use their song-learning ability to develop large repertoires of different songs, males of many other species, like the Chipping Sparrow, have a single song that they repeat over and over. Other species with a single song included in this book are the Common Yellowthroat, White-throated Sparrow, and Indigo Bunting. The simple listening exercise described for the Chipping Sparrow will enable you to hear how songs of these other species vary among individuals, too, and at different times of the day and from place to place. Perhaps it's no surprise that each of these species differs from the others in so many ways, not just in the quality of the songs that enables us to identify them by species, and that is the fun of getting to know each.

Because most males are territorial and tend to hold the same territory throughout a season, you can revisit the same bird at different times of the day or season.



Try your careful listening method on many other songbirds and you'll hear that eventually, after ten or twenty or even a hundred songs, the male in each species switches to an entirely different song. A Tufted Titmouse, for example, sings a simple song over and over. Perhaps you'll hear *peter peter peter*, just three two-syllable phrases repeated again and again. Stick with him for ten or twenty minutes, and eventually he'll switch to a distinctly different song, perhaps *klear klear*, delivering each single-syllable phrase more slowly. While you're waiting for him to change his tune, listen to what the other titmice are doing in the background. Most likely, they're all singing the same song, and after one of them switches, the others will follow. In this book, other species in which singers repeat a given song many times before switching to another—what scientists call singing with “eventual variety”—are the White-eyed Vireo, Black-capped and Carolina Chickadees, Carolina Wren, Eastern Towhee, Song Sparrow, Red-winged Blackbird, and Eastern Meadowlark.

A male with a repertoire of different songs can also sing with “immediate variety,” as he pours out everything he knows in one continuous stream, each song different from the one before and the one to follow. Mockingbirds, thrashers, and catbirds are renowned for such impressive singing. Birds who sing in this way often sing rapidly, filling the air with song, as if having a large repertoire means they need to flaunt it all at once. Many of my favorite songbirds sing in this way, including Red-eyed Vireos, Marsh Wrens, Hermit and Wood Thrushes, and American Robins.

With any singer who has a repertoire of different songs, I enjoy getting to know him as best I can. If a male sings with eventual variety, I listen for him to switch to a new song, maybe counting songs or minutes from one switch to the next; I visit with him during the day but especially before sunrise, as I'm intrigued by how excitedly he sings and how rapidly he moves through his repertoire in the predawn hour. If a male sings with immediate variety, I especially enjoy listening for a particular song that I think is easily distinguished from his other songs, a song that I am convinced I will recognize when I hear it again. With a mockingbird, for example, I pick that distinctive song and then hold on as he races through his repertoire; perhaps I'll just listen for that unique song again, but often I'll time him or count the number of other songs he sings before he returns to my chosen song. Because a mockingbird tends to tell most everything he knows before repeating himself, this exercise gives me a rough



Birds who sing in this way often sing rapidly, filling the air with song, as if having a large repertoire means they need to flaunt it all at once.

idea of not only how long it takes him to get through his repertoire but also how many different songs he commonly uses.

A shorthand notation is often useful to represent these different styles of singing. If a different letter is used to represent each of the different songs that a male can sing, then repeating a single song over and over is A A A . . . , singing with eventual variety is A A A . . . B B B . . . , and singing with immediate variety is A B C D E

What I find so fascinating about listening to birds with repertoires is how expressive they can be with their songs. Sometimes a bird sings with eventual variety, sometimes immediate variety, and sometimes in between (for instance A B C A B C D E F D E F . . .). Before sunrise, for example, an Eastern Towhee often sings with immediate variety, alternating among two or three songs in his repertoire, but as sunrise approaches, he relaxes into eventual variety, repeating one of those songs several times before switching to another. These towhees illustrate how males of many species sing more intensely before sunrise and how singing is more relaxed later in the day (recall how those Chipping Sparrows sputter on the ground at dawn but sing more leisurely up in the tree later in the day).

And there's so much more! Get to know many of the warblers, for example, and you'll realize that males have two different kinds of songs that they

sing, one that is used in arguments with other males and one that is used largely to address females. By just knowing which song he sings, you can tell exactly what is on his mind. Join a Yellow Warbler or Chestnut-sided Warbler in the hour before sunrise and you'll hear him arguing with males; around sunrise, you'll hear all of the males contagiously switch to songs that seem designed more to directly impress the females.

Yes, of course, there's far more, and that's the fun of birdsong. These birds pour out their minds as they sing, and with the accounts throughout this book you can learn how to listen. For many of even the most common species, however, you may be surprised to learn that we know so little, and you will be on your own for what listening games you can use to learn about those species. With some practice, I'm confident you'll rise to the challenge.



By just knowing which song
he sings, you can tell exactly
what is on his mind.


WHERE TO BEGIN

Scan the table of contents for this book and check out some of the species that you already know, preferably ones that are common in your own backyard. Read the text for that species and listen to the songs. Then venture outside and listen with new ears. Challenge yourself to get out in the hour before sunrise. Begin by paying attention to one singer and his neighbors, but try traveling some distance away and listening there, too. Perhaps start with a common species that has simple singing behaviors, such as an Eastern Phoebe or Chipping Sparrow. If you want a challenge, try the American Robin; if you learn to listen to all that a robin does, you are ready for anything.

For this book, I've chosen seventy-five backyard species from eastern and central North America. The word *backyard* loosely means birds that are likely to be heard not only in your neighborhood but also on a casual day hike in areas nearby. Some, like the Common Yellowthroat, occur in all eastern and central states and provinces, so those were no-brainers to include, but the ranges of many birds are more restricted, either geographically or to certain habitats; some birds occur only in the North, some only in the South, some only in forests, some only in marshes. Certain common birds are far more likely to be seen than heard (for example, the common pigeon of farms and cities), so those didn't make it into this book; some are far more interesting to listen to than others, which of course was another factor influencing which birds appear here.

In the end, the seventy-five species illustrated are the result of multiple considerations, but what a remarkable seventy-five they are. They illustrate the full range of expression among birds, from those that don't learn their songs to those that do, from those with limited repertoires to those with complex repertoires numbering in the thousands of songs, from simple singers (and non-singers) to some of the finest, most melodious, and extraordinary singers on planet Earth. These birds are, in short, a celebration of birdsong, a celebration of the minds of birds and all they have to say.

HOW TO USE THE AUDIO PLAYER

The (() icons in *The Backyard Birdsong Guide* are your cue to listen to a bird's song on the attached digital audio player. The number under each icon is the birdsong track number.

Press the **PLAY** button **A** to turn on the audio player. This will activate the LCD screen **B** and display a track number. Press **PLAY** again to hear this bird's song or use the **BACK** **C** and **FORWARD** **D** buttons to select the desired track number. Pressing **BACK** or **FORWARD** once will advance the track number display once. Holding down either of these buttons will rapidly scroll through the track numbers. Pressing the **PLAY** button while a birdsong is in progress will stop the birdsong.

Adjust the volume level by pressing **+** or **-** **E**. The current volume level is shown on the left side of the LCD screen.

The audio player will automatically shut off after thirty seconds of inactivity. To manually shut off the audio player, hold down the **PLAY** button for three seconds. The audio player will remember the track number and volume level last played.

The audio player includes three AAA batteries. To replace the batteries, slide the battery compartment door **F** down.

DIAGRAM OF BOOK TK

IMPORTANT NOTE:

Please consider the Code of Birding Ethics as provided by the American Birding Association: "Limit the use of recordings and other methods of attracting birds, and never use such methods in heavily birded areas, or for attracting any species that is Threatened, Endangered, or of Special Concern, or is rare in your local area." In your hands you have a tool by which you could endlessly harass birds by playing their songs over the speaker. It probably does no undue harm to play, on occasion, the songs of a common bird to a male in a lightly birded area, as defending a territory against intruders is a way of life for these birds. More frequent playback, however, may be cruel and unjust, so please respect the birds' lives by limiting playback accordingly.