

## Bird Songs and Calls

*How do birds communicate?*

We may not always be aware of them, but if the sounds of birds disappeared, people would notice. Bird tweets, chirps, and songs fill the world around us. But how do they produce such different sounds, and what are they saying?

### The Biology of Bird Song

Birds have a different way of producing vocal sounds than other animals. Mammals, including humans, have a "voice box" (larynx) at the top of the throat with vocal cords that vibrate when air is forced over them. This voice box enables a baby to cry, a cow to moo, or a dog to bark. Unlike humans, birds produce sounds from an organ called the **syrinx**, which has two halves, located where the tubes to the lungs split off from the windpipe. The syrinx muscles vibrate to control the **pitch** of the sounds (highness or lowness) and the amount of air that passes through, which affects the volume (loudness) of the sound.

### Calls versus Songs

Every bird species makes its own unique vocal sounds. Those sounds enable birds to recognize one another and communicate—and they also help birders to identify what species they hear. Some species, especially songbirds, make hundreds of complex sounds, while others only make simple sounds, like chirps or grunts. These songs and calls have different purposes.

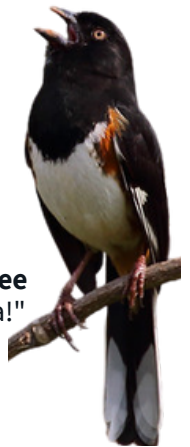
- **Calls** are simple sounds that birds make to share their location, signal food or water, orient a flock, or alert others to danger. Birds may have different calls with various meanings.
- **Songs** are complex sounds used to attract a mate and to defend territory. Singing strengthens bonds between males and females and alerts competing birds that a territory is claimed. Because singing requires a lot of energy, a singing bird indicates that the bird is healthy.

**Did you know?** Some birds use non-vocal sounds to communicate. Woodpeckers drum on trees to attract mates and claim territory; owls clack their bills as a warning; hummingbirds make sounds with their wings during courtship displays.

### Birding by Ear

Most birds are heard first and then seen—if they are seen at all. You can identify what species of birds are around just by learning their songs and calls. Listen closely to the birds around you and try learning their sounds by using these tips:

- Go outside and watch a bird singing. Try to mimic the sound.
- Compare the sound to something familiar, like a whistle or the buzz of an insect.
- Put easily remembered phrases (**mnemonics**) to the rhythm of the song. For example, many birders use the phrase "Drink your tea!" for the song of the Eastern Towhee or "Teakettle, teakettle, teakettle" for the song of the Carolina Wren.
- Describe what you hear, listening for the following elements of sound:



**Eastern Towhee**  
"Drink your tea!"

#### Pitch

High or low notes?  
Rising or falling?



Eastern Screech-Owl

#### Rhythm

Long or short notes?  
Pauses or repetition?

#### Tempo

Fast or slow?  
Does the speed change?

#### Quality

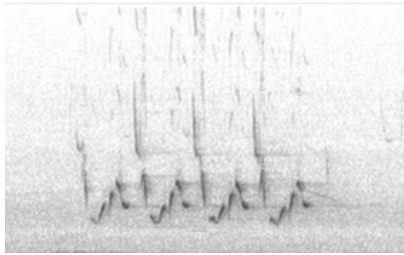
What does it sound like?  
Does it remind you of anything?

**Do Birds Have Ears?** Birds don't have external ears, but they do have ear holes on the sides of their heads, just like we do! Specialized feathers protect the ears from damage. Some owls appear to have ears on their heads, but those are actually just tufts of feathers that help with camouflage and body language.

## Song Spectrograms

**Sound** is a form of energy caused by vibrations that move through air or matter and can be heard. **Spectrograms** allow us to "see" sounds as pictures, sort of like reading music, and can help us learn to recognize different bird songs. The song runs from left to right, with high pitched notes near the top and lower ones below. Loud sounds appear darker than soft sounds. Fuzzy lines may indicate a nasal or scratchy quality to the notes, while clean lines indicate clearer notes.

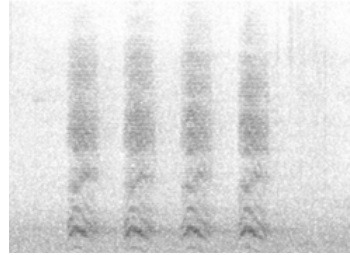
### Carolina Wren



"Tea kettle, tea kettle, tea kettle, tea kettle!"

The Carolina Wren's loud, sweet, musical song is usually repeated three or four times.

### American Crow



"Caw! Caw! Caw! Caw!"

The American Crow's most common call is a harsh, repeated "caw!".

## Activity 1: Sound Pictures

Listen carefully to the calls and songs played by your teacher and draw an image (spectrogram) representing each sound in the boxes below. Then describe the song or call with a few words.

<p><b>Species 1</b></p> <p>Call</p> <p>Song</p> <p>Description</p>	<p><b>Species 2</b></p> <p>Call</p> <p>Song</p> <p>Description</p>
<p><b>Species 3</b></p> <p>Call</p> <p>Song</p> <p>Description</p>	<p><b>Species 4</b></p> <p>Call</p> <p>Song</p> <p>Description</p>

### Why learn to bird by ear?

- You can figure out what species of birds are around just by listening.
- Many birds look similar but can be told apart by their songs or calls.
- It can be an important skill for careers in research and education.
- It is fun and challenging!



**Carolina Chickadee**  
"Chicka-dee-dee-dee"