

music with meaning

Birdsongs aren't just pretty melodies. They're key to communication.

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The ethereal song of a Swainson's thrush, the vibrant and melodic vocals of a purple finch, the whistled song of a song sparrow—these are some of the birdsongs I enjoy in my own yard.

I also travel each spring to record birdsongs throughout North America (like the yellow warbler at right). For the past 15 years, my recording partner, Mel Coulson, and I have taken recording equipment into the quiet backcountry to catch more of these special sounds.

Last May, for example, we were in the boreal forests of Manitoba and Saskatchewan. There, I recorded the four different calls of the common loon. These haunting sounds conjure up images of pristine, spruce-filled wilderness, calm waters and rolling landscapes sculpted by glaciers.

The year before, on a ranch in the Sand Hills of Nebraska, I recorded the sounds of greater prairie chickens and sharp-tailed grouse. Both have songs that are part of a complex male display, including foot drumming, cooing and calls. It's beautiful to hear, and combines with their visual display to create a wondrous natural event.

Birdsongs vs. Bird Calls

Although the terms “song” and “call” sometimes are used interchangeably, there is a difference. Calls are inborn and are produced instinctively. They are the exclusive sounds used by species like loons, grebes, ducks and hawks. Songbirds also use calls to communicate among a flock or a pair.

Songs, on the other hand, are the musical phrases delivered by songbirds, typically a male while perched. These are the vocalizations used by species like sparrows, warblers, thrushes, finches, titmice, wrens and more.

The male birds learned these musical phrases by listening to their dads at the nest site or from other nearby songsters. In fact, this process may begin

while the chicks still are in the egg.

Because songbirds learn their musical phrases, it leads to regional dialects, not unlike human accents. The northern flicker, red-breasted nuthatch and American robin all sound similar from one region to another. However, you can hear a difference if you compare East Coast species with their counterparts on the West Coast. The change in accent is gradual in those species.

For others, I have noticed more distinct regional accents. These include the white-throated, white-crowned and song sparrows. The song sparrow also may include imitations in its musical phrasing. It will learn between eight and 11 songs during its life, whereas its call note, *cheep*, remains the same.

Showing Their Vocal Chops

Birds use songs primarily during breeding season. After choosing a territory for nesting and raising young, a male defends—and advertises—his location by singing.

Generally, birdsongs become richer and more varied as a bird ages and gets

more experienced. This allows him to choose the best territory over his younger rivals. And, because birds usually return to the same or neighboring locations year after year, competing males often will be brothers, sons or nephews.

That's why song quality is an important way of establishing hierarchy within a species. Females use a male's song to evaluate his health and maturity, and help to pick a quality mate.

When territories come close together, males may sing to or against each other from adjacent trees. When nesting season is under way, a male advancing too close to another's territory will provoke a dispute. Bird feeders or birdbaths typically are considered neutral territory and disputes are minimized.

A female knows that all is well if her male partner is singing normally. This is yet one more meaning expressed in birdsongs.

I've been listening to and recording these sounds for years, but I'm sure there are many other meanings still to be uncovered. 

how birds sing

In humans, the voice box (also known as the larynx or Adam's apple) is at the top of the windpipe. In birds, it's at the bottom of the windpipe, deep in the chest.

Where the pipe divides to enter the right and left lungs, there is a vocal apparatus called the syrinx. It's divided into two compartments, one for each lung. Membranes and muscles control a pair of lips on each compartment, and can operate separately.

Using both sides in concert, a bird can produce more complex sounds. The air squeezed out of one lung is made to vibrate by controlling the lips as the air passes through them. The length of the windpipe also contributes to the pitch. Longer windpipes create deeper sounds.

Here are some examples of how these parts work together. Canaries can produce songs for minutes at a time by singing mainly through one syrinx and breathing through the other. Northern cardinals sing at different octaves by creating lower notes through one tube and then switching sides for higher-pitched notes. And combining sounds from each side helps explain how starlings, mockingbirds and others can create amazing imitations.