

They're saying what?

A University of Montana ornithologist explains what chickadees, buntings, and nuthatches are really communicating when they fill the forest with sound.

BY SNEED B. COLLARD III



It happens every spring when I am out hiking. Upon hearing a sweet song unlike any other, I raise my binoculars to identify the singer, and soon it appears—a small bird with a scintillating turquoise head. “Ah, yes,” I tell myself. “That is the song of the lazuli bunting. Gotta remember that one.” A few minutes later, or perhaps the next day, I hear another intriguing,

sweet melody, different from the first. Again, I stop, glass, and see...another lazuli bunting! Inevitably, this process repeats itself several more times, each revealing a different lazuli bunting with a different song. Inevitably, I despair at ever being able to identify this species by ear.

It was in part this frustration, however, that led me to learn more about the befud-

dling world of bird vocalizations and just what the heck birds are singing about. Turns out, it's a question one of Montana's top ornithologists has been trying to answer, too.

SONG VERSUS CALL

Erick Greene is a professor at the University of Montana's Division of Biological Sciences and former director of UMBEL (Uni-

STUDY STATEMENT A male lazuli bunting (above) and male American robin (right) sing to announce their territory to other males and let females know they have some “great real estate.”

versity of Montana Bird Ecology Lab). As a youth, he played the harpsichord, organ, and “weird medieval instruments” and almost pursued a career in music. Instead, his musical inclinations helped lead him

into a lifetime of learning about birds—especially the sounds they produce. The first thing he emphasizes is that birds generally have two distinct types of vocalizations: songs and calls.

“Songs are only one small bit of the vocalizations that birds make,” Greene explains, “and songs in general have two functions. One is what we call male-male interactions.”

Consider a lazuli bunting or American robin singing at the top of a tree. “That’ll be a male,” Greene says. “Female buntings and robins don’t sing. That song is staking out real estate and is directed at other males. It’s saying ‘This is my territory. This is my chunk of real estate. Don’t come in or I’ll beat you up.’ The songs are directed against other males, but they also aim to attract females. They say, ‘Hey, I’m a stud. I’ve got this great real estate. Come check me out.’”

More often than not, bird songs are melodious, complex, and delightful for us humans

to listen to. They contrast sharply with the second category of bird vocalizations, what ornithologists refer to as calls. Calls are *chips*, *tseeps*, *chuffs*, and other, usually short, vocalizations that have nothing to do with courtship or territorial defense.

Calls are used for everything else. “Contact” calls help birds pinpoint each other’s locations or stay together in a flock. Other calls may alert chicks that they are about to be fed. Some of Greene’s most fascinating research involves calls that communicate threats.

CHICKA-DEE-DEE-DEE DANGER

Interestingly, one of the bird world’s most famous calls—the *chicka-dee-dee-dee* of the black-capped chickadee—is usually mistaken for a song. “The chickadee’s song is actually a clear, three-note whistle that many people describe as sounding like *cheese-burger* or *fee-bee*, and chickadees are singing the exact same song all across North America,” Greene says.

So what is the *chicka-dee-dee-dee* call? Greene describes it as a “Swiss army knife call” with many different functions, especially to warn of danger.

“In winter,” he says, “we tend to see these stable mixed-species flocks with lots of different birds hanging out together. Around here, you’ll typically have chickadees and nuthatches and maybe some other species. Chickadees detect predators quickly and sound their alarm calls immediately. Nuthatches absolutely understand chickadee signals, and they respond appropriately.”

Greene pulls up a fascinating video of an experiment he did with high school student Dylan MacArthur. They installed a speaker in the woods near Missoula. When they played the calls of a northern pygmy-owl, one of a songbird’s most potent predators, the black-capped chickadees sounded the alarm first and began mobbing the speaker. The nuthatches hung back for a minute, but finally decided the owl calls posed enough of a danger to join in and

“Hey, I’m a stud. I’ve got this great real estate. Come check me out.”





“
Oh yeah, buddy?
Come on,
bring it on.”

these simple notes in complicated vocal contests. “Say there are two males interacting. They’re singing the same thing, but they may engage in a kind of ‘Dueling Banjos’ contest, and how they modulate their message is by pitch.”

Greene whistles the chickadee song at low pitch, explaining that you might first hear something similar from one male if two are singing. “But then the other might jack up the pitch so he’s singing higher, an increase in aggression, and so the first male matches it. It’s like ‘Oh yeah, buddy? Come on, bring it on.’ You can have these escalating duels where you hear the male chickadees singing higher and higher. Conflict deescalation happens when one bird switches to a lower pitch. Listen for that in the spring. It can be really, really obvious.”

Songs can also perform more complicated social tasks—which brings us back to those befuddling lazuli buntings. It turns out that each male lazuli has its own distinct song, a unique combination of sounds chosen from more than 140 different syllables in the lazuli vocal library. As with most other bird songs, the lazulis’ help define territories

FIGHT SONG Male black-capped chickadees may interact with a “Dueling Banjos”-type competition. Each ups the pitch of the three-note *cheese-burger* song until one concedes with a lower-pitch version.

continued sounding the alarm—a kind of *mer-mer-mer*—long after the chickadees determined the danger had passed, quit calling, and resumed their usual activities.

“Chickadees and nuthatches are clearly sharing information,” Greene explains. “They’re paying attention to each other, but by having multiple species that respond behaviorally in different ways, the whole warning system is more than the sum of the parts. And even though chickadees tend to respond earlier and shut up earlier, they’re still paying attention to the nuthatches.”

There is even more to these alarm calls.

Sneed B. Collard III is a writer in Missoula.

Nuthatches alter theirs based on whether they perceive a threat firsthand from direct observation, or whether they are just hearing the news from chickadees—what Greene humorously refers to as the original “tweeting.” The nuthatches relay information about the threat level through the intensity of their calls. Not surprisingly, squirrels, chipmunks, and other animals understand and pay close attention to these calls, too.

SONG SURPRISES

As complex and useful as bird calls can be, bird songs are not to be outdone. Greene explains that even though all chickadees sing the same three-note song, they can use

Listen for chickadees, nuthatches, and buntings

We are fortunate in Montana to have black-capped chickadees, red-breasted nuthatches, and lazuli buntings throughout our state. Chickadees are year-round residents that can be found in a variety of habitats that contain trees, including neighborhoods, parks, forests, and riparian areas. Start listening for the chickadee’s three-note song as early as February—but be prepared to be scolded by their *chicka-dee-dee-dee* warning calls anytime you come close! When you do hear a chickadee, listen for the *mer-mer-mer-mer* warning call of the red-breasted nuthatch. It and several other species share many of the chickadee’s habitats during various times of the year.

Unlike chickadees and nuthatches, lazuli buntings are seasonal migrants. They show up later than other seasonal Montana songbirds, arriving in mid-May and departing by early September. They prefer brushy areas in burned forests, riparian habitats, and brushy mountainsides. Makoshika State Park, Billings’ Riverfront Park, Glacier National Park, and the “L” and “M” trails in Missoula are among the popular, accessible places to find them. ■



Red-breasted nuthatch

and advertise for mates. But why does each male need its own song?

“We know that birds absolutely do identify each other as individuals,” Greene says. “We know that birds can hear a song and know which individual is singing it, and one way we know this is because of something called the ‘Dear Enemy Effect.’”

The Dear Enemy Effect stems from dominant males not only recognizing, but also tolerating, other males around them. “For example,” Greene says, “imagine a dominant male whose territory abuts the territories of four other males—A, B, C, and D. The central male will counter-sing with each of these males, and as long as they are in the general places they are supposed to be, he tends to be okay with the situation.”

Trouble begins when one of the subdominant males gets out of place. If a scientist records the song of Bird A and plays it from the territory of Bird C, the dominant male will race over to see what’s going on and who is getting out of line. Similarly, if a totally new song shows up, the dominant male will know that it’s an unwelcome intruder and take appropriate action to send him packing.

The whole system is based on the fact that female lazuli buntings choose the brightest-colored males possible to mate with. A dazzling male understands this, and part of his mating strategy is to allow duller males to occupy surrounding pieces of prime real estate to make him look even more spectacular by comparison.

It’s a complicated story, Greene concludes, but by keeping duller males nearby, a super-bright alpha male increases the chances that more females will mate with him. In this case, a particular song doesn’t necessarily improve a male’s chances of attracting females, but it does play a key role in a complex mating game—even if it occasionally frustrates the aspiring birder.

My time with Greene has given me a new appreciation for how the vast vocabulary of birds conveys information. Having created hundreds of thousands of words, we humans are masters of complex communication. But birds too have important things to say—and they’ve developed a surprising number of ways to say it. 🐦



LISTEN UP Montana is home to (from top to bottom) lazuli buntings, black-capped chickadees, and red-breasted nuthatches. All three species have distinct calls and songs that even beginners can easily learn from YouTube videos. Knowledge of basic bird vocalizations can provide insight into the dramas that occur all around us as we walk through Montana’s outdoors.



FROM TOP: PAUL N. QUENEAU; DONALD M. JONES

FROM TOP: CRAIG BARFOOT; DUANE HUIE; KEN ARCHER