



Nature Notes

“So many days, spent outside the town, trying to hear what was in the wind...”
—Thoreau

The Secret Lives Above Us

by Jordan Price, Assistant Professor of Biology

Songs and singing are among the greatest gifts we have been given. What behavioral ecologist Jordan Price reveals is how knowledge about song is also a gift.

There are urgent conversations on our campus that most people fail to notice. There are secret deals being made. There are political maneuvers. There is seduction. Much of this drama occurs in the spring, but for some residents it goes on all year long. And all of it happens right in front of us, outside in plain view. I'm talking, of course, about our most vocal campus community. I'm talking about our birds.

I've never really been much of a bird watcher. As an undergraduate I had no interest in birds at all. In graduate school I studied a tropical species of wren, and later as a post-doctoral researcher I worked in a lab sequencing avian DNA. But looking at the genetic codes of birds hardly qualifies as “birding.”

It wasn't until I arrived at St. Mary's that I really started to pay attention to these animals. I soon realized that, like it or not, I had become the local ornithologist and was expected to know lots of things about our local feathered friends. I remember talking with a reporter on the phone one afternoon during my first year, thumbing through a field guide with one hand while typing on my computer with the other as I desperately tried to answer her questions about Baltimore orioles. Clearly I needed to learn more about birds and I needed to do it fast.

But what started as a necessity soon turned into a passion. I still don't have a “life list” of species I've seen, but I have developed a deep and consuming fascination with the birds on our campus and the complicated lives they lead. Like finding new details in a favorite poem, the more I observe them the more intrigued I become with their interactions and the intricate beauty of their communications. Surely you've heard their songs around campus too, but listen closely and you will hear so much more.

Many birds, such as warblers and orioles, are present on our campus only in the spring and summer to breed, spending the rest of the year in tropical habitats. Others, such as juncos and white-throated sparrows, are here only in the winter and breed in areas farther north. And some, such as chickadees and mockingbirds, are here year-round. But all have their own unique song pat-



Jordan Price lectures a female cowbird about her sneaky breeding habits.

tern, usually produced by males, which they use to communicate specifically with other members of their kind. Often this is to attract a mate or defend a territory, but these sounds have subtler uses as well.

For example, in many species males produce repertoires of “song types,” which differ from each other slightly in pattern while still being characteristic of the species, much as human words can differ from each other while still being recognizable as a particular language. Long-term neighbors often have some song types that are similar and others that aren't, and birds use this fact to communicate in complex ways. Matching a neighbor's song by singing the exact same song type is apparently a sign of aggression, whereas responding with a song type that is not shared with that neighbor has the opposite meaning. Using a song type that is in the neighbor's repertoire but not the one that was just sung means something else entirely, and researchers are discovering that birds modify subtle characteristics

of their songs to convey even more complicated information.

Beginning your song before a neighbor's song has finished also has meaning. Much like interrupting a colleague during a faculty meeting, it is usually a sign of disagreement and hostility. As with song matching, birds will often overlap each other's songs to indicate their status in the neighborhood, and other birds definitely pay attention to this. In chickadees, for in-

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stance, dominant males will both overlap and match the song types of their subordinate neighbors, and the most dominant male in the community will usually mate with the most dominant female. But if you go out with a speaker and give this male a taste of his own medicine by matching and overlapping his songs, even just a couple of times for just a few minutes each, studies have shown that his mate will subsequently sneak off and secretly mate with one of his neighbors. In birds, as in humans, social prestige is hard won and very easily lost.

Most male songbirds learn their songs from other older birds, much as humans learn how to speak, and this fact at least partly explains much of the diversity and complexity we hear in their sounds. But to my ear nothing is more enchanting than the mellifluous song of the cowbird, a species that doesn't follow this pattern at all. Cowbirds are brood parasites, in that females surreptitiously lay their eggs in the nests of other songbirds to trick them into raising cowbird chicks as their own. All cowbirds are raised by other species and therefore none have the opportunity to learn from older cowbirds. So how do males learn how to sing properly and attract females? Apparently, males head out into the world with only a vague idea of what they are supposed to do to win a female's heart. They try a variety of sounds at first, usually with no luck, but eventually stumble onto something that catches a female's attention and she responds. Later he finds another sound that she likes and, over time, he eventually assembles the song that the female has been wanting to hear. Thus the female, by her responses to his clumsy advances, shapes the male into a functioning member of the population.

Cowbirds are much maligned for their deceitful breeding practices, but what could be more admirable than a system in which a male's social status is judged not by his political power, fighting prowess, or ability to accumulate resources, but by the way he treats his mate? As my mate often tells me, we could learn a lot from the birds.