# They Know You're Coming

New University of Montana research shows that a hunter's stealthy approach may set off wildlife alarm bells the moment he or she enters the forest.

**BY JOE NICKELL**

**Like many hunters,** your case of buck fever began to develop weeks before the season as you pored over copies of *Outdoor Life* or *Petersen's Hunting*, reading up on the latest strategies and pondering the newest high-tech gear. A few days before Montana's big game opener, you dutifully washed your jacket in fragrance-free detergent and stopped by your favorite outdoor equipment store to grab some Scent-Lok longjohns.

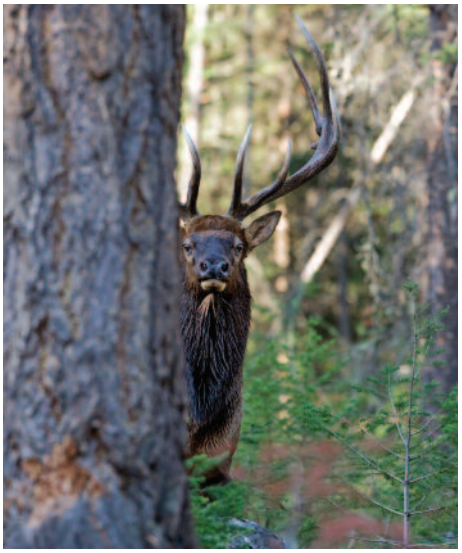
On the day of your first hunt, you parked your truck along a road where you always see deer or elk crossing, gathered your hunting gear as quietly as possible, and crept into the timber at first light, your nose into the wind.

A short while later, you might have stopped to marvel at the glorious silence of the forest, broken only by a distant bird chirping, *ts-ts-ts*. You stood stock-still, confident of your invisibility as you waited for a buck or bull to emerge into view.

Guess what? Chances are good that every deer, elk, bird, and squirrel within the farthest range of your high-powered rifle was fully aware of your presence. And there's nothing your clothes, soap, or stealthy movement could have done about it.

In fact, those very elements might have been part of what signaled the animals that danger was nigh, says Erick Greene, a professor of biology at the University of Montana.

"By the time you've snuck into an area, the deer and elk have known for quite a while that you're coming," says Greene. "They are



**"HERE HE COMES!"** New research shows that birds and other small animals employ "distant early warning systems" to alert each other of approaching danger. Do elk and other big game animals tap into these signals to learn if human hunters have entered the forest?

CLOCKWISE FROM TOP: SUMIO HARADA; DONALD M. JONES; DONALD M. JONES

fully aware that somewhere in your vicinity there's a sneaky bugger moving slowly and stealthily on the ground. They've got a fix on you." Those are just some of the implications of Greene's latest research, which is shedding surprising light on how animals communicate—often with remarkable detail and even across taxonomical classes—about the presence and nature of danger.

## Surprise discovery

Greene's study began several years ago, while he was working on another project that catalogued and analyzed the song-learning techniques of lazuli buntings—small, blue-headed songbirds that congregate on the flanks of Missoula's Mount Jumbo and Mount Sentinel in summer.

As part of that research, Greene tested the territorial behavior of male buntings by playing recordings of other males' songs on loudspeakers hidden in the brush.

Most of the time, the male bird who had staked out that particular plot of land as his own would appear quickly and proceed to make a raucous display of himself, flying around the hidden speaker and singing aggressively. But then, occasionally, something unusual would happen. "All of a sudden, the bird would stop responding and go on high alert," says Greene. "He would get quiet, look around, and then just dive down deep into the nearest bush."

After watching this phenomenon a few times, Greene noticed that not only did the particular male stop singing, but all birds in the area went silent, like hitting a TV's mute button. "Then, a few minutes later, I would hear this ripple of seet calls."

As Greene knew, birds throughout the world use seet calls to warn of flying raptors. Sure enough, whenever Greene heard that wave of calls, he would soon observe a hawk flying through the area.

That much made sense. But something about the experience didn't quite mesh with prevailing theories among biologists about the nature of bird communication.

"The dogma in the literature has been that these specific alarm calls for flying raptors are meant for 'local consumption,' in the sense that they don't travel far. If you're a bird giving a seet call, you're warning only your mate or your chicks," Greene says. "But the observations I've made over the years began convincing me that that's complete hooey. All those buntings in the area knew there was an inbound hawk three to five minutes before the hawk got there. They were all hiding down in the bushes by the time it flew through. That's when the light-bulb came on."

Working with researchers at Cornell University's Lab of Ornithology, Greene began collecting data on what he terms "distant early warning systems" employed by prey animals to protect each other from impending danger. In one of his first experiments Greene set up a series of microphones, each connected to a recorder, along the Kim Williams Trail in Missoula. Greene would play a recording of seet calls made by robins in response to an overhead falcon, and record the response of birds in the area.

"With this array of microphones, I could record the rapid spread of this band of silence—where the first thing all the birds do is shut up and listen," he says. "Then almost immediately you hear a wave of seet alarm calls."

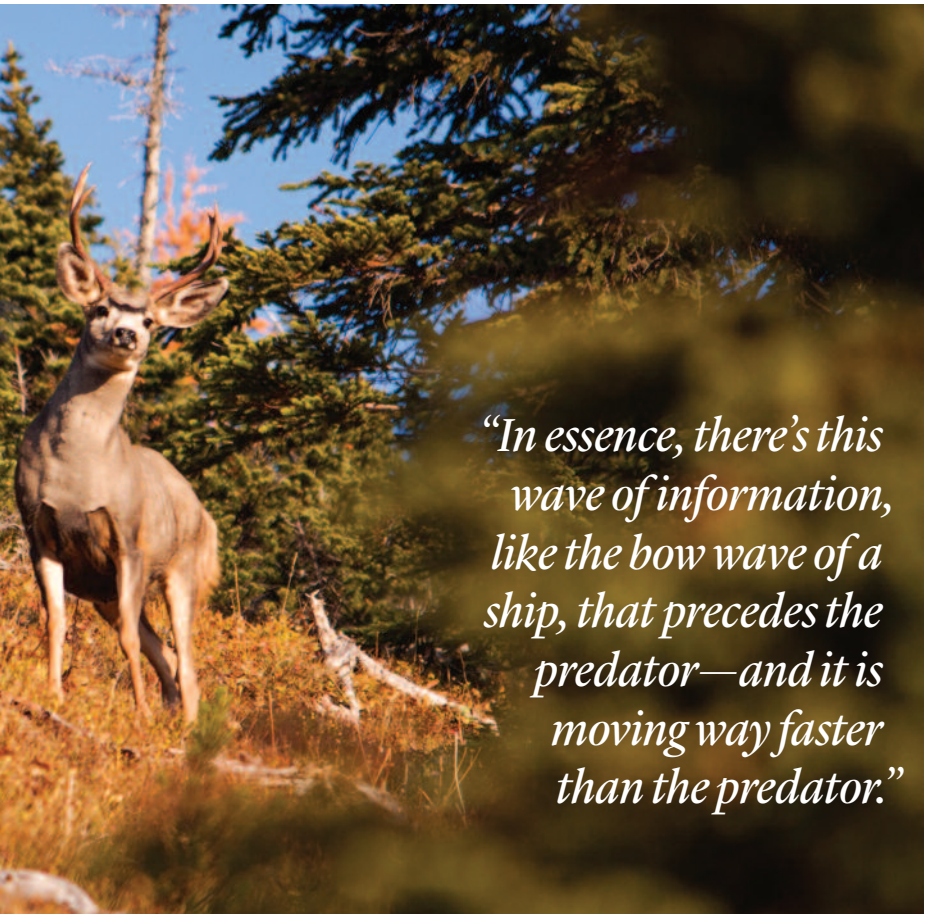
Greene found that the alarm calls were passed from bird to bird across the landscape at speeds of up to 120 miles per hour. What's more, the warnings often traveled a half-mile or more from their source. "In essence, there's this wave of information, like the bow wave of a ship, that precedes the predator—and it is moving way faster than the predator," he says.

Greene has also found that birds have different types of alarm calls for different types of danger: a call for ground-based predators creeping slowly along, a call for raptors perched in treetops, and so on. If any of this surprises you, it's probably even more unexpected from the hawk's perspective.

"We know that these little birds hear those sounds much better than we humans do because their ears are tuned to them," says Greene. "Another thing we know is that hawks and owls are virtually deaf in that frequency range. So songbirds are

*"Songbirds are broadcasting on a channel that their predators basically don't even know about."*

*Writer Joe Nickell of Missoula was previously a columnist for the* Missoulian*, where this article originally appeared. Used with permission.*



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## Treetop tattletales

For hunters, the problem is that songbirds are not the only ones hearing and sharing this information. "Any hunter is familiar with those pine squirrels that start yakking at you and won't shut up," says Greene. "Those are alarm calls. Squirrels give seet alarm calls for flying raptors, and they give other, acoustically different, alarm calls for terrestrial predators. If there's a squirrel that gets particularly irate with you, you'll hear another one start up, and pretty soon squirrels are talking half a mile away. Every animal in that area knows something is over here, and they have positional information they can basically triangulate.

"That signal contains quite specific information, telling other squirrels and birds in the area that there's something on the ground disturbing it," Greene continues. "If birds foraging on the ground hear that call, you'll see them immediately fly up into the trees, and they will also communicate the information on down the line."

Greene says some species hunted by humans are tuned into these alarm calls. While little specific research exists on big game animals' engagement in the alarm communication network, Northern Arizona University professor emeritus Con Slobodchikoff has shown that prairie dogs give one type of alarm call when a person walks through an area carrying a telescope and tripod, and a different alarm call when a person appears carrying a firearm. "They know that one is a nerdy biologist watching them, and the other is somebody trying to take them out," says Greene. The animals have also been shown to employ different alarm calls in response to people wearing differently colored clothing. "Prairie dogs have learned there's an important distinction, and they are fast to communicate that to one another."

## Missing pages?

Of course, as any hunter with a freezer full of meat knows, the alarm process often doesn't work in the animals' favor. "It's not a fail-safe system, obviously," says Greene. Wind, snow, and other environmental elements can muffle alarm calls. During the elk rut, when squirrels sometimes give alarm calls in response to a bull sneaking up on another male's harem, the racket might actually draw the herd bull toward the perceived danger.

And sometimes those typically talkative squirrels simply go about their business, making nary a sound. Still, Greene's research raises intriguing questions that could challenge the prevailing wisdom about slow-stalk hunting.

Might hunters be perceived as less of a threat if they move casually and quickly through the woods? Is camouflage clothing really a help, or might it signal predatory intent? Do squirrels and birds key into that gun slung over your shoulder? "We don't know the answers to those questions," says Greene. "What I would say is that in the hunting world, people pay a lot of attention to smell. But possibly as important—and in some cases, probably more important—is this information landscape that animals are plugged into but that people don't pay much attention to. You might be doing everything by the book, but the book appears to be missing some pages."

LEFT TO RIGHT: DONALD M. JONES; DEE LINNELL BLANK; TIM CHRISTIE