



BITE ME! Weasels turn white in winter, perfect for blending into their snowy environment. Yet they retain a black spot on the tail tip. Scientists believe the conspicuous mark distracts attacking predators such as hawks, which strike at the weasel's highly visible black spot instead of its body.

Back Talk

Whether wagging, waving, thrashing, flaring, rattling, slapping, or bobbing, animal tails have a lot to say. **By Ben Long**

Our family once owned a Lab mix named Emma who defended our yard against four-legged invaders. When deer raided the apple tree, she scattered the does and fawns with a woof and a charge. This truce held until one Thanksgiving when a hormonally charged buck would not cede ground. Emma charged, hackles up and tail erect as a ship's mast. The message of her body language was clear: *Back off! This is my turf.*

The buck responded with almost identical posturing. His rut-fattened neck bristled and his white flag stood up straight. His message: *You and whose army?*

Emma literally turned tail. Her once proudly erect tail was clamped between her legs as she whimpered for cover. The buck

stamped his hooves, then made a stage exit.

Pet owners know that animals are experts at body language. The wag of a dog's tail or the swish of a cat's delivers a message faster than a teen with a smartphone: *So happy to see you!* or *Don't push your luck!*

Wild animals also depend on body language—to survive, earn a meal, maintain social status, and more. Tails are wonderful ways to get those messages across. For instance, beavers slap their tail against the water surface to alert others of danger. Striped skunks raise and flare their tail, warning intruders that a putrid blast has their name on it. Bison have four different tail positions, each with a separate meaning, ranging from *All is calm* to *I'm about to charge you for coming too close.*

For a deeper glimpse into the world of the wild, pay attention to the tales told by tails.

Buzz off!

One Fourth of July, friends and I were exploring a coulee off the Milk River. We were approaching a patch of shade for a break when we heard it—the buzz of a prairie rattlesnake.

There's no mistaking that sound, which the human brain instantly recognizes as a warning. The snake continued to issue the terrifying announcement of its presence while slithering off from its shady resting spot into a rocky crevice.

The rattlesnake's rattle is an amazing adaptation. It lets intruders know the snake is present so the reptile doesn't get stepped on or have to expend precious venom while

defending itself. It also warns predators to stay away, or else. The message is so clear that American colonists put a rattlesnake on their flags during the Revolutionary War, warning the British crown: *Don't tread on me.*

How did this species evolve to possess such a noisy posterior? Other tail-wiggling snakes may hold a clue.

While rattles are rare among snakes, tail shaking is common. Some species wave their

tails as a visual lure to attract small prey—say a curious mouse—into striking range.

Lacking venomous fangs for defense, Montana's bull snake rapidly vibrates its tail in tall grass to create a rattling sound similar to the rattlesnake's, fooling predators into thinking that it's far more dangerous than it really is.

Another Montana snake, the rubber boa, "speaks" with its tail. When threatened, the

rubber boa buries its head in its coils and raise its tail in the air, as if to say: *This is my head. Bite here.* Scientists believe this tactic is meant to confuse predators. A coyote or badger that strikes at the tail will do little damage and the snake can escape.

Eons ago, prehistoric ancestors of rattlesnakes developed an elongated terminal vertebra in the spine that enhanced their tail shake. Deposits of a protein called keratin

(what a fingernail is made of) resulted in a noisemaker. Generation by generation, the tail evolved into increasingly sophisticated and nosier rattles.

Ironically, in some places where people try to eradicate rattlesnakes, the reptiles rattle much less frequently. Either the snakes have learned that making noise attracts trouble, or those too quick to rattle were located, killed, and removed from the gene pool.

For some snakes, the rattle that was once a survival asset can be a liability.

Game over

On a cool October morning, when any rattlesnakes were deep in their dens, I crawled on my belly across a mudstone escarpment of the Charles M. Russell National Wildlife Refuge. On the other side, I knew, was a bedded herd of pronghorn. With my rifle in the crook of my arms, I wiggled over the rim. This was getting exciting.

I peeked over, only to see the herd up and on high alert—the hair on their white butts flared like powder puffs. Without glancing back, they vanished in a trail of dust. Any pronghorn hunter knows that these prairie speedsters use their tails to signal danger to each other. But is there more to it than that? Probably.

White-tailed deer have a similar trick. When spooked, they flare and wave their

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famous flags as they weave and bob through the woods or across a field.

At first glance, that might seem counter-productive. Isn't it dangerous for a prey animal to bring attention to itself when it spies a predator? Biologists have long speculated about this seeming paradox.

Some scientists believe that the white tail is a "flash," meant to surprise a predator and throw it off balance, like the explosive sound made by a flushing pheasant; others maintain that it signifies danger, warning nearby deer. Or maybe the white

rump flag at him and not at other nearby deer. What's more, they flagged as often while alone as when in groups.

Bildstein concluded that flagging is a "detection signal." That is, the deer flags to tell the predator it has been spotted and that pursuit will be fruitless: *I see you. You're busted. Game over. Don't waste my energy and I won't waste yours.*

As a hunter who has been "busted" by hundreds of white-tailed deer over the years, this hypothesis rings true. I suppose only the deer know for sure.

Distracting tails

Curiously, some species with excellent natural camouflage that allows them to disappear into their surroundings also have highly visible tails.

Two of Montana's three weasel species—the long-tailed and the short-tailed—possess conspicuous tails. Both weasels

turn from brown to white in winter, perfect for blending into the snowy environment, yet retain their black tail tip. Scientists believe the black spot distracts predators in winter. Roger Powell came up with a clever experiment to prove it.

Today a professor emeritus at North Carolina State University, Powell argued that when a hawk takes after a weasel, it will likely become distracted by the black spot. While aiming its talons on that spot, it's more likely to miss the weasel's more vulnerable body.

As a test, Powell created decoys that represented weasels with and without black

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tail is a "cohesive signal," a tool to make it easier for fawns to follow does into cover or, in the case of pronghorns, to help a herd stay together.

In the early 1980s Keith Bildstein, a biologist then working in South Carolina, tried to get to the bottom of this mystery. He approached hundreds of deer on foot and carefully documented their responses. He estimated the age of each deer and noted whether it was alone or in groups, and what kind of habitat it was using.

What Bildstein found was that, while running away, deer tended to wave their



DON'T BOTHER Biologists and hunters have long assumed that a whitetail's flag signaled to other deer that danger was afoot. One study came to a different conclusion: that the white flag tells an approaching predator it has been spotted and not to give chase—saving both the deer and its adversary from wasting their energy.

LEFT TO RIGHT: JOHN ERIKSSON/IMAGES ON THE WILDSIDE; MERLE ANN LOWMAN; MICHAEL H. FRANCIS



TAIL TALK When threatened or disturbed, some snake species "speak" with their tails. The rubber boa (left) buries its head in its coils and waves its tail as a diversion that says, *This is my head: Strike here.* A prairie rattlesnake, on the other hand, uses its tail to send a warning to would-be predators: *Stay away or suffer the consequences.*





BABBLING BACKSIDES Wild animals depend on body language to survive, earn a meal, maintain social status, and more. Tails are wonderful ways to get those messages across, in as many different “languages” as there are wildlife species. Some examples (clockwise from above left): A wild turkey tom fans his tail as an advertisement to potential mates that he wants to breed; a striped skunk flares its tail before spraying, allowing intruders a few minutes to reconsider and head elsewhere; in winter, weasels turn entirely white but for their tail tip, which may act to divert would-be attackers; the flat, broad tail of a beaver, when slapped on the water surface, lets others in the colony know that danger is near; when agitated, pronghorn flare their rumps, perhaps as a warning to others in the herd but also to tell approaching predators they’ve been spotted; the white tail of the jackrabbit and cottontail rabbit work as “deflection marks,” capturing the attention of pursuers just long enough for the prey to make its getaway.



CLOCKWISE FROM TOP LEFT: STEVEN WARE; DANNY BROWN; CINDY GROEDDEL; CINDY GROEDDEL; CAROL POLICH; JUDY WANTULOK; FRANCIS C BERGQUIST
BISON PHOTO: JEREMIE HOLLMAN; ILLUSTRATIONS BY WES OLSON



TALKATIVE TAIL Officials at Yellowstone National Park urge visitors to notice subtle differences in a bison’s tail position to ensure they are not bothering the dangerous animals. The tail position in this photograph indicates that the bison is likely agitated and people should move away.

Position 1: Bison is at rest and not agitated.

Position 2: Bison is interested or curious.

Position 3: Bison is agitated. Used to warn other bison or people to move off.

Position 4: Bison is about to charge, such as when a cow is defending her calf.

NOTE: Positions 3 and 4 are also similar to what bison display when about to defecate—which could be considered a warning of another kind.

tail tips. Then he used trained redtail hawks to chase the decoys. He found that the hawks had a much harder time capturing the decoys that had black tail tips than the ones that were pure white. Also, the hawks chasing black-tipped decoys appeared confused at the last moment of the strike, as if they seemed to realize too late that there was a lot more weasel in front of the black spot than behind it.

Powell also had an answer for why least weasels (another species native to Montana), don’t have tails with black tips. The animals are simply too small for the deception to work. The black spot has to be far enough from the rest of the weasel so a hawk’s talon doesn’t snag the body. Because the least weasel is just 7 inches long (about half the length of the other two species), a black tail tip would be too close to its haunches to protect the animal from attack.

Whether the tail spot is black or white, this phenomenon is called a “deflection mark.” Its message is a sly sleight of tail: *Hey, lookie over there!*

It seems logical that Montana’s white-tailed and black-tailed jackrabbits may have developed their tail patterns for similar

purposes: to confuse the golden eagles that descend on them from the prairie sky.

The cottontail rabbit’s tail seems to work in much the same way. All three of Montana’s cottontail species—eastern, mountain, and desert—are mottled brown except for their white, telltale tail. Whether hiding

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on the forest floor, on a high desert rimrock, or in prairie grass, these bunnies can disappear simply by holding still.

But when they bolt, it’s a different story. They zigzag, flashing that conspicuous cotton ball as they go. Biologists suspected that a pursuing hawk or coyote focuses on the tail, and when the rabbit makes a sharp turn, the predator is thrown off for a few seconds. That buys the bunny just enough time to escape.

To test this hypothesis, German biologist Dirk Semmann created a video game in

which humans acting as predators chased rabbits in conditions that replicated natural pursuit. Some of the video rabbits were given white tails and some weren’t. In that test, the rabbits with white tails were more likely to survive.

Of course, tails may serve more than one purpose, just like our hands can wave hello to a friend one moment and ask a motorist to stop the next. An animal’s tail may at one time confuse predators, later provide a beacon for trailing young to follow, and in another season capture the attention of a potential mate.

Humans and apes are the only mammals lacking tails, though we do have what’s known as a “vestigial tail”—the coccyx, or tailbone. Apparently, at one time an ancestor species of *Homo sapiens* had a tail, but over millions of years it shrunk to almost nothing.

Though I admire the clarity that comes from communicating with a tail—a fur flash or tail rattle—it lacks the power and precision that comes from a human’s vocal chords, or the computer keyboard I’m using right now. Humans may lack a tail, but our complex language is one of the traits that make our species unique. 🐾