



# What goes there?

Following tracks can lead to a deeper understanding of wildlife—and the human mind.

By Doug Wadle. Illustrations by Liz Bradford

**T**rudging through knee-deep snow on the gentle shoulder of a long ridgeline, I make my way through underbrush in the Gallatin Mountains west of Livingston. The snow masks the sound of my boots in the quiet of the forest. The air is crystalline, graciously still. Heavy mounds of snow from the previous night's storm weigh down the Douglas fir branches. Hoar frost twinkles in the early morning sun, like tiny shards of broken glass sprinkled across the snow.

Winter's white canvas hides everything, and nothing. Animal

signatures, a revealing peek into their private lives, are on full display. Mouse tracks run like stitches across a game trail. Wingtips from a startled ruffed grouse leave a snowy impression.

As a physician, I love the close approximation of tracking wildlife to the physical exam of people. Both require observation, pattern recognition, and critical thinking. Recognizing the salient amid the inconsequential requires the combined forces of the left and the right brain—the analytical and the creative.

To the uninitiated, a forest can appear chaotic, challenging the visitor to separate intentional signals from random noise. Overlapping tracks on a game trail may confound our senses. Deadfall is strewn like pick-up sticks across the hillside. A disorderly maze of mountain snowberry grows around the twisted bunchgrasses peeking up through the hoar frost. Filtering out the static requires an intimate knowledge of nature's baseline—what things might have looked like beforehand—and an eye for variation. It's like recognizing a patient's seemingly trivial diagonal earlobe crease as a marker of heart disease.

## LIKE DETECTIVES

Animal tracking resembles putting together a complex jigsaw puzzle in which pieces from multiple puzzles are jumbled together, and some pieces are missing. Trackers are like detectives, Len McDougall wrote in *The Complete Tracker*, “gleaning facts from minute details and assembling them into a cohesive picture of what went on before.” The tracks I follow this morning are relatively easy to decipher: fresh prints in fresh snow, a pearl necklace stretching across a snowy tapestry. The snow's depth obscures the individual tracks, but the pattern is unmistakable. I can picture the dime-size paws with five toes. With a little luck, I may catch a glimpse of the short-tailed weasel at the other end of this string. Weasels typically travel in a “two-by-two” bounding gait, the hind feet landing right where the front feet were just a moment before. A weasel's body, in deep

snow, leaves a thin drag mark between every other set of tracks, like a small dumbbell impression made at regular intervals.

Most animals, including humans, instinctively follow the path of least resistance, seeking the most efficient route whenever possible. Skunks, like some humans, stay in bed on stormy winter days, coming out only on the nicer afternoons to see the world and grab a snack. Bears and jumping mice completely sleep away winter. Bobcats step in their own tracks to lessen caloric expenditure and quiet their step. Coyotes travel long distances in straight lines, their energy-efficient trot only veering when finely tuned senses detect a new odor or a meadow vole's faint pitter-patter under the drifts.

But weasels! They know how to play in the snow. These sprightly furballs go out of their way to explore every single nook and cranny. The weasel I follow takes many sharp turns and diversions, visiting every tree trunk, rotting log, and tuft of grass in search of its next meal. Usually the goal is a vole, mouse, or pocket gopher, but sometimes weasels hunt ruffed, Franklin's (spruce), or dusky (blue) grouse or even snowshoe hares, which dwarf them in size and weight.

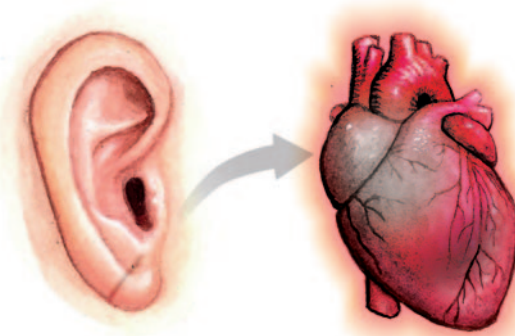
An ermine is what many of us call a short-tailed weasel in its winter white coat (though the name technically applies only to the stoat, a larger European relative). This sinuous, fur-covered dynamo with legs has a normal body temperature of 104.8 degrees F. and a heart rate that can reach 420 beats per minute. To sustain this super-charged metabolism, an ermine must consume three-quarters of its body weight in food every day. Nearly every waking moment is spent hunting.

An ermine's hunting success depends more on sheer energy and distance covered than on guile or strategy—I confess, a lot like my own elk hunting forays. The ermine I am trailing plays a literal game of pop-goes-the-weasel, diving under the snow only to emerge again 15 or 20 feet away. Its trail wanders past a couple of ruffed grouse beds, vacated before the predator's arrival. These birds survive in the worst weather. During cold and

blustery blizzards, they comfortably huddle in insulated snow cocoons. After the storm passes, you can see where their three-toed tracks emerge from these improvised igloos. The grouse barely sink into the fresh snow, thanks to skinlike fringes called “pectinations” that develop along the sides of their toes in winter, turning their feet into snowshoes.

A Native Alaskan elder once told the cultural anthropologist Richard Nelson that animals know more than we do. Indeed, we could learn a thing or two from the grouse and the weasel. They don't hide from winter but rather embrace it. Most people, on the other hand, seek comfort at all costs. We dash from heated house to heated car to heated office. We complain if the thermostat gets bumped up a bit warm, then grab a sweater the moment the temperature drops even a degree or two below our preferred setting. We have contracted what retired Navy Seal, author, and ultra-athlete David Goggins calls “the disease of ease.” It is hard to imagine we are the same hardy stock that flourished in bitter northern winters for countless generations. This incessant drive for easy living must have served us well in those uncertain times, but in today's high-tech world, constant cossetting and coddling have addicted us to physical comfort. The human hardware is the same, but our software has changed.

The Greek philosopher Epictetus said, “People with a strong constitution can handle extremes of hot and cold; people of strong mental health can handle anger, grief, joy and other emotions.” I wonder if he had it backwards. Maybe those who brave temperature extremes and other discomforts are more likely to develop emotional resiliency. Or maybe not. The research on this is far from settled science. But as a medical doctor, I do know that humans are often not as fragile as we've been led to believe. Voluntary stressors—be they physical or mental—often don't weaken but fortify. Our bodies, like the weasel's, are machines of incredible efficiency designed to expend energy only for what is necessary. Nature's elegance stems not from





decoration, but from an expression of form's perfect fitness to function. The beauty of this design is that, as animals ourselves, we too are highly adaptable. To do so, however, we need to embrace the far edges of our comfort zone. Like spring tomato plants, we need occasional hardening off.

### CAT TRACKS IN THE SIDEWALK

For all its devastation to our psyches and the many tragic deaths it caused and hastened, the Covid 19 pandemic also presented opportunity. It shoved many of us off the pleasure-seeking treadmill and out of our normal routines. I spent this time improving my tracking skills. Tracking combines the physician's powers of observation with the tenacity of an endurance athlete. It does not come easily. Like medicine, it is an art, a practice, never truly mastered. Eventually, though, my awareness expanded and I saw, heard, and smelled things I never noticed before.

I realized I was seeing the world differently when I found a set of fossilized house cat tracks in the cement steps on my back porch, left by some long-gone pet who stalked the neighborhood songbirds while World War I raged on the other side of the globe. I must have stepped over those impressions hundreds, if not thousands, of times—and had never seen them.

Back in the high country, a raven circles overhead before coming to rest atop an ancient snag. I focus on the concentric rings of disturbance enveloping the ermine and me. "Nothing can move in nature," Tom Brown wrote in *The Science and Art of Tracking*, "without affecting everything else." A red squirrel chitters away next to me. A mountain chickadee's alarm call rings out in the distance. The ermine's circle is getting closer to my own.

For many years, I did not appreciate that nature speaks a

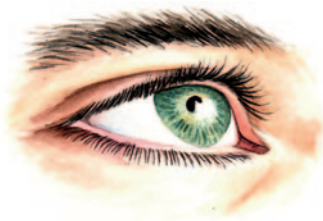
language of its own. My naïve ears struggled to distinguish various bird calls. I'm still a novice, but I have learned that birds make different calls in different situations. All of nature listens, and all of nature understands. Just watch how the elk or mule deer you are stalking takes notice after a Clark's nutcracker announces your presence. When the mountain chickadee's alarm call—*chicka-dee-dee-dee*—rang out, it was announcing the danger in its woods.

Montana's cities and towns also house a surprising array of wildlife. Even people not attuned to reading nature's book can't help but notice the signs all around them when they emerge from their cozy sanctuaries after a dusting of snow. The snow only makes evident what is always there. Though many people may not be able to read the book, they can certainly see the writing on the page. Like any other language, we must learn the patterns, shapes, and alphabet before we can start to read the words and understand entire stories. The wonderful thing about nature's novel, Jim Corbett wrote in *Jungle Lore*, is that it has no beginning and no end: "Open this book where you will...and no matter how long or how intently you study the pages your interest will not lag, for in nature there is no finality."

One morning, coming out of my house to a fresh skiff of snow, I noticed that a raccoon had made its rounds. The handlike prints led me down the alley to a wind-tipped garbage bin before meandering down to the river, where I lost its trail among the gnarled cottonwoods. There, in the river's shallows, I spotted a huge heron track preserved in the mud under a thin layer of ice, an art print set behind glass. Beauty is all around us, but we are often shockingly inattentive in familiar surroundings. It is not the seeing so much as it is the noticing.

### LEARNING TO NOTICE

David Hubel and Torsten Wiesel won the Nobel Prize for Physiology or Medicine in 1981 for shedding light on why we are so blind to unfamiliar patterns. It turns out that our visual cortex, what they termed "receptive fields," develops according to how it is stimulated. For instance, kittens exposed only to horizontal lines become selectively blind to vertical lines. The poor creatures bumped into chair legs they could not see and struggled to navigate even simple environments. But the study implied that seeing can be learned. Our



visual processing system is directly influenced by, and adapts to, the qualities of our prior experiences. The art of tracking is the art of learning to notice. The fossilized cat tracks in my back porch remind me every day of how many things I have unknowingly looked right past. What else might I be blind to?

Modern humans are particularly prone to optical illusions. Like M.C. Escher's staircases, even after we learn the trick, we still can't stop seeing the false images. These visual deceptions are proof that seeing goes on more in our brains than our eyes. This gullibility is not, however, a universal human trait. Instead, it is the result of our culturally influenced receptive field development. Adam Alter, in his book *Drunk Tank Pink*, relates that the indigenous San people of southwestern Africa and other tracking societies have surprisingly little trouble with visual illusions. The San are masterfully observant of the seemingly trivial. Paying attention to small details is key to their survival. "We must learn to use our eyes in a new way," British naturalist Hugh Falkus wrote, "or rather, in a very old way, the way of our ancestral hunters."

Our survival may no longer depend on these details, but they do inspire joy. The poet Rainer Maria Rilke lamented that "most people have no idea how beautiful the world is and how much magnificence is revealed in the tiniest things, in some flower, in a stone, in tree bark, or in a birch leaf." When we start minding the minutiae, we stop missing the magnificent.

Tracking has been called the oldest science by Louis Liebenberg, associate professor of human evolutionary biology at Harvard University. "Hunting involves cultural adaptations that give the hunters an advantage over their prey," he wrote. As our ancestors investigated animal tracks, they made hypotheses about their meaning. Eventually they found out whether they were right or wrong: They found the animal or they didn't. Either way, they learned something.

This is the basis of the scientific method: Notice and deduce, hypothesize and test, over and over. It is fundamentally a process of creative problem-solving, as important to tracking as it is to math and physics. Modern physicists seek to read the signs of things like

atomic and gravitational forces that can't be seen. Liebenberg maintains that it is not the tracker who thinks like a physicist but the other way around.

In the mountain forest, a movement catches my eye. It is the ermine, sitting upright on the snow, looking right at me, a vole hanging out both sides of its mouth. We share a glance for a few long seconds, then it is off again, black-tipped tail waving like a flag. Always looking, always smelling, always, most of all, moving. Soon it disappears into the tangle of doghair pines growing in an old burn. It is time for me to go as well, and I leave the ermine to its solitary rounds and track my own footprints back to the truck. 🐾



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