



THE ONE THING WOLVERINES CAN'T TAKE HEAD-ON

by Douglas H. Chadwick

BACK IN THE ICE AGES, THE ANCESTORS OF WOLVERINES competed for prey and carcasses with saber-toothed cats, dire wolves, mega-bears and giant northern hyenas. Natural selection in this crowd did not favor the slow, shy or even slightly polite. Which helps explain why the 25- to 45-pound wolverines we know today singlehandedly bring down grown caribou and an occasional moose, and will fight a grizzly over the spoils.

But when I say these might be the toughest animals in the world, I'm also including the way wolverines relentlessly roam vast territories here along the top of the Rockies, taking on cliffs, icefalls and summits through some of the nastiest weather modern winters can throw at a mammal. Climbers and extreme skiers come back from such expeditions and tell riveting tales of survival. Wolverines just growl and keep going 24/7. Fierce and strong beyond all proportion to their modest size, they have nevertheless finally met a force they may not be able to overcome: climate change.

I volunteered on a study radio-tracking this species along the continental divide in Montana's Glacier National Park, where winter starts in October and lingers into June. During the cold months, we would trap wolverines in stout log boxes and tag them with radios. Once the sedative we used wore off and we lifted the box's lid to free them, some would sprint directly away. But others, like M1, a big gnarly guy with anger-management issues, would bound a few dozen feet and stop, as if they'd remembered the trap still held food and why the hell shouldn't they go back to take it with them. M1 would circle us as if trying to make up his mind, and scent-mark as he went, staking his claim. Once, he didn't leap from the opened box at all but just perched on its lip glaring around at the two-leggeds, maybe figuring his chances of shredding what he saw as the competition.

When he did depart, he would sometimes lope several miles toward a headwall marking the east edge of the Great Divide, scale a nearly vertical 1,500-foot chute in about 20 minutes, and cross through Iceberg Notch to the Pacific side of North America in a plume of gust-driven flakes. The ridgeline would block his radio signal. And just like that, the wildest of mountaineers was gone, off to patrol the rest of his turf, which encompassed almost 200 square miles along the continent's crown.

I still don't really understand what makes wolverines tick. But I learned that *Gulo gulo* comes with a large heart. And big lungs, a huge stomach, a hefty thyroid gland and a higher metabolic rate than other animals its size. We're talking about a powerful natural motor with a souped-up carburetor. To hold in the heat of this internal engine, wolverines, like many northern mammals, wear a double coat – a dense inner layer of air-trapping wool beneath a cover of long, stout guard hairs, which add extra insulation. Textured to resist absorbing moisture, the surface of wolverine guard hairs also excels at shedding frost.

A gulo's crampon-clawed feet are enormous relative to its body, spreading its weight like snowshoes – a major advantage over most competitors and prey during the cold months. Long, harsh winters drain the energy reserves of hoofed animals post-holing through the snow, leaving some dead to be scavenged and others weaker by the day, more easily brought down for dinner. In steep terrain like Glacier, heavy snowfalls also mean more avalanches, which claim their own share of mountainside grazers. If buried deeply, the carrion keeps like meat in an ice chest until it

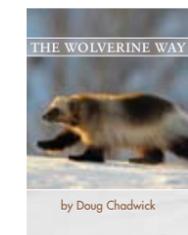
melts out for gulos to gorge on through spring and early summer. Avalanches also replace forests with vertical stripes and fans that start life over as meadows filled with wolverine summer snacks such as ground squirrels, mice and voles. Meanwhile, wolverines cache food in boulderfields with icy water running underneath and in snowbanks. Supplies in such larders may last months or even from year to year.

The list of adaptations that make winter a wolverine's ally is impressive. Yet until scientists started to focus on climate change, no one gave much thought to how Ice Age-built creatures with a supercozy fur coat, smoldering metabolism and food cached in nature's refrigerators are supposed to handle swimsuit weather in our ever-toastier Age of Industrial Exhaust.

In February, pregnant females go into snow dens and prepare to give birth. Fewer than two dozen dens have ever been discovered in the Lower 48, about half of them during the Glacier study. They were all at high altitudes and dug eight to 10 feet down into the snowpack. White as polar bears when born, baby wolverines weigh only a few ounces. They need all that snow overhead for insulation, especially when mom, their furry furnace, is away hunting. They also need to be too far under the surface for passing predators to find.

The kits won't venture out until sometime in May. Wolverine biologist Jeff Copeland and ecologist Kevin McKelvey created a continental map showing where snow lasts through the first half of that month. Then they charted the range of *Gulo gulo*. The two patterns were nearly identical. When Copeland took a closer look at the species' exact whereabouts, he discovered that the animals rarely occurred where the average maximum daily temperature in August exceeds 70 degrees F (22° C).

As it turns out, wolverines' ties to a deep, persistent snowpack and places where summers don't get too hot are what ecologists call obligate. Like the better-known polar bear, they simply can't get by without chilly conditions. Only about 300 remain in the Lower 48 today. The very least we two-leggeds can do is safeguard habitat corridors – especially north/south-running ones – to keep the surviving groups connected and give wolverines a better chance of adjusting to changing conditions. While we get dead serious about turning down the planet's thermostat for all our sakes.



The Wolverine Way

Douglas Chadwick gives a glimpse into the lives of wolverines as he and a group of mountaineering researchers track the animals across the winter slopes and summer meadows of Glacier National Park. The Glacier Wolverine Project yielded basic – and previously unknown – information about the wolverine's natural history and its vulnerability to climate change. A Patagonia book.

BK210 | \$29.95

📷 *Gulo gulo*, skunk bear, carcajou, gulon – many names, one magnificent animal. **DANIEL J. COX**

Witness for Wildlife

Witness for Wildlife (W4W), our new Freedom to Roam initiative, encourages citizens to take trips into wildlife corridors. Defenders of Wildlife have organized trips into the MacDonald Pass Wildlife Corridor west of Helena, Montana, along the Continental Divide. To find out more about these groups and other trips organized by W4W, go to patagonia.com/ftw.



Patagonia's foremost campaign this year is Freedom to Roam, our long-term initiative dedicated to establishing migration wildways for animals between protected areas. This year's campaign focuses on encounters with animals in various corridor areas, and how climate change affects their needs. We also introduce our newest initiative: Witness for Wildlife. Patagonia's partners in Freedom to Roam include the Freedom to Roam Coalition, which comprises other companies, conservation organizations, recreation groups and those who live on the land. For more information, please visit patagonia.com/ftw.

Montanan **Douglas H. Chadwick** is a wildlife biologist and founding board member of Vital Ground, a nonprofit land trust that has helped safeguard more than 600,000 acres of key wildlife habitat and movement corridors. He has written hundreds of articles on natural history and conservation around the globe. His 11th book, *The Wolverine Way*, based on years of volunteer work with a wolverine study in Glacier National Park, will be published by Patagonia this spring.

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PACK (shown right) | 48816 | \$89.00 | 16.5" x 10" x 5" | 27 L (1,647 cu in) | 366 g (12.9 oz)

MANGO (804) / GECKO GREEN (803) / BLACK (155)



TOTE (shown right) | 48806 | \$79.00 | 14" x 12.5" x 7.5" | 25 L (1,525 cu in) | 337 g (11.9 oz)

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48821 (shown right) | \$99.00 | 17" x 12" x 10.5" | 36 L (2,196 cu in) | 397 g (14 oz)

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LIGHTWEIGHT TRAVEL PACK
mango



LIGHTWEIGHT TRAVEL DUFFEL
gecko green



LIGHTWEIGHT TRAVEL TOTE
vivid violet



SINGLE SHOT
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MLC BURRITO
black



MLC WHEELIE
fresh clover

SINGLE SHOT Ⓔ

The Single Shot organizes your daily necessities with its thoughtful, efficient design. A simple flap with hook-and-loop closure accesses a main compartment that has a zippered mesh pocket and two organizer pockets (one with an internal security pocket). There's an easy-access document sleeve, and the long, adjustable shoulder strap and top-mounted carry handle make the bag both comfortable and convenient to haul. Made of 150-denier all-recycled polyester double weave with a polyurethane coating and a DWR (durable water repellent) finish. Made in Vietnam.

48871 | \$49.00 | 11" x 8.5" x 3.5" | 9 L (549 cu in) | 309 g (10.9 oz)

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MLC[®] BURRITO Ⓔ

Our MLC Burrito is a convenient carry-on garment bag that can be folded in thirds (like a burrito), and hung in the closet of an airplane or placed in the overhead bin. The strong internal hanging-bar-and-hook system holds eight hangers, and hooks to the top of a door or closet rod once you've arrived. Inside, four sleeve pockets keep your personal items and toiletries organized and handy. A large mesh pocket keeps shoes and clothing separate. Carry the Burrito as a briefcase or sling it over a shoulder with the soft, adjustable shoulder strap. Made with a 1,200-denier polyester (100% recycled) exterior and a 200-denier polyester liner; both have a polyurethane coating and DWR (durable water repellent) finish. Made in Philippines.

48115 | \$179.00 | 44" x 20" x 4" | 45 L (2,746 cu in) | 1,151 g (2 lbs 8.6 oz)

BLACK (155) / FRESH CLOVER (806)



MLC[®] WHEELIE Ⓔ

Roll up the ramp and past the crowd at the baggage carousel. The MLC Wheelie has a super robust wheel package and a retractable U-shaped handle for better steering, control, ergonomics and durability. The main compartment holds three to five days' worth of clothes and has three zippered pockets. Another pocket holds a 15-inch or smaller laptop. Exterior zippered pockets provide easy access to travel docs and vital gear – there's even a fleece-lined pocket for sunglasses. You can shoulder the load with backpack straps that hide away when not in use. Built with a 1,200-denier 100% recycled polyester exterior and a 200-denier polyester lining; both have a polyurethane coating and DWR (durable water repellent) finish. Made in Philippines.

49112 | \$229.00 | 22" x 14" x 9" | 30 L (1,831 cu in) | 2,665 g (5 lbs 14 oz)

FRESH CLOVER (806) / HENNA BROWN (686) / BLACK (155)

