



Finding *feather-footed* GHOSTS

story by CINDY MAYNARD photographs by DAWN WILSON

Winter trekkers search the alpine tundra for the elusive ptarmigan

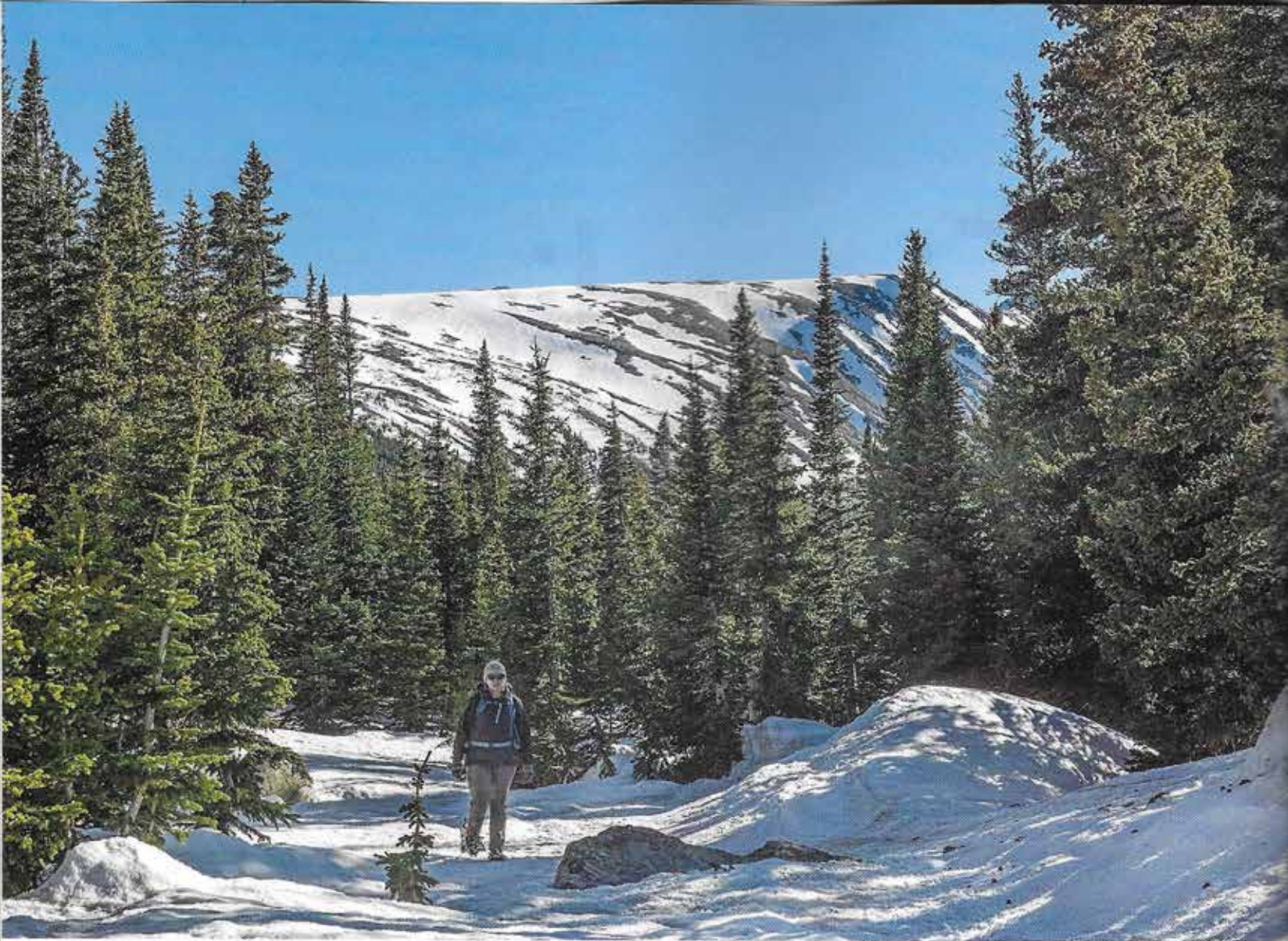
LOOKING FOR PTARMIGAN on the wintry expanse of Niwot Ridge is a bit like searching for a snowball in a blizzard. We were lucky. Guiding our search for these small, white birds was the biologist and ecologist Joyce Gellhorn, author of *White-tailed Ptarmigan: Ghosts of the Alpine Tundra*. By the time my husband, Bob, and I met her for this winter hike, she had been teaching science and natural history classes in Colorado, Wyoming and Alaska for more than 30 years.

On this sunny winter day, her skis slid smoothly across the sparkling snow while we clomped along in our snowshoes toward the windblown heights of Niwot Ridge in the Indian Peaks Wilderness, west of Boulder. This was Gellhorn's home turf. As we climbed through subalpine forest toward the ridge at 11,000 feet, she pointed out tracks of a snowshoe hare and pine squirrels, the hardy denizens of this wintry world. As we gained altitude, thick forests of subalpine fir and Engelmann spruce thinned out, replaced by willow shrubs. Conversation lulled. The sound of skis swishing along and snowshoes landing on pillowy new snow replaced our lively chatter.

"There!" she exclaimed pointing to a clump of willows.

"What? Where? I don't see anything."

"Look closely. What do you see?"



A hiker on the Niwot Ridge Trail ventures to the alpine tundra to search for signs of white-tailed ptarmigan.

Scanning the snow, we detected a muddle of tiny tracks barely visible under a spindly willow branch. The three-toed footprints barely dented the snow. White-tailed ptarmigan of Colorado are the smallest bird in the grouse family. Though they don't weigh much, only about 13 ounces, they are heavy enough that they should sink into the snow with each step. If you set a double cheeseburger weighing about the same amount down on the powdery snow, it would disappear into the drift. But ptarmigan don't sink – they wear snowshoes.

In summer, the bottoms of ptarmigan feet appear much like those of other birds, with chainmail-like scales. But in winter, their feet are feathered down to the ends of their toes. Even the bottoms of their feet grow feathers. The extra feathers increase the surface area of their feet as well as insulate them. Their toenails also grow longer in winter, useful

for gripping icy surfaces like crampons. These adaptations allow them to dance along the top of the snow like snowball-shaped sugarplum fairies.

"Where there are tracks, there are birds," Gellhorn said, smiling gleefully as she ferreted out clues to the ptarmigan's whereabouts. This procedure was trickier than you might expect. They have an amazing array of adaptations allowing them to virtually disappear against their white background. This is why Gellhorn likened finding them to searching for ghosts.

Sometimes you can find ptarmigan huddling in small groups under willow bushes. This strategy makes it easy for them to find lunch, as willow buds, leaves and twigs are the mainstay of their winter diet. They grow denser feathers and an extra layer of insulating down for trapping warmth in winter.

When the temperature becomes too frigid, and fluffing up their feathers is not



enough to keep them warm, they burrow into the snow, disappearing completely. Loosely packed snow can trap a lot of air; up to 90 percent of the volume of light snow is actually air. When ptarmigan hunker down into their snow caves, they sometimes take willow twigs with them so they can snack in comfort until the icy spell ends.

Temperatures inside the burrow hover around 32 degrees. At this temperature, snow melts and refreezes, forming a cozy cave that traps warm air around the birds. As unlikely as it seems, ptarmigan increase their weight over winter due to the combination of a nutritious diet of high protein willow buds and long periods of couch-potato inactivity.

Even with an expert guide, spotting ptarmigan in winter can be a frustrating affair. After following tracks, peering under bushes and searching for tunnels, we still had no luck. Just when we were about to concede defeat to the "ghosts," Gellhorn pressed a mittened index finger to her lips, cautioning us to be silent.

"There," she whispered, pointing to a fluffy drift under a bush. Though I stared intently in the direction she was pointing, I saw nothing. Then it blinked. A tiny black eye opened and closed. Then I saw the small, black hooked beak. Two snowy white heads, each with three tiny black dots – two black eyes and a beak – were all we could see poking up from the snow.

Our spirits revived, we climbed until we reached a frozen lake at the base of Niwot Ridge. Located in the heart of the Indian Peaks Wilderness, Niwot Ridge is a spectacular expanse of alpine tundra surrounded by 13,000-foot peaks. It is the site

Ptarmigan spend the winter at the Mountain Research Station near Nederland.

of the University of Colorado's Mountain Research Station, a cluster of buildings that serves as an interdisciplinary facility devoted to the study of alpine ecosystems. Before it grew into an internationally known facility, it was known as Science Lodge. When she was a young mother, Gellhorn lived here, pulling her toddler behind her in a snow coaster as she conducted research on quaking aspen.

We skirted the lake, pausing on the north side. We stopped, removed our packs and relaxed as Gellhorn uncapped her thermos and served each of us a cup of hot tea. The hot tea ritual at tree line was a Joyce Gellhorn ritual. The shared moment with warm tea and dazzling winter sun were the high point, literally, of our exploration. We descended the trail anxious for our next ptarmigan encounter.

WHEN THE DAYS lengthened, Bob and I returned to the Alpine Visitor Center in Rocky Mountain National Park in search of the summer version of the white-tailed ptarmigan. The birds migrate to higher altitudes just as the early spring flowers are breaking through the snow. They no doubt welcome diversifying their diet to include early bloomers like their favorite, the alpine forget-me-not. In spring they bulk up on insects as well.

We walked over a rubby expanse of tundra trying to spot summer ptarmigan. Spotting the birds in proved just as difficult as in winter. Their plumage blended perfectly with the lichen encrusted rocks. Again, we were about to give up the search when a sudden movement attracted our attention. A rock seemed to move. We had wandered close enough to one of the nests to send a male scurrying away, trying to lure us away from his babies. It worked. If we had not seen him darting about, we might have stepped right on the well-camouflaged nest.

In spring, the males establish a territory and begin luring females to their nest sites amid the mottled tundra rocks. They strut their stuff with outspread tail, courtly bows and by raising a bright red swatch of flesh over the eye, called a comb. As the nesting season progresses, they molt their winter whites, exchanging them for the dappled browns of summer.

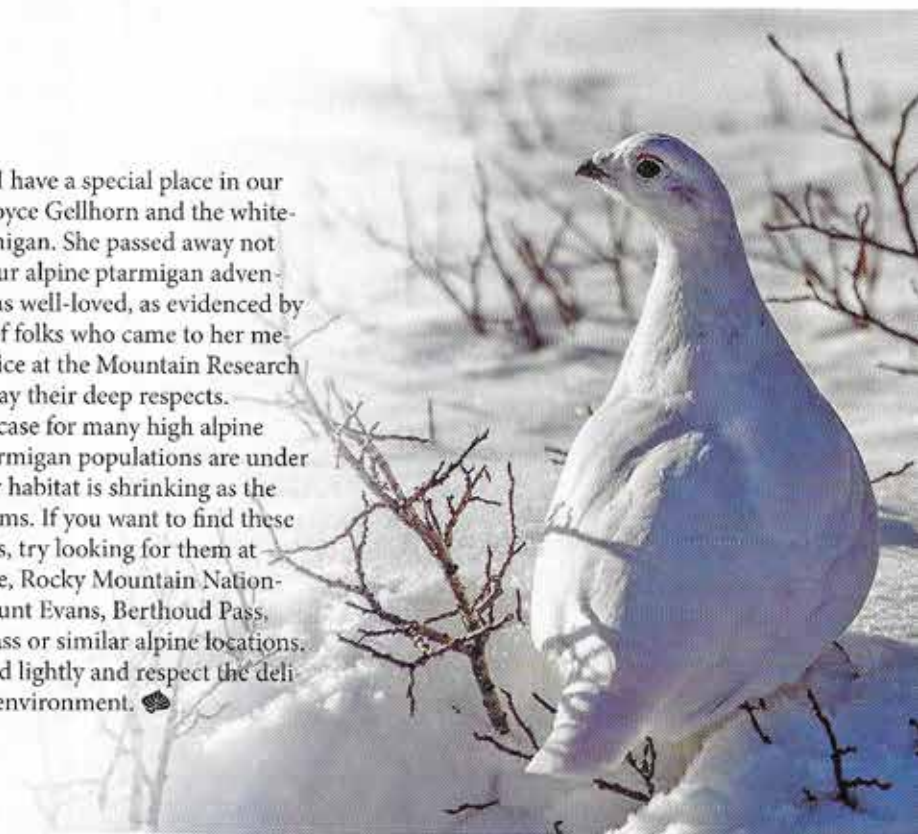


Approaching quietly, people can spot ptarmigan by looking for the birds' black eyes in the snow.

The female steadfastly sits on her eggs for about 23 days until her chicks hatch fully feathered, eyes open and ready to run. The fuzzy babies weigh only about half an ounce. They still need their mom for a few days, at least until they are able to regulate their own body temperature. After only one day, they are able to forage for food, indulging in a high-protein diet of insects, spiders, ants and flies. This supplies lots of energy to fuel the young birds' rapid development. They grow fast, tripling their birth weight within three weeks, able to fly by around day 10. They waste no time, because winter comes early to the alpine tundra. As the days shorten and the first winter snow falls, chicks are mature enough to endure their first winter.

Bob and I have a special place in our hearts for Joyce Gellhorn and the white-tailed ptarmigan. She passed away not long after our alpine ptarmigan adventure. She was well-loved, as evidenced by the crowd of folks who came to her memorial service at the Mountain Research Station to pay their deep respects.

As is the case for many high alpine species, ptarmigan populations are under stress. Their habitat is shrinking as the climate warms. If you want to find these elusive birds, try looking for them at Niwot Ridge, Rocky Mountain National Park, Mount Evans, Berthoud Pass, Guanella Pass or similar alpine locations. Always tread lightly and respect the delicate alpine environment.



Finding Ptarmigan

Ptarmigan are adapted to live in some of Colorado's harshest winter environments, living at or above treeline high in the alpine tundra. Some of the state's notable ptarmigan habitats include Niwot Ridge in the Indian Peaks Wilderness, Guanella Pass and Rocky Mountain National Park.

