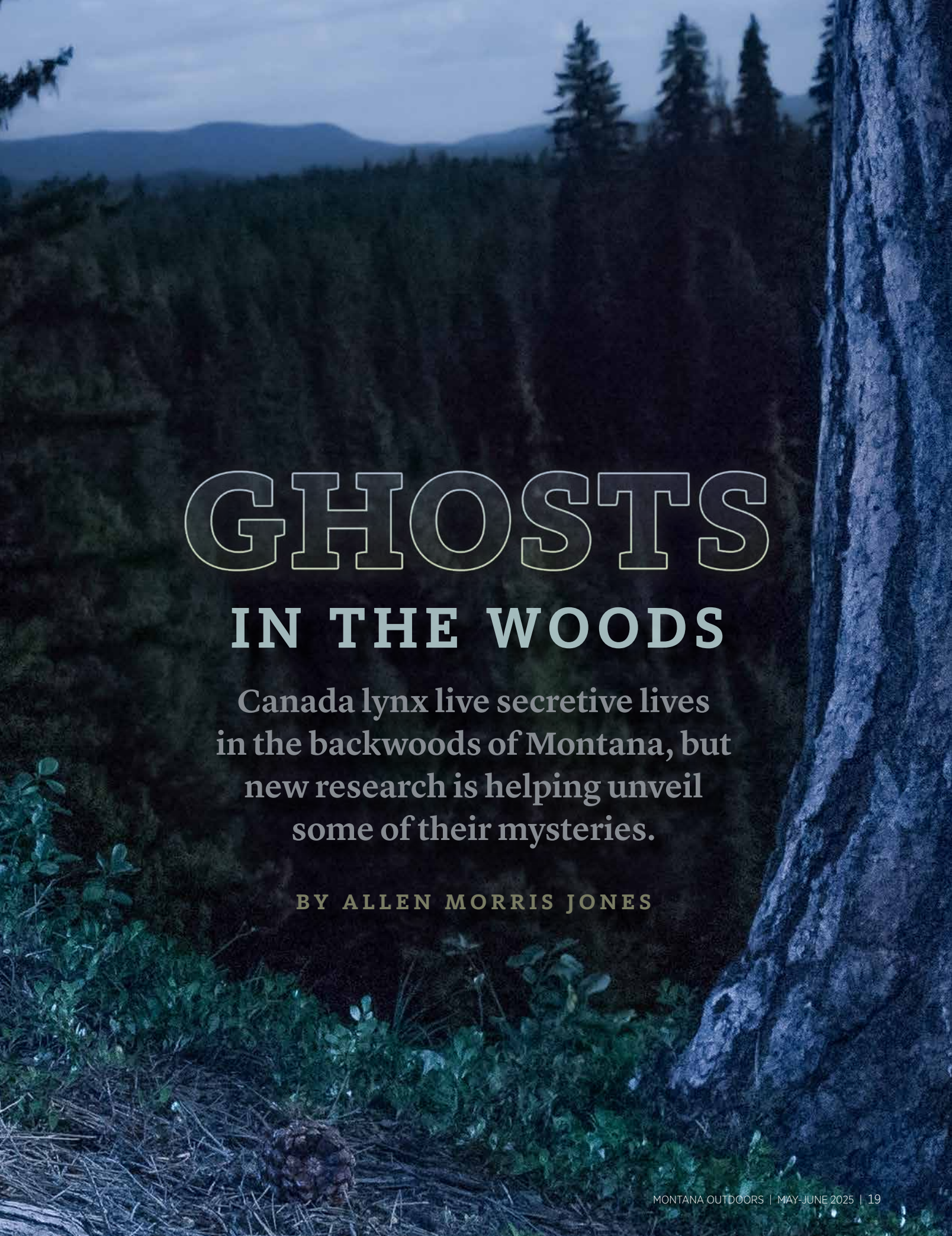
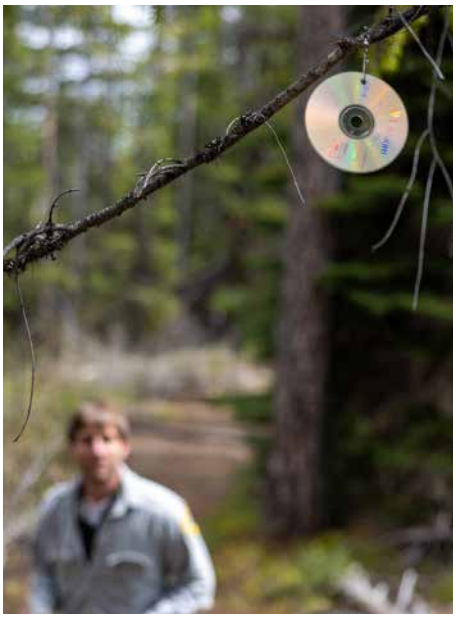
FOREST ENIGMA **Lynx are one of Montana's stealthiest carnivores.** PHOTO BY ZACK CLOTHIER



GHOSTS IN THE WOODS

Canada lynx live secretive lives in the backwoods of Montana, but new research is helping unveil some of their mysteries.

BY ALLEN MORRIS JONES



BACKWOODS BLING Researchers bedazzled camera traps with CDs that provide beckoning flashes like a signal mirror to help lure in lynx.

Hear that?" asks Montana Fish, Wildlife & Parks biologist Nathan Kluge, gesturing toward the thick timber off to our right. The noise comes again, a plaintive, truncated *rowr*. Then another. Five or six in a row. Sound can be deceptive in the thick timber, but this could be 50 or 60 yards away. Maybe less. Kluge looks delighted.

"Mountain lion," he says with a grin.

We're in the northern Bitterroots in mid-May about 90 minutes from Missoula. Kluge is FWP's furbearer coordinator, who I've joined on this day along with carnivore specialist Tyler Parks to check camera traps as part of an ongoing lynx occupancy study. And while a complaining mountain lion isn't on their scientific bingo card, it's uncommon enough that it plugs a little extra voltage into the outing.

"Want to see if we can get a glimpse?" Kluge asks me.

"Um. Sure. Why not?"

We spend the next 20 minutes hiking in the direction of the sound, clambering over downfall and making an unfortunate amount of noise in the timber before finally coming back around to the camera trap. "Tried, anyway," I say.

Kluge nods, still enjoying the idea that we were just a few minutes behind a mountain lion. He pulls the screw-in steps from his backpack and considers the camera strapped to the tree overhead. "We should get to it, I suppose."

Allen Morris Jones is a frequent contributor to Montana Outdoors. *He lives in Bozeman.*

"In our study grid, if a given cell has more than 50 percent high-quality habitat, it's a spot we might be able to use to detect lynx across Montana."

Part of a study aimed at finding Canada lynx, this FWP camera-trap station has three elements: a motion-activated camera in a weatherproof housing mounted at least 10 feet up a tree to keep it above the snow; a battery-powered scent dispenser (beaver castor with a dash of catnip); and, in this case, a visual attractant in the form of a CD hanging loose from a string. With each breath of wind, it provides beckoning flashes like a signal mirror. "Cats don't have the sense of smell that wolves or bears do," Kluge says. "They can't smell the attractant from a mile away. You need something that catches their eye to draw them in."

We'd visited a camera trap for fishers (a furbearer related to American martens) a few hours earlier and a mile and a half off trail, but the lynx set, by contrast, was right on an old logging road. Lynx seem to prefer established trails when available.

"The home range for a female lynx is about 22 square miles," Kluge says. Using that metric for cell-sizing, he and other biologists laid a grid across a map of western Montana. "In our study grid, if a given cell has more than 50 percent high-quality habitat, it's a spot we might be able to use to detect lynx."

FWP biologists have identified 180 cells that are more than 50 percent high-grade habitat. "That defines our total core area for lynx," Kluge adds. "We're sampling about 90 of those areas [using camera traps], aiming to find out where they are and where they're not."

This occupancy study is part of a larger research effort with Idaho and Wyoming to demystify a species that has long proved elusive. By testing if lynx are present in the best available habitat, Kluge and his colleagues should, over time, get a sense of population trends within those core areas. As straightforward as that might sound, it has important ramifications for forest management and trapping regulations.

PHOTOS BY ALLEN MORRIS JONES

RANGY ROVERS Researchers have found that lynx in Montana have home ranges twice the size of those farther north due to fewer snowshoe hares. PHOTO BY ZACK CLOTHIER

CAN O' CATNIP State furbearer coordinator Nathan Kluge installs a battery-powered scent dispenser loaded with beaver castor and a dash of catnip to draw lynx in for photos.

LIVING BEHIND A CURTAIN

Lynx are fascinating animals, looking a bit like the work of a sculptor who started building a bobcat from the ground up, then went gung-ho with the feet and legs only to run out of clay near the top. Long-legged and heavy-pawed, the species carries a bobcat's wise, judgmental gaze, but wears a grayer, plainer coat with larger, air-quote tufts at the top of its ears and a slightly larger (though still short) black-tipped tail. Similar to bobcats, male lynx weigh around 22 pounds on average, females a little less.

Like mountain lions and bobcats, lynx are loners that need elbow room. Unlike their cousins, though, they're quite uncommon in the Lower 48. As a result, they are one of the least known of the major North American carnivores, going about their daily lives behind something of a curtain.

Ken McDonald, who is chief of FWP's Wildlife Division, says there is a good reason for that. "Montana is at the southern fringe of lynx range, so they have never been (or likely will be) widespread or abundant here."

Most lynx live in Canada and Alaska, but south of the border, five areas hold breeding populations: northern Maine, northeastern Minnesota, western Montana, north-central Washington, and northern Idaho. Since 1999, they've also inhabited southwestern Colorado after the state released 218 lynx into the San Juan Mountains over a seven-year period.

FUZZY LOGIC Lynx grow a thick winter coat to shrug off bitter cold and have long legs and saucer-sized paws to help them chase down snowshoe hares in deep snow.

Lynx look a bit like the work of a sculptor who started building a bobcat from the ground up, then went gung-ho with the feet and legs only to run out of clay near the top.

Thirty years ago, what little scientists knew about lynx populations came largely from trapping data, but trappers didn't always correctly differentiate lynx from bobcats, so the data were questionable. What biologists have learned since has come courtesy of a modest contingent of devoted scientists who, by and large, gather data the old-fashioned way. They're strapping on snowshoes and slogging through knee-deep drifts, clambering over deadfall to follow denning females back to their kittens. They're shoveling out stuck snowmobiles and eating half-frozen turkey sandwiches while warming their hands over cans of Sterno, or holding up antennae and twisting them around to get a clearer beep on tagged lynx. After setting up camera traps, they return nine months later to retrieve them. Then, squinting at their computer monitors, they crunch numbers to compile a season's worth of data.

Jay Kolbe, an FWP wildlife biologist in north-central Montana, spent nine years studying lynx starting in the late 1990s, including work for his master's degree. "We were finally able to ask questions that, for other species, had been answered a long time ago. We could investigate food habits, denning habitat, home range size, fecundity—all really basic ecological questions." Among other discoveries, Kolbe and his colleagues found that lynx are drawn to the kind of boreal spruce-fir forest you commonly find in northwestern Montana, especially blowdown thickets and heavy brush. The wilder and woolier it gets, the more lynx seem to like it.

DEEP SNOW, LOTS OF HARES

The life of a lynx is simple from some perspectives, but when it comes to adaptation, they are a walking, stalking, hissing argument for niche Darwinism. A thick winter coat allows them to shrug off bitter cold, and long legs and saucer-sized paws help them chase down snowshoe hares in deep snow.

"Because of their dependence on snowshoe hares, lynx are essentially only found where snowshoe hares are present, which are a prey species with specific habitat requirements," McDonald says.

So long as snowshoe hares persist and lynx can find a mix of wild country and just enough population density to find mates,

FROM TOP: ALLEN MORRIS JONES; KALON BAUGHAN

they're probably going to be all right. But take one of those elements away and they could have trouble. If the snowpack disappears due to warming winters, snowshoe hare numbers will likely drop as well, and along with them, isolated populations of lynx.

Because of their habitat specialization and presumptive vulnerability—as well as how little is known about the species—lynx have served as a kind of legal proxy, an unwitting rope in a tug-of-war among state wildlife agencies, the federal government, and environmental groups. Over the years, a series of lawsuits have addressed trapping practices, habitat designations, and forest management. Trying to unravel the complex political and legal context behind lynx management is a little bit like trying to hike over tangled blowdowns and thick brush, tripping every step of the way.

In 1994, the U.S. Fish & Wildlife Service (USFWS) ruled that lynx didn't warrant protections under the Endangered Species Act (ESA). But two years later, 15 plaintiffs challenged that in federal court, citing a lack of data about the species. The suit ultimately prevailed, and in 2000, lynx in the lower 48 states were listed as threatened. In 2017, the USFWS completed a species status assessment (SSA) of lynx, which includes an in-depth, scientific review of the species, the threats it faces, and the resources and conditions it needs to maintain populations over time. This assessment only applied to the Lower 48. Acknowledging the limits of this habitat to host large populations of lynx, the USFWS recommended lynx be delisted as threatened following a five-year status review. But litigation quickly followed from environmental groups that contended lynx populations and habitat were decreasing, problems that would only be accelerated by shorter, warmer winters.

After a court order and some years after they were obligated to do so, the USFWS in 2023 issued a draft recovery plan for lynx, as well as an addendum to the 2017 SSA. Among other things, the recovery plan aimed to conserve at least 95 percent of lynx habitat in each of six units over the next 20 years. The units include the five areas where lynx are now known to exist, plus the Greater Yellowstone area, and the plan set a minimum population size within each of those units. Montana's minimum population count was recommended to be 200 lynx, based on estimated carrying capacity, home range size, and amount of viable

CLASSIC TAKEDOWN An early photo trap captured the exact moment a lynx pounced on a snowshoe hare, published in a 1966 photo essay by Ed Cesar in *Popular Science Monthly* that provided instructions for creating one of these devices.

SOURCE: AMERICAN MUSEUM OF NATURAL HISTORY

> **“What we’ve seen so far are lynx detections in all expected areas and some in areas where we were not particularly expecting them.”**

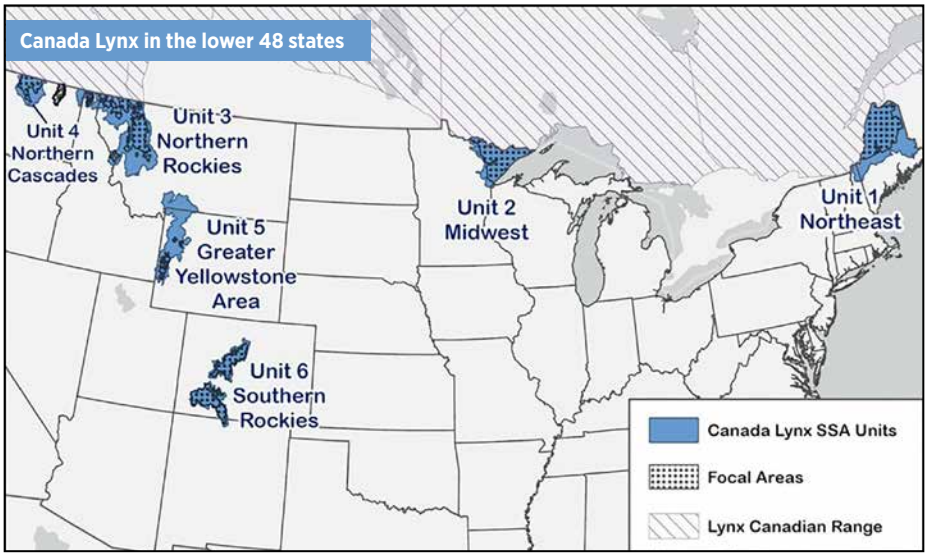
habitat. The recovery plan also stipulated habitat connectivity between the island populations, which would allow for genetic diversity necessary for long-term survival. These directives stand to have a major effect on forest management in the future.

FWP’s McDonald expresses frustration about the listing and the draft recovery plan. “The draft said that lynx are in pretty good numbers and where they need to be,” he says. “But then there’s uncertainty about what future winters will look like, so the draft also says they need to be monitored for another 20 years. We at FWP interpret that as saying lynx are already there and so now we just need to keep them there.

“From our perspective, this puts a black eye on the Endangered Species Act,” McDonald adds, explaining that the purpose of the ESA is to stop the decline of a species and prevent it from going extinct, and then to bring it back to a recovered state.

CANDID CAMERA Carnivore specialist Tyler Parks mounts a trail camera hoping to catch lynx in action.

FROM LEFT: KALON BAUGHAN; ALLEN MORRIS JONES



OUTER LIMITS Most lynx live north of the Canadian border, but breeding populations exist in Maine, Minnesota, Montana, Washington, and Idaho. Since 1999, lynx have also inhabited southwestern Colorado after that state released more than 200 into the San Juan Mountains over a seven-year period. MAP SOURCE: USFWS

"In this case the threats have been addressed, and lynx are at a recovered state," he says. "But delisting is now at a minimum of 20 years out. Our concern is that this reduces incentives for landowners, timber interests, and others to work to protect lynx habitat, and it gives ammunition to those trying to gut the ESA entirely."

In November 2024, the USFWS released its final Canada lynx recovery plan. The main threat, according to the document, is the ongoing loss of habitat in the western United States as well as warming winters that make it harder for lynx to hunt snowshoe hares. In addition to adopting a recovery plan, the USFWS proposed revisions to "critical habitat"—areas where land and wildlife managers must take special measures to reduce activities that could jeopardize lynx recovery, such as logging projects or trapping where they might be inadvertently caught. It proposed 20 new critical habitat designations that add territory in Colorado where lynx were reintroduced, while removing areas in the Greater Yellowstone Ecosystem where federal biologists have determined habitat conditions aren't suitable for a resilient breeding population.

HUMANS AND LYNX

Meanwhile, field work continues. A recent camera study spanning Glacier National Park took a fresh approach to lynx research by using patterns in the fur of the inside front legs to identify individual cats. For this survey, led by Washington State University graduate student Alissa K. Anderson, 300 motion-sensitive cameras were placed at 1-kilometer intervals across the park. Researchers counted roughly 50 lynx between 2018 and 2021—more than they expected to find. The work helped highlight Glacier as a potential climate refuge for lynx and suggests that populations may be larger than current estimates.

John Squires, with the U.S. Forest Service's Rocky Mountain Research Station in Missoula, is one of the country's foremost experts on Canada lynx. (Jay Kolbe did his research in the late 1990s and early 2000s under Squires's oversight.) For almost 30 years, Squires has helped conduct a considerable percentage of the major research projects on Canada lynx across the continent, and since the early 2000s, he's collared and gathered data on more than 260 individual lynx. Along with colleagues and co-authors, he's published pieces on predicting travel corridors, on den selection criteria, and on a recent study looking at how wildlife and forest management practices affect lynx.

Most recently, Squires has been surprised to find that lynx hunt in not just old growth or old burns, but also a mix of thinned forest and old clearcuts.

"That wasn't obvious to us before," he says. Squires is interested in how forest restoration projects might help enhance habitat, and how lynx will deal with larger, more intense forest fires along with slim snowpacks and record heat.

Just down the road from Squires's office in Missoula, Kluge and Parks are still busy gathering data. "So far we've had lynx detections in all the expected areas but also some spots we were not expecting them," Kluge says, adding that lynx numbers tend to rise and fall in a roughly 10-year cycle that tracks the highs and lows of snowshoe hare populations. "That, along with their elusive nature, makes it especially challenging to estimate the population and know where it sits in that cycle. I think lynx are moving toward a cyclical high, but it will be interesting to compare our data with surveys four years from now when the population could be trending toward a cyclical low."

Much of the policy regarding lynx and lynx habitat has been guided by litigation and bureaucratic maneuvering. But thanks to Squires, Kolbe, Anderson, Kluge, and other scientists like them, there's a solid chance that, moving forward, data will help drive management.

"Since lynx populations ebb and flow following the natural cycles of snowshoe hares, you'll see more lynx in more places during the highs and fewer during the lows," says McDonald. "That is a key consideration in our monitoring and management, with the ultimate goal of ensuring we have adequate habitat to sustain lynx across the highs *and* the lows."

See a video of FWP research biologists setting camera traps for lynx in the Bitterroot Mountains at youtu.be/07EXTlucxIY

KALON BAUGHAN