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Rancher Kaci Lewis and her daughter, Denali, at their Triple D Ranch in Montana. Read their story on p. 20.

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By MARINA SCHAUFFLER

ON THE COVER:

Jenny West, bookkeeper for Montana's Bitter Root Land Trust, spends as much time as she can fly-fishing on the Bitterroot River.

DJ GLISSON, II/FIREFLY IMAGEWORKS



BREAKING DOWN BARRIERS TO ENDANGERED SPECIES By MADELINE BODIN SURVINE BODIN

LAND TRUSTS ARE CREATING SAFE HAVENS FOR THE NATION'S MOST VULNERABLE WILDLIFE SPECIES







hen the federal Endangered Species Act was signed into law 50 years ago, Hine's emerald dragonfly was thought to be extinct. It's no wonder. This 2-1/2-inch-long dragonfly with striking green eyes depends on a specific Midwestern ecosystem: an open wetland over limestone bedrock, with crayfish burrows for shelter to survive cold winters.

Those wetlands had been drained and developed across the region. Few remain. When the Hine's emerald dragonfly was rediscovered in 1987 and listed as endangered in 1995, two-thirds of the existing populations were in Door County, Wisconsin, says Jesse Koyen, land program director for the accredited Door County Land Trust.

The Door County Land Trust works with The Nature Conservancy and other area land trusts to coordinate efforts to conserve the dragonfly's habitat, Koyen says. Conserving habitat on private land for species on the brink, such as Hine's emerald dragonfly, is a vital component for sustaining biodiversity in the United States.

A recent analysis by scientists at Utah State University found that while protected public land alone helps the survival of a handful of species, all 160 species of federally endangered mammals, birds, amphibians and reptiles would have enough habitat to persist if currently undeveloped private land was conserved for their benefit, in addition to habitat found on protected public lands like national parks. (Endangered plants, fish and invertebrates were not analyzed in the study.)

Door County Land Trust is one of the land trusts filling this important role for vulnerable wildlife. For this land trust, the work doesn't stop with acquiring endangered species habitat. A major challenge is removing woody invasive species, such as glossy buckthorn, which changes the flow of water in the wetland. A Great Lakes Restoration Initiative grant from the U.S. Fish and Wildlife Service will allow Door County Land Trust to treat 200 acres of dragonfly habitat to remove invasive species.

Hine's emerald dragonfly is not the only federally listed species that Door County Land Trust protects. Pitcher's thistle, a plant federally listed as threatened, is found at its Sturgeon Bay Ship Canal Nature Preserve.

Even working with two very different federally listed species with different habitat needs, Koyen sees similarities. "Honestly, the best thing you can do is just remove barriers for these species to thrive again, whatever that might be," he says.

Land trusts across the country are lowering barriers to the recovery of species listed under the federal Endangered Species Act, as well as species listed at the state level. The threats to these species are familiar and almost universal: habitat loss, disease, climate change and invasive species. Eliminating or reducing these threats comes with its own challenges for land trusts. They are rising to the occasion, using surprising tools, such as flea powder, and using existing tools, such as prescribed fire and community science, in innovative ways.





MAKING CONNECTIONS

The federally endangered Florida panther is a tawny, charismatic big cat with big habitat needs. That's a barrier to its survival in rapidly developing Florida.

The accredited Conservation Foundation of the Gulf Coast's (CFGC) role in the conservation of both the Florida panther and the federally threatened Florida scrub jay has been to make connections, says Debi Osborne, CFGC's director of land protection. CFGC, which serves southwestern Florida, connects parcels of conserved land to one another, connects residents to the beautiful Florida panther and friendly Florida scrub jay, and connects with other organizations to make it all work.

In 2021, the state of Florida passed the Florida Wildlife Corridor Act, designating funds to conserve an 18-million-acre patchwork of public and private lands in the center of the state, not only so Florida panthers can disperse, but to conserve habitat for dozens of other species. CFGC is seeking to work with larger landowners, including ranchers, within the wildlife corridor.

The Florida panther is a great ambassador for land conservation in southwest Florida. "It's iconic," says Osborne, noting that the Florida scrub jay is also "very effective." After CFGC sent a postcard to local donors and landowners—with a picture of a Florida panther—celebrating the success of a conservation easement within known Florida panther habitat, the organization received a call from a family wanting to conserve their land with critical Florida panther habitat too.

What's more important to Osborne, and perhaps to Florida, is that protecting these species also protects a host of other species that share their habitat, in addition to protecting water quality in an ever-growing region.





SUSTAINING PARTNERSHIPS

Removing barriers for endangered species is not a one-way street. Sometimes when land trusts remove a barrier for an endangered species, the endangered species removes a barrier for the land trust.

As a small land trust with two staff members, founded to conserve the dwindling family ranchlands near Austin, Texas, the accredited Pines and Prairies Land Trust (PPLT) may close on just one conservation easement a year, says Melanie Pavlas, PPLT's executive director. But the stewardship and land management responsibilities on its own preserves are continual.

The Houston toad, which is listed as endangered under the federal Endangered Species Act, lives in prairies and post oak savannas in PPLT's south-central Texas service area. (Houston is 120 miles to the east, but its namesake toad is no longer found there.)

"Conservation agencies, including Texas Parks and Wildlife, need land trusts to partner with them to restore habitat for the Houston toad, especially if they own their own lands," Pavlas says.

By partnering with Texas Parks and Wildlife to restore Houston toad habitat, Pavlas says, "We opened ourselves up to more support and technical guidance through their cost-share programs." There has been a federal challenge grant as well as funding through the Cornell Land Trust Small Grant program, which, although it targets birds, benefits the Houston toad because of shared habitat needs.

To reflect its commitment to restoring Houston toad habitat, in 2022 PPLT added three counties to its service area that are also part of the Houston toad's native range. These counties are in the northern part of the toad's range, Pavlas explains, which will become even more critical for the endangered toad's survival as the climate continues to change.

"It's a niche that no other local land trust has taken up, allowing us to be good partners in conservation," Pavlas says.

PUTTING THE "BEE" IN BIODIVERSITY

"The first endangered species I ever found was about 20 yards from my back door," says Jason Taylor, executive director of Bur Oak Land Trust, based in eastern Iowa. People tend to think of polar bears or bald eagles when they think of federally endangered species, he says. When people overlook the endangered species in their own backyards, it can be a barrier to those hometown species' recovery.

Five years ago, Taylor found the federally endangered rustypatched bumble bee in the plot of prairie he had restored in his Iowa City yard.

If the endangered bumble bee could be found in an urban prairie, he thought, then Bur Oak Land Trust's preserves might harbor them too. But how could the Bur Oak Land Trust, which has five staff members, quickly survey its preserves for the bumble bee?

Connecting residents to their local landscape is part of the land trust's mission as Taylor sees it, whether that's by introducing them to Iowa's native cactus, its 36 species of native orchids or a federally endangered bumble bee. This philosophy provided a solution to the survey problem. Sixteen volunteers attended a tutorial on



identifying the species. Taylor and the community scientists found the bumble bee at five of Bur Oak Land Trust's properties.

The land-trust-trained community scientists did not stop when the survey was over. They continued to search—and find—the endangered bumble bee throughout Bur Oak Land Trust's home county, making it a state hotspot for the species and a hometown endangered species success story. Thanks to the sharp eyes of its staff and volunteers, Bur Oak Land Trust is taking steps to manage the land for the rusty-patched bumble bee's habitat requirements, with both healthy prairie and nearby woodland.

SHINING A BEACON

Convincing private landowners to coexist with endangered species is one of the trickiest barriers that land trusts navigate, and one that is particularly important, given private lands' vital role in protecting vulnerable species.

Over two decades ago, mitigation funding for a conservation easement on the Koopmann Ranch, located in the heart of the Bay Area of California, allowed the ranch to stay in the family despite a hefty inheritance tax. Landowner Tim Koopmann never hesitated to say that a salamander saved the ranch—specifically the federally endangered California tiger salamander, which breeds in a small pond there and made the ranch eligible for the funding.

"We are so proud to be forever partners with the Koopmann family on this project," says Michael Delbar, chief executive officer of the accredited California Rangeland Trust. Two additional easements on the property conserve habitat for the federally endangered callippe silverspot butterfly and the California red-legged frog, a federally threatened species.

Ranchers are eager custodians of the land, Delbar says. Since the California Rangeland Trust first worked with the Koopmanns 25 years ago, it has protected 377,000 acres of working ranchland, with nearly 100 other ranch owners lined up to conserve another 220,000 acres, "to do what the Koopmanns did," Delbar says.

Earlier this year, the California Rangeland Trust secured the funding needed to place a conservation easement on the 9,418-acre Silacci Ranch in the mountains east of Monterey. The ranch is home to three special conservation status plants, bald eagles, golden eagles and the federally endangered California tiger salamander. Delbar says that the ranch and the soon-to-be easement demonstrate that not only are California's ranches important to its economy, they benefit the environment too.

INTRODUCING NEIGHBORS

Freshwater Land Trust (FLT), an accredited land trust serving central Alabama, has another way of introducing community members to the endangered species in their own backyards. FLT conserves the habitat of well over a dozen federally listed threatened and endangered species, including the Tulotoma snail, nine species of freshwater mussels and several colorful darter species, which are small, slender fish. Each year, FLT organizes an annual tour to make the connection.

As its name suggests, FLT's mission is to conserve environmentally significant land to improve water quality. The federally listed species come with the territory, says Sam McCoy, FLT's land stewardship director. "We're chock-full of rivers and streams and

practically every waterway has at least one protected species."

Vulnerable species are even found in the heart of urban Birmingham. FLT is currently working with Birmingham Land Bank Authority to conserve a property the land bank acquired through a tax sale that includes watercress darter habitat, says Elizabeth Sims, FLT's land conservation director.

Each annual endangered species tour has attracted a few dozen people from across the community, from public works staff to home-schooled children and their families. At one site, the group stands next to a highway, and with traffic whizzing by, learns that these tiny endangered fish live in the stream at their feet.

"The day is about celebrating successes with partner agencies," Sims says, and "educating the community about the rare species that are right in their backyard."

The event reinforces FLT's mission and its role in the community. Sims believes that by demonstrating FLT's role in conserving habitat for federally listed species, it showcases the necessity of permanent land protection. "We get to highlight why the area is special in a specific way," says Sims. "It garners pride."

FINDING THE SURE PATH

A federal Endangered Species Act listing is fairly black and white. A species is either on the list or not, unless it is one of the hundreds of species that exist in various forms of bureaucratic limbo. This is the case with Kirtland's snake, which is state-listed as an endangered species in Indiana, but was rejected for a federal listing in 2017. The Center for Biological Diversity, a wildlife conservation advocacy group, is appealing that decision with a lawsuit.

While the federal listing is uncertain, the Sycamore Land Trust, an accredited land trust based in southern Indiana, is committed to this tiny, red-bellied snake that likes to snack on worms and slugs.

The land trust was planning major wetlands restoration involving bulldozers on its Sam Shine Foundation Preserve when, as part of the process, it surveyed the land for reptiles and amphibians, says Chris Fox, Sycamore's land stewardship director. The survey found Kirtland's snakes on the property. The finding of such a rare species was unexpected because the newly acquired land had received no special care. But because the snake was already known to inhabit another Sycamore preserve upstream, the Beanblossom Bottoms Nature Preserve, the discovery made sense.

"We just decided to scrap that whole part of the project and work elsewhere," Fox says. After the initial restoration plans were made, a family of beavers moved in, doing their own wetlands restoration work, making the bulldozer work less urgent anyway.

Fox says finding a state-endangered snake during the preliminary survey will encourage the land trust to remain flexible in its plans during future restoration projects. As for the snake, Fox says, "It's a species that we, as an organization, have adopted, because most people aren't familiar with it and it's cool."

EMBRACING THE LAND

The black-footed ferret has had more than its share of barriers to survival. The tiny predator was once thought to be extinct but has been coaxed back from the brink through a captive breeding program that began in 1992.

Food is another barrier. A black-footed ferret family eats about 250 prairie dogs a year. Creating a prairie dog colony that is large enough to feed a black-footed ferret family is time-consuming work, but one that is welcomed by the accredited Southern Plains Land Trust (SPLT), which was founded in 1998 and serves southeastern Colorado.

"The breakthrough came in 2015, when we were able to buy a property we call Heartland and then a neighboring property," says Jay Tutchton, SPLT's interim executive director and preserve manager. The 43,000-acre fee-owned Heartland Ranch Nature Preserve was already home to prairie dogs but, like prairie dogs across the country, they were vulnerable to the wildlife version of the plague, which is carried by fleas.

Restoring black-footed ferrets was "the fantasy," Tutchton says, but first came years of flea treatments in both powder and oral form.

Once there were 2,000 acres of prairie dog colonies on the Heartland preserve, it was ready to provide a home for ferrets. In October 2022, scientists from Colorado Parks and Wildlife and the U.S. Fish and Wildlife Service released 30 federally endangered black-footed ferrets there. It was a fulfillment of SPLT's mission.

"The major focus of our land trust is biodiversity protection," Tutchton says. "To me a land trust embracing biodiversity protec-

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