

# The Farmer & The Ecologist



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By Brian DeVore

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**A**void looking across the road to the west, where lies an apocalyptic vision of what is and what could have been. Rather, look to the east, where there's ecological potential and a reminder of why it's worth forging links between birds, bovines and biologically healthy soil. That's the version of a mantra Mary Damm recites to herself each time she pulls into the driveway of the farm she owns near McGregor in the bluff country of northeastern Iowa, bleary-eyed from a 475-mile road trip that begins at her home in Indiana.



Damm purchased these 120 acres in 2014—the previous owner, Dan Specht, had been killed in a haying accident the summer before, and Mary had spent much of the previous decade wandering this mix of grass, trees and restored prairie, helping Dan tabulate all the birds and plants the farmer had nurtured on the land while raising crops and livestock. So, when the property came up for sale after Specht's death, she couldn't bear to see it bought up and plowed down for corn and soybeans. Damm's fears were warranted: she had lost a bid to purchase an additional 20 acres of Dan's land west and across the road from the main farmstead. The first time she visited her farm after the auction, the acrid odor of smoldering slash piles hung in the air—the new owner of the 20 acres had bulldozed a quarter-mile line of trees and piled them for burning; the pasture that had bordered the trees was being prepared for row crops.

"I cried, and I told Dan I was really sorry that I couldn't buy that land," Damm recalled one summer afternoon as we stood in her driveway, looking at those 20 acres, which were growing corn from fenceline-to-fenceline. Then she turned east to look at the 120 acres she had saved from the dozer and the plow. The grasslands that made up most of those rescued acres were speckled with small flags crisscrossed with portable electric fencing—the former marked research plots, the latter rotationally grazed pasture paddocks. The flags and the fencing represented a possible way not only to maintain the legacy of Dan's farm as a home to healthy ecosystems, but to give other farmers and the rest of society a reason for not always seeing a stand of grass or trees as unproductive until it's dozed, burned and plowed.

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When I first started writing about sustainable agriculture in the 1990's, I spent time walking this land with Dan Specht. During those tours he would, in

his own quiet way, pass on insights into how through "wildly succesful farming," productive agriculture and healthy ecosystems can co-exist. In recent years, I've returned a few times to the land Mary purchased, to learn more about a research collaboration that has risen in the wake of Dan's passing. Through this collaborative, Mary, a prairie ecologist, is partnering with Phil Specht, Dan's older brother. Phil dairy farms virtually next door to Mary — land controlled by another landowner separates the two. As I've toured Mary and Phil's farms, the whole time listening to them compare notes and downright argue about ways to strike a balance between scientific veracity, environmental sustainability and agricultural profitability, I've realized that on a micro-scale they are grappling with a question that vexes our entire food and farming system: how do we develop an indicator, a kind of label, that relates a clear message about the impact a farming method is having on ecosystem health and at the same time gives the public a helpful clue about what it can do to support ecologically-based agriculture?

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This collaboration has its roots in a chance meeting Mary had with Dan at the 2004 North American Prairie Conference in Wisconsin. As part of her graduate school research at Indiana University, Damm was comparing the ecosystem health of native remnant prairies and their restored counterparts. After the meeting in Madison, Dan invited her to study prairies in Iowa. They became romantically involved, and soon Mary was regularly making trips from Indiana to gather samples for her research. While using Dan's farm in northeastern Iowa as a home base, Damm had her eyes opened to how agriculture could relate to nature in a positive way.

"I actually did not know much about Midwestern agriculture," said Damm, who, before attending graduate school, worked for the Nature Conservancy and the National Park Service in Colorado.



Even when she first started visiting Dan's farm and saw how, for example, he had replaced some of his row crop acres with perennial pastures so he could produce beef cattle on grass, Mary was more drawn to the acres of oak and other hardwoods that made up portions of the property. But eventually Mary noticed that Dan's rotationally grazed pastures were home to an impressive number of avian species usually associated with prairie habitats: various kinds of sparrows, as well as meadowlarks, dickcissels, and, perhaps the most noticeable of them all, "skunk birds," otherwise known as bobolinks. Dan had been into birds since he was a kid, even making up comic strips about them and other wildlife. He always seemed to have binoculars on-hand, and he bought Mary her first pair. Chore time on Dan's farm was not often a straightforward affair.

"We'd be driving along and, 'Oh, oh, there's a bird!' And then we'd drive along some more and, 'Oh, oh!' So eventually we'd get back to what we were supposed to be doing, which was checking Dan's cows," recalled Damm with a laugh. "The birds, we'd always look at the birds."

Mary and Dan soon became a kind of team—attending prairie and sustainable agriculture conferences, they would participate in different sessions, comparing notes afterward. Mary would accompany Dan on his cow chore/birding outings in the field and Dan, in turn, would help Mary do research in her prairie plots; he even used electric fence posts to create a height-adjustable plant sampling frame.

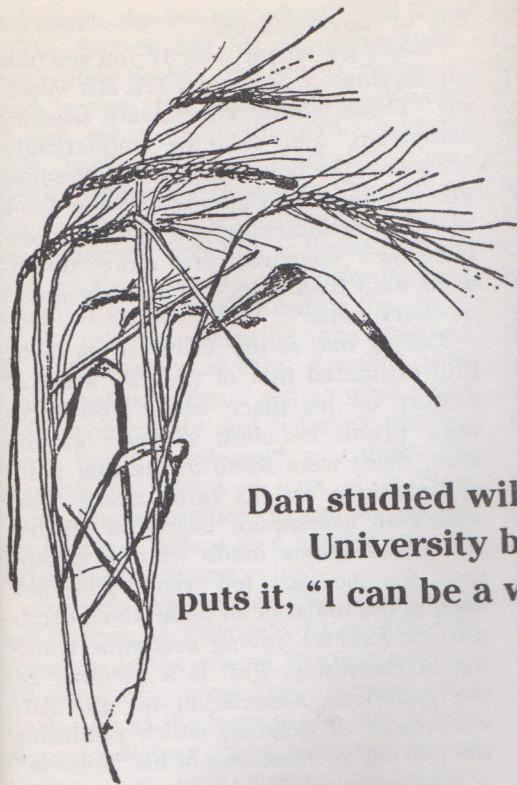


**D**an bought Phil Specht his first pair of binoculars as well. Like Dan, Phil inherited their family's passion for the outdoors. Their dad had long been involved in soil conservation efforts on and off the farm where they grew up, and he was an avid fisherman whose idea of a Sunday family outing was to

be casting lines for smallmouth bass at a local river. Phil, who is in his late 60's, has a degree in social work with a minor in chemistry from Wartburg College. Dan studied wildlife biology at Iowa State University before he decided, as Mary puts it, "I can be a wildlife biologist at home." (In the 1990's he went back to school and earned his biology degree from the University of Northern Iowa.)

The brothers ended up farming, and both decided they were not going to raise food dependent upon a conventional chemical and energy-intensive system. In the 1970's, Phil started producing milk using managed rotational grazing. This type of livestock production regimen relies on breaking up open pastures into smaller paddocks using portable fencing and moving the cows frequently—sometimes as much as once or twice a day. As a result, the animals don't overgraze, allowing the grasses and forbs to recover. In addition, the urine and manure produced by the bovines is spread evenly over the landscape, feeding the soil's biology without overwhelming the land's ability to make use of the fertility. Phil and other farmers using this system are able to extend their use of low-cost feed in the form of forages while raising animals without an investment in expensive confinement facilities. Today, Specht has 250 acres of rotationally grazed pasture and has not raised a significant amount of corn in a quarter-century. Dan eventually adopted managed rotational grazing on his own land to produce beef cattle.

During one of my recent visits, Mary, Phil and I sat in the yard next to Dan's now abandoned house and discussed everything from government agriculture programs to local watershed-wide efforts to improve water quality. We also talked about Phil's approach to farming. "It should mimic nature," he said bluntly. That statement prompted Mary to share her philosophy on how she can best contribute to protecting



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and supporting the natural environment. “I became an ecologist because I wanted to protect these natural areas, and my personality isn’t that of a tree hugger who goes to meetings and expresses myself that way,” she conceded. “So, I felt if I had the science knowledge, that would be my way to contribute.”

At one point during the discussion, the farmer grabbed a camera from his van and tried to snap photos of an uncooperative butterfly that was fluttering around a few yards away. “A female black morphed swallowtail,” Phil announced. He takes a lot of photos of the birds, plants and insects he sees on his farm and posts them to his Facebook page, along with his strident views about the state of modern agriculture and agricultural policy. Specht told Mary and me that he was hoping his telephoto lens would help him differentiate between two male bobolinks he had been

watching.

“Did you name them, Phil?” Mary teased.

“Well, I could have,” said Phil, without missing a beat.

Pretty photos aren’t just a distraction for Phil. Conventional farmers have a relatively easy gauge of success—how many bushels harvested off an acre of land, or the number of pounds of milk sitting in the bulk tank at the end of the week, for example. But when a farm is viewed through the lens of ecological health, it gets trickier. Whatever farming methods they used, the Specht brothers were constantly on the lookout for indicators that they were in sync with nature. Over the years, grassland songbirds literally flocking to the farmers’ pastures turned out to be the easiest, not to mention fun, measurement of ecosystem health.

Others recognize this positive connection between birds, bovines and grass.



While doing cerulean warbler research along nearby Bloody Run Creek, natural resource scientist Paul Skrade would take shortcuts through Phil's farm. He was, in his words, "blown away," by all the grassland birds there. Skrade, an assistant professor of biology at Upper Iowa University, says bobolinks are "obligate species," meaning they rely almost 100 percent on a certain kind of habitat — grasslands, in this case. Finding such habitat when they return to the Midwest each spring is critical to the bobolinks' survival. They winter in South America and make a jaw-dropping 12,500-mile round-trip migration flight each year. The males arrive in Iowa ahead of time and tend to return to the same nesting areas year after year. They forage for insects and spiders living on forbs, grasses and sedges.

One afternoon when Skrade and I were visiting Mary's farm as part of a Practical Farmers of Iowa field day, he explained to me that just having lots of grass isn't enough — grassland songbirds rely on a heterogeneous habitat, both in terms of the height of vegetation *and* the number of species present. Skrade likes that Phil does not have a uniform way of grazing his paddocks. Depending on conditions and time of year, he sometimes leaves the cattle on the same spot for a couple days, and they are allowed to eat the forage down relatively short. Other times the cattle may be moved more frequently, leaving behind a fair amount of standing vegetation. Thus, the heterogeneity of the habitat.

"Agriculture and biodiversity can go together — we're seeing that here," said Skrade excitedly.

When Dan got Phil those binoculars, it spawned a bit of sibling rivalry. They began competing to see which farm could produce the most bobolinks in a given year. After all, the skunk bird's role as an obligate species makes it an excellent indicator of how the pasture habitat is doing. And by the way, a bobolink is easy to identify while mowing

hay or moving fence.

"Dan's statement was, 'If you see bobolinks, three little words: It's. All. Working.' Three words. You have a working ecosystem," Phil told me emphatically. "Anyway, the bobolink is just something you can take field glasses and see. It's a *real* handy indicator and a flashy one. Henslow's sparrows are more threatened than bobolinks, but frankly aren't as charismatic."

During one of my visits to his farm, Phil estimated that of the 250 acres of pasture on his place, about 100 acres were prime bobolink habitat; at the time, there were some 30 nesting pairs of bobolinks on his farm alone. This wasn't an assessment based on off-the-cuff observations made from a tractor seat; for the past few years, Phil has been in the midst of an in-depth research project. Besides having academic training in chemistry, Phil is a member of the American Association for the Advancement of Science, which publishes the journal *Science*. One of his "hobbies" is reading scientific abstracts.

"He's a weirdo," said Mary with a deep-throated laugh.

Specht is a big believer in recording data and adapting his management style as a result. He makes sure the information gathered is randomized. "Because your eyes will always go to the exception," he said. Such an observe-and-adjust way of doing things is relatively common among farmers I've met who are undertaking innovative practices that require replacing chemical inputs, fossil fuels and machinery with intensive management. For example, I've been on a number of Midwestern operations that utilize managed rotational grazing, and a common trait graziers share is the ability to monitor how their livestock and pastures are interacting, and act accordingly. Managed rotational grazing, like diverse crop rotations or cover cropping, is not a cookie cutter way of managing the land that lends itself to computerized calibrations. "My number one rule for graziers: observe

and adapt, observe and adapt," Phil said.

The farmer has set up rectangular study plots on his and Mary's pastures. Each spring, the farmer and whoever he can get to help him will regularly walk back and forth past the plots, lightly dragging a rope over the tops of the vegetation. The farmer notes whenever a female bobolink is flushed off its nest by the rope. He also records grass height at various times during the study period using a measuring tape attached to a five-gallon bucket. Specht's ultimate goal is to figure out at what point milk productivity and bobolink productivity begin to intersect, or collide, depending on how you look at it. How much forage production can he get off his pastures before bird nesting suffers? What is the tipping point?

Damm's research on the farm is going deeper, so to speak. Along 100-foot transects in the grazed pastures and the 10 acres of prairie Dan restored on a back part of the farm in the late 2000's, she records how many plant species are present and each species' abundance, thus developing a picture of how much diversity there is. She also takes soil samples, sending them off to a laboratory to be tested using a sophisticated method called the Haney Soil Health Test. Such testing goes beyond the traditional measurement of basic nutrients like nitrogen, phosphorous and potassium (NPK), which is popular among crop farmers trying to determine their fertilizer needs. Measuring soil health provides insights into not just a field's fertility, but its ability to, among other things, build soil organic matter. High organic matter levels can provide numerous ecosystem services such as less flooding and runoff and cleaner water, as well as sequestration of greenhouse gases.



One late July day, Mary, Phil and I walked into one of her pastures to get a firsthand look. There were 16 rotational paddocks on 100 acres, and we

stood in a spot that had been grazed a month previous by a local grass-based beef farmer to whom Mary was renting the pasture at the time. From my non-expert perspective, it appeared to be a well-managed grassland: good regrowth, no exposed soil. Flags marked where Mary had been sampling vegetation and soil. We spied a few female bobolinks, which were buff-colored, a sharp contrast to the breeding males, which with their feather color mix of black below and white above, suggest "a dress suit on backward," writes birding legend Roger Tory Peterson.

The pasture contained good forage from a livestock producer's perspective: timothy grass, orchard grass, brome-grass, red clover and white clover. There were also stands of giant ragweed and goldenrod, which are not such good livestock feed. In fact, brome is one of Phil's favorite forages, but prairie enthusiasts consider it an invasive. I asked Phil and Mary to assess the pasture from their various standpoints.

"If you were looking at grazing management, this is undergrazed," said Phil, pointing out that since most of the bobolinks have fledged for the season, this pasture could now be grazed more heavily.

Mary conceded she didn't have the eye for pasture that she does for prairie.

"Look! Goldenrod! Look! Milkweed!" Phil shouted, voicing in a gentle, mocking manner what he guessed the prairie ecologist was thinking, a reminder that even though a plant like goldenrod is a valuable part of the natural habitat—it's a source of food for pollinators during the fall, for example—it's not well-loved by cattle.

"Actually yes, I do see the diversity of plants. Just on the other side of the fence where I sampled one bird plot, there were 13 species of plants," she responded, pointing at a spot a few hundred feet away. "There is a diversity—it's not as diverse as a native prairie or maybe even a restored prairie, but in terms of what plants are out here and

how many there are, and the cover too, it's good. One other thing I notice here — I know this is a cool season grassland that this time of year has dead seed heads. And straight up ahead of us is the prairie.”

As she said this we glanced at the 10-acre restored prairie a couple hundred yards away. The difference was striking: its warm season natives were green and vibrant, and various flowering plants were just coming into their own in the high heat. Here in late summer were two grassland habitats going in opposite directions.

After Phil headed back home to do the evening milking, Mary and I walked to the 10 acres of restored prairie. As we waded into the waist-deep vegetation, more bobolinks, mostly females, flashed about, giving out their soft *chuk* call when perched and emitting a more musical *bink* call in flight (Skrade compares the latter call to the noises R2-D2 makes in the *Star Wars* movies). As evening approached and the July sun waned, the temperature cooled and the birds became more active. At one point, three noisy females appeared at once, clinging to grass stems or perched on fence posts.

Mary was clearly in her element. All of the talk about government programs, pounds-of-bovines-per-acre and fencing systems represented a steep learning curve for her. She relied heavily on Phil and other farmers in the area for advice on what to do with the agricultural part of the farm. But here, among the native grasses and forbs, she was in charge. At one point, I asked to take a photo of her in the prairie, and Mary agreed, as long as brome wasn't in the shot. “Phil loves brome,” she conceded. But the farmer wasn't here and the prairie ecologist was.

As we hiked to the back of the prairie, we talked about an idea Mary had for formally studying the impacts of grazing on the native species here. The 10 acres has been grazed in the past, but she would like to do it in a way where she can scientifically measure

the impacts cattle are having on plant health and diversity. Farmers are interested in the answer to that as they investigate, for example, integrating more warm season prairie species into their tamed pastures to make them hot weather tolerant. Seeing how these native grasses and forbs were thriving at the height of summer, even as their pasture counterparts were fading, makes such hybridizing of the two ecosystems attractive. Restoration ecologists are also interested in such research, since an increasing number of natural resource agencies and even groups like The Nature Conservancy are utilizing livestock to control invasives in grassland habitats.



Mary is well aware that no matter what she does on this farm, or what Phil does on his, they are just two of many in the region — islands in the stream, or, more accurately, islands in a roaring river that frequently leaves its banks. All she has to do is look across the road at that 20 acres of former timber and pasture to be reminded of that.

There's a reason that the majority of farms in her community and beyond

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raise corn and soybeans: government programs and the markets pay them to do that. Although Damm is using funding from various U.S. Department of Agriculture conservation programs to support improvement of the rotational grazing system, establish pollinator habitat, conduct soil health sampling and even grow edible nut trees on her farm, such government initiatives are no substitute for long-term financial sustainability. In addition, the survival of these programs is vulnerable to the whims of policymakers, while the competency with which they are implemented by government agencies can vary considerably, depending on staffing situations in rural offices.

Consistent market support for wildly successful farming practices is difficult to maintain as well. Certified organic farmers receive a premium price for employing certain chemical-free, sustainable practices—Dan was certified organic for a time—but establishing a prairie or building a healthy soil biota in general does not produce financial dividends in our current food and farm system. Over the years, Dan worked hard to try to get rewarded for his ecological farming methods through sustainable and organic meat labels, but encountered mixed results. Dan and Phil talked frequently about developing a sustainable grassland “stamp” featuring a singing songbird that could be placed on livestock products originating from farms that are doing the right thing when it comes to enhancing natural habitat. Phil would like to see the bobolink used as a poster child for such a stamp, at least in the Midwest where its habitat has been so obliterated by

industrial farming.

Any time we choose to focus on promoting one resource, there’s the danger of excluding other pieces of the puzzle that are key to the workings of the whole. But as I spent more time with the ecologist and the farmer, it became clear that the bobolink is so dependent on a healthy grassland ecosystem that using it as a biological barometer isn’t such a bad idea. With its black-and-white flashiness, coupled with a name that tends to trip off the tongue, it truly is charismatic and easy for even non-bird nerds to recognize and remember. Its presence, or absence, tells us a lot about what else finds that particular habitat attractive: other grassland birds and pollinators, as well as the kind of deep-rooted perennials that can keep our water clean and sequester greenhouse gases.

And Phil said something once that sticks with me, providing hope that whether or not a special “Bobolink Beef” label is created or enough respected science emerges from his and Mary’s plots to gain the attention of government agencies and policymakers, one fact remains: the farmer and the ecologist are going to do their utmost far into the future to maintain an ecosystem that Dan Specht would have recognized as healthy. Phil’s reassuring statement came when I asked, almost jokingly, who was winning the brotherly battle of the bobolink. “Me, this year,” he said. “Last year, it was Dan.”

The farmer then went on to describe ways he could tweak his grazing system, tilting the odds even more in his favor. □

