

COW *OR*

PLOW

Cattle need grass, which makes ranching the best hope for grassland songbirds.

BY CATHERINE WIGHTMAN



COW BIRD A McCown's longspur perches on barbed wire near a herd of cattle. The grassland species prefers short grass like that found in newly grazed pasture. Other prairie birds do best in longer grasses, where grazing has been temporarily suspended. But no native grassland species can thrive in fields of cultivated wheat or other crops (right).

LEFT TO RIGHT: CRAIG & LIZ JARCOM; JOHN LAMMING

When John Carlson thinks of eastern Montana in spring, he hears music. “To me, the real beauty of prairie is the complex chorus of grassland bird song,” says Carlson, an avid birder who grew up in Fort Peck and for the past 12 years has been a conservation biologist for the Bureau of Land Management (BLM) in Billings. “McCown’s longspurs fly up high in the air, pull their wings back, spread their tails, and emit a tinkling jumble of notes while parachuting to the ground in a lazy circle,” he says. Sprague’s pipits are the soloists of

this early morning performance. “High in the sky, barely visible to the human eye, the pipit circles and emits a song described by one early naturalist as ‘ethereal, ringing bells that descend from the heavens,’” Carlson says. “Pipits are known to remain in the clouds, singing their high, thin notes for over an hour at a time.”

The pipit song in particular resonated with 19th-century naturalists who explored the northern Great Plains. Their old journals contain glowing references to the melodic song of the Missouri skylark, as the pipit was called then. The species was described as “common and abundant,” and the pipit’s song rang out across thousands of miles of prairie. No more, however. Today, prairie visitors hear the bird’s heavenly chorus in only a few places that retain large tracts of native northern prairie. Montana’s Hi-Line is one such place.

Yet even in this remote northern landscape, largely unchanged over the past century, scientists wonder if the pipit’s song, and those of other grassland birds, will continue to ring out much longer.

Worrisome decline

Nationwide, grassland songbirds are disappearing. According to the North American

Catherine Wightman is an FWP wildlife habitat biologist in Helena.

Breeding Bird Survey, the continent’s longest-running bird monitoring program, chestnut-collared longspur numbers have tumbled by 81 percent since the survey began keeping records in 1966. It also shows an 80 percent decline in Baird’s sparrow populations over that same period. Even grassland species that were common not too long ago, like western meadowlarks, show slight downward population trends. Sprague’s pipits are holding steady in the United States, yet numbers have decreased by 83 percent over the past half century in prairie Canada. That downward trend so concerns the U.S. Fish and Wildlife Service that the agency is considering listing the species as federally threatened or endangered.

What accounts for this troubling drop in grassland bird numbers? Mostly, say scientists, it’s the conversion of grassland into cropland.

According to Montana Natural Heritage Program estimates, one-third of the native grassland in eastern Montana has been plowed up or otherwise significantly altered since the mid-1800s. The decline is even greater outside Montana’s borders. Scientists estimate that 70 percent of all grasslands in the northern Great Plains has been lost since European settlement.

What has saved prairie birds along the Hi-Line is cattle. Ranchers manage their land to sustain grass production, which benefits bovines and birds. “The reason we

have these strongholds of native birds and other prairie wildlife is that the long history of ranching along the Hi-Line has preserved grasslands,” says Rick Northrup, chief of the Montana Fish, Wildlife & Parks Wildlife Habitat Bureau. For more than a century, cattle ranching has remained profitable enough that most Hi-Line ranchers aren’t tempted to convert their grassland to wheat. But a growing global demand for grain, along with technological advances in seeds, is making farming more profitable. In addition, federal Farm Bill policies have generally favored farming over ranching.

Northrup notes that most productive farmable land along the Hi-Line has long since been turned over. “What remains is soil that is highly erodible and of low productivity,” he says. “These remaining native grasslands need to remain intact to support livestock and native wildlife.”

Keep ranching profitable

Wheat is an essential crop for Montana’s rural economy. Unfortunately, grassland birds have trouble nesting successfully in wheat. Grain fields lack the vegetation structure and insect production that native prairie provides. Because approximately 85 percent of remaining

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grasslands in the northern Great Plains are privately owned, “the only way grassland bird populations can remain viable is if ranching remains profitable enough to keep the land in grass,” says Northrup.

FWP is working with the Natural Resources Conservation Service, U.S. Fish and Wildlife Service, and other conservation



SPECTRUM OF SPECIES Different grassland wildlife species evolved to live in the widely different vegetative conditions found in native prairie (above). McCown’s longspurs and mountain plovers nest in sparse plant cover. Baird’s sparrows need thick vegetation for nesting and will abandon areas grazed too intensely. When grasslands are converted to agriculture, populations of species like the Sprague’s pipit (below) tumble, as shown by the pipit’s 83 percent population decline in prairie Canada.



TOP TO BOTTOM: JOHN LAMBERG; JOHN CARLSON



PRAIRIE SONGSTERS Abundant and diverse native vegetation is the key to saving melodic grassland species such as (clockwise from top left) the Baird's sparrow, horned lark, chestnut-collared longspur, and savannah sparrow. USFWS private lands biologist Marisa Lipsey of Glasgow (below right, searching for birds at sunrise) recently completed her doctoral thesis at the University of Montana on the grassland requirements of native species. She found that natural variation in the prairie landscape and spring rainfall take care of much of the diversity needed for grassland birds.

partners to help ranchers maintain long-term grassland stewardship. Agencies provide technical assistance like developing grazing strategies; share in the cost of fencing, watering systems, and other rangeland infrastructure; or purchase conservation easements that protect grasslands from the plow. "The goal is to help keep ranching economically viable so ranchers don't feel the pressure to convert grassland to crops or sell or lease it for conversion," says Northrup. "That also preserves an important way of life that has contributed to Montana's economy and culture for more than a century."

Historically, Montana's mixed-grass prairie was a mosaic of various grass heights and densities. Periodic wildfires and the constant movement of grazing bison created a patchwork of short, medium, and tall grasses. Bird

species have adapted to take advantage of this vegetative diversity. Sprague's pipits and Baird's sparrows nest among tall, abundant grasses—seas of green that gently ripple in the prairie wind. Longspurs, on the other hand, nest in shorter grasses, like a swath of freshly clipped grass in the wake of a large herd of cattle. These and other grassland birds often occupy the same landscape but in slightly different local niches.

Birds need grass, diversity

Marisa Lipsey recently completed a study at the University of Montana on the grassland requirements of various bird species in Phillips and Valley Counties. She tracked the grassland components that different species key in on when they return in the spring and select breeding locations. "I think they are

searching the landscape for places without trees, places where they can see the horizon," Lipsey says. At that large scale, cropland intermixed with native grassland meets the birds' criteria for openness. The problem could come when the birds fly down into these areas and can't find suitable nesting conditions on the cropland. "One of the reasons for the population declines may be that birds are attracted to open areas, but that can be problematic if there isn't adequate habitat there for breeding," she says.

Lipsey also found that how cattle are grazed from one ranch or public allotment to the next matters less than simply whether a landscape contains abundant grass. "At least in high-moisture years like those during our study, grazing by itself has little effect on bird abundance," says Lipsey, now a private lands

biologist for the U.S. Fish and Wildlife Service in Glasgow. "What really drives grassland bird populations is soil type—which influences the type of grasses that grow—and weather, particularly moisture levels."

Lipsey explains that in wetter years or locations, dense-grass bird species are more abundant, and in drier years or locations, sparse-grass species are more numerous. The natural variation in the landscape and in spring rainfall take care of much of the diversity needed for grassland birds.

That's not to say managed grazing—such as systems that temporarily rest some pastures while intensively grazing others—can't benefit grassland birds. "On a large landscape scale, you definitely need the heterogeneous cover that comes from managed grazing," Lipsey says.

When talking to Hi-Line ranchers and conservation groups, adds Lipsey, the main point she drives home is that "grassland birds need grass, first and foremost."

Grazing regimes still important

The BLM, which owns millions of acres along the Hi-Line, helps preserve grassland health by requiring leasees to use managed grazing systems. "That can be something like varying the timing, duration, or intensity of the grazing to achieve good rangeland health for the lands we manage," says Carlson, the BLM biologist. "The most

important thing is that it's *managed grazing*." The BLM factors in grassland birds, as well as other wildlife species, cattle production, and overall watershed health when adjusting the terms and conditions of grazing leases. "I think the management programs we have in place, along with managed grazing on private land, are the main reasons there's still so much intact prairie along the Hi-Line, and why many grassland birds are doing well there," Carlson says.

While agreeing with Lipsey's conclusion that rainfall and soil type are more important than grazing methods for creating grassland diversity, Carlson notes that managed grazing does much for prairie birds. "During a drought, for instance, grazing systems that rest some areas allow grasses to grow taller and denser than they would with unmanaged grazing," he says.

So far, Montana has been able to retain more acres of high-quality, mixed-grass prairie than any other state. That habitat supports populations of swift fox, mule deer, pronghorn, and, especially, birds. But there's no guarantee those grasslands will remain as they have for the past 10,000 years. As worldwide demand for grain continues to grow, so does pressure to plow (see sidebar at right). "Think of the Hi-Line as a big island of intact, native prairie," Carlson says. "We need to stay vigilant to keep the island big, by making sure the shores don't erode." 🐾



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CLOCKWISE FROM TOP: LEFT: BOB MARTINIA; DONALD M. JONES; MASONSWAN WILDLIFE PRODUCTIONS; ELIZABETH E. MOORE
LEFT TO RIGHT: AMY WIDALE; SHUTTERSTOCK

Why plow—and why now?

Global grains prices are one of the biggest drivers behind the conversion of prairie to cropland. In Montana, the price of wheat can determine whether many ranchers continue to run cattle or turn their grasslands into grain fields.

Wheat prices skyrocketed from \$2.57 per bushel in 2000 to \$7.60 in 2012, due mainly to droughts and restrictions in other wheat-producing countries like Australia and Russia. According to one study, 17 Montana counties, most along the Hi-Line, each converted an average of 30,000 acres of grassland to wheat in the three years of 2008 to 2011.

To the east, where corn is king, researchers from South Dakota State University found that 1.3 million acres of grassland disappeared between 2006 and 2011 in North Dakota, South Dakota, Nebraska, Iowa, and Minnesota as ranchers in those states cashed in on rising corn prices. "This is kind of the worst-kept secret in the Northern Plains," lead author of the SDSU study, Christopher Wright, told reporters.

The study found that rates of grassland conversion equaled deforestation rates in Brazil's Amazon Basin. "Historically, comparable grassland conversion rates have not been seen...since the 1920s and 1930s, the era of rapid mechanization of U.S. agriculture," the study notes.

Grain prices fluctuate widely and constantly. But once a prairie is tilled, it never regains its full biological diversity. Hundreds of square miles of northern Great Plains have been plowed under during the past decade.

As this issue goes to press, wheat has dropped to \$5.26 a bushel following recent increases in Australian production and a downturn in the Chinese economy. Though hard on Montana wheat producers, that could give remaining prairie a temporary reprieve. Even so, birds will continue to arrive at the Hi-Line each spring in search of grasslands and encounter vast landscapes of cropland no longer suitable for nesting or raising their young.

—Editor

