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CORN MONOCULTURE no friend of BIODIVERSITY

Federal mandates for corn ethanol, which encourage farmers to plant more corn, may threaten the biodiversity of grasslands.

BY AARON E. PRICE

PHOTOGRAPH BY AARON E. PRICE

A meadow at the Gracie Creek Ranch outside Burwell, Neb., is left untouched for the biodiversity to thrive in its natural state.

Nine-Mile Prairie near Lincoln, Neb., is a biodiversity goldmine. Big bluestem, little bluestem and sawtooth sunflowers sprinkle the landscape. Red-winged blackbirds, eastern phoebes and northern blue jays sing their unique songs. With little human disturbance, forces of nature have, for centuries, built complex interactions of wildlife, plant and soil communities in this 230-acre prairie.

In 2008, Nine-Mile Prairie provides habitat for 80 species of birds and 350 plant species, including the endangered prairie fringed orchid.

Federal mandates for corn ethanol, which encourage farmers to plant more corn, may threaten the biodiversity of grassland ecosystems like Nine-Mile Prairie.

In fact, some predict that thousands of acres of Conservation Reserve Program land — which the federal government has encouraged farmers to take out of crop production and restore to prairie habi-


tat — might be planted to corn, a crop that does little to support biodiversity.

“I think it’s a real mistake to be plowing up ground in CRP and, even worse, plowing up native prairie in the big rush for corn ethanol,” said former U.S. Secretary of the Interior Bruce Babbitt at a speech in Lincoln in April 2008.

“I think the biggest environmental threat I see is taking cropland that was in set-aside programs and moving it back into production agriculture,” said Dave Wedin, University of Nebraska – Lincoln ecologist.

Since the 1980s, the CRP has encouraged farmers to take marginal cropland out of production and to plant grasses and trees for wildlife habitat. Replacing crops with diverse native plants also reduces soil erosion and improves water quality on CRP acres.

“They’re not the reservoir of our natural biodiversity that our native prairie remnants are; but,



nonetheless, there were a lot of benefits in terms of soil carbon, soil health and habitat,” Wedin said.

The CRP recognizes the value of restoring natural ecosystems, including diverse wildlife and plants, on marginal land. Highly erodible or poor-quality soil on marginal land makes it less suited for growing crops or raising livestock.

Under a 10- to 15-year contract, the CRP pays farmers to manage marginal land for wildlife and other natural resources. If replanting or grazing occurs during the contract, the farmers must repay the money.

According to the Farm Service Agency, farmers have put about 36 million acres into the program nationwide. As of March 2008, 1.2 million acres of Nebraska farmland was under CRP contracts.

Federal regulations originally limited CRP land to a maximum of 39.2 million acres nationally, but the 2008 farm bill dropped that cap to 32 million acres.

Rob Robertson, vice president of government relations for the Nebraska Farm Bureau, expects farmers to take land out of the existing CRP acres in the next two to three years to grow crops.

“If the corn prices, bean prices, and everything is high, we don’t doubt that some of that land will go back into crop production,” Robertson said.

In particular, farmers wanting to cash in on the corn-ethanol market will plow more CRP acres and other grassland to plant corn. Robertson said any decrease in wildlife won’t be a major issue.

In contrast, Steve Chick, the state conservationist in the Nebraska office of the Natural Resources Conservation Service, was concerned about the effects of losing CRP acres to crop production. “All of this would affect diversification of wildlife habitat,” Chick said.

CRP acres supplement the few acres of native prairie that remain. According to the Wachiska Audubon, only two percent remains of the tall-grass prairie that once covered much of the Great Plains.

Little protection exists for the remaining native prairie. According to the World Wildlife Fund, only 1.5 percent of the native Great Plains is protected by any park system.

“The grasslands are one of the least protected areas out of all the protected areas on the planet,” said Dawn Montanye, a WWF manager of conservation economics. Nine-Mile Prairie is one of the few protected areas.

In a diverse ecosystem, natural predators control pest species, making application of chemicals unnecessary. Natural nutrient-cycling and nutrient-trapping in the soil can improve water quality. Natural ecosystems with a diversity of plants and animals are better able to survive extremes in the weather. For example, in biologically diverse systems, tall plants protect shorter plants from the wind and sun.

“I think we need to keep as many species as we can around in viable populations,” said Paul

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Johnsgard, University of Nebraska-Lincoln emeritus professor of biological sciences. Johnsgard is concerned about the disappearance of biodiversity as agricultural crops replace native prairie.

“Plowing up such fragile lands to raise wheat or corn for a few decades, often until the topsoil blows away and the land is abandoned, is like throwing away a treasure trove of potential biological riches to raise a single species of grass that needs so much tilling, water, herbicides, and pesticides to survive that scarcely anything else of value can survive there,” writes Johnsgard, in his book “Prairie Dog Empire.”

Monoculture crops like corn — with the same species of plant covering hundreds or thousands of acres — have few built-in defenses against pests and adverse weather.

For example, the relatively shallow roots of corn are no match for the tangled roots of prairie grasses, which stabilize nutrient-rich soil against wind and water erosion.

Though corn satisfies a demand for both livestock and human food, the expansion of corn pro-

duction for ethanol plants adds to pressures on biodiversity. On this issue, Tyler Sutton, director of the Grassland Foundation, sees parallels between current and historical federal policies.

“You go back to the Homestead Act, which required plowing of grasslands to prove up the claim, carrying it forward into the modern era, where crop subsidies clearly encourage conversion of prairies and grasslands into crop production,” Sutton said.

Ethanol production to satisfy the U.S. hunger for fuel is just the most recent step in a history of replacing naturally diverse prairie ecosystems with systems created and managed by people.

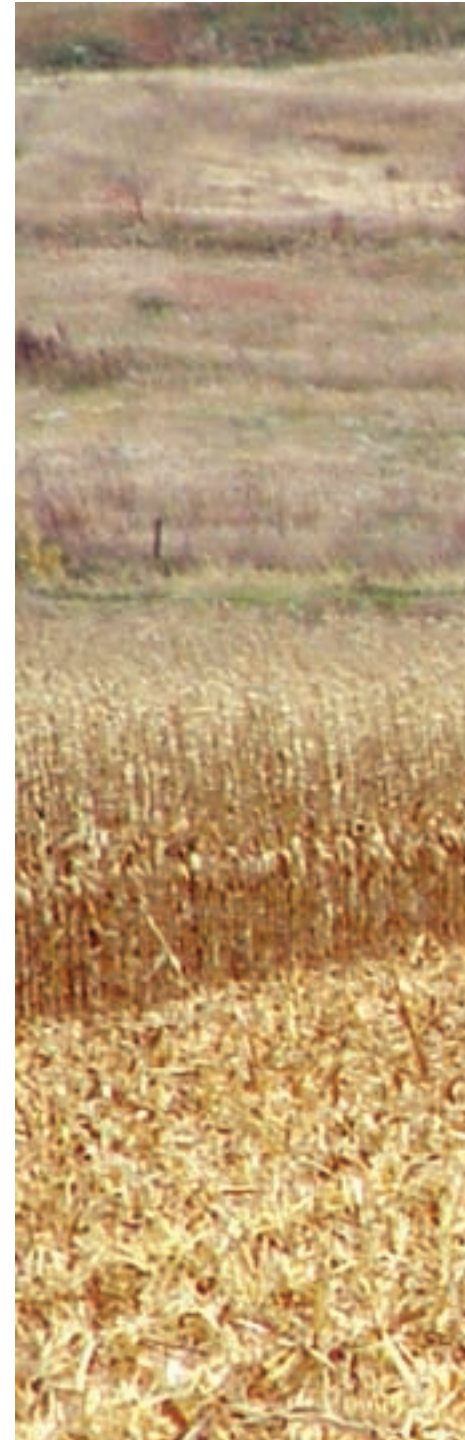
“Philosophically you can say people have always shaped the ecosystems of the Great Plains,” Wedin said. “It isn’t so much a question of what’s natural, but a question of what people as a society want with the values we hold and reflect to manage that landscape.” ¶

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Paul Johnsgard

UNL emeritus professor of biological sciences

PHOTOGRAPH BY AARON E. PRICE
Farmer harvests corn in Loup County, Neb.





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