



Audubon

07/2006

(audubonathome)

Suburban Renewal

They traded their emerald lawn for a showy prairie loaded with native wildflowers, mastered the art of controlled burns—and never looked back.

By James McCommons

After weeks of drought and heat, it rained hard last night on the three acres of native prairie wildflowers and bunchgrasses surrounding Bob and Carol Niendorf's home near Oshkosh, Wisconsin. Every few days this retired couple wanders along the pathways they have mowed through a dense thicket of knee-high plants. "The first few years we didn't have the paths. We just walked on the outside of the prairie, but that's like looking at the outside of a friend's house and not going inside," Carol says. "On the paths we can see what's happening."

She reaches down to cradle the tiny, brilliant-white blooms of flowering spurge. Nicknamed wild, or prairie, baby's breath, this plant prefers well-drained sandy or rocky soil. It's no surprise then that it is flourishing in this summer of drought. "We planted the prairie more than 15 years ago, and we've seen very little spurge—but this year it's really had the advantage," Carol explains. "It was always here, just overshadowed by the other plants." As the Niendorfs walk on, they spot other drought-tolerant specimens—purple prairie clover, leadplant, butterfly weed, and blazing star. There are no oxeye sunflowers this year and only hints of rattlesnake master. The purple and yellow coneflowers—old standbys—are still here, but they are short and not yet in bloom. Perhaps the rain will spur them on.

This prairie isn't as typically lush or showy as it should be for late July, but it still looks good—much better than the Niendorfs' remaining half-acre of lawn, which is all brown. An established prairie easily tolerates drought and heat. If some plants don't thrive, others will. And that's one of the magical qualities about prairies—they're never the same. What's more, growing a prairie transcends mere gardening; it is an act of restoration. The Niendorfs have created a miniature of the prairie and oak savanna that once dominated central Wisconsin. Very few of these grassland ecosystems remain intact in the United States. Iowa, for example, contains just 0.1 percent of its original tallgrass prairie. Illinois, the Prairie State, once had 22 million acres of tallgrass; now just 2,200 acres, or .01 percent, of this prairie remains.

Grasslands have been plowed into farmland, or as fire was controlled, turned into woodlands. Eastern meadows became adulterated by European grasses. In a small way, the gardener returns some ecological integrity to the American landscape, says Neil Diboll, owner of Prairie Nursery, in

Westfield, Wisconsin. “When you plant a community of native plants, you create a sustainable landscape and a food chain of plants and animals that coevolved for thousands of years. It’s not surprising a prairie would handle a drought or attract birds.”

For almost 30 years Diboll has advocated using perennial grassland plants in gardens and backyards. He got hooked while doing an undergraduate project on vegetative management at the University of Wisconsin-Green Bay, where he helped establish a prairie at the college’s then-new arboretum. “Many of these plants were rare. No one knew what they were. They were just considered to be weeds,” he says. “I began to understand how dynamic this ecosystem had been and that it was essentially gone from the landscape.”

After reading about the role fire plays in the natural management of grasslands, Diboll and another student decided to burn one of the prairies at the arboretum. “We did it in the middle of the night, and it caused quite a stir. The fire department came and drove their trucks right through our prairie. That’s when the college decided it would be better to hire this guy, so it gave me a job managing the arboretum and the prairie.”

For the next few years Diboll ordered prairie seeds from a small nursery in central Wisconsin, and when the opportunity came up to buy the place, he moved to Westfield, lived in an old trailer out by the fields, and began propagating prairie plants by the thousands. He often went on collecting trips, gathering seed from prairie remnants surviving along railroad tracks, fencerows, and ditches. His business grew steadily, spurred by gardeners’ growing interest in natural and low-maintenance landscaping. Today he cultivates more than 200 acres of prairie plants and sells seeds and transplants to gardeners all over the country. Diboll also lectures extensively, and the seed catalog produced by his company, Prairie Nursery, is a detailed primer on how to plant and manage a prairie. “When I got into this, there weren’t many nurseries selling these plants,” he says. “It’s been a dream to grow what you love and to help people restore the prairie.”

In 1989 Diboll’s company was called on to work on an oversized suburban lawn and a neighboring field, which were owned by Carol and Bob Niendorf. She managed the Oshkosh Symphony Orchestra; he was a business professor at the University of Wisconsin-Oshkosh. Diboll’s team planted a half-acre of shortgrass prairie made up of 21 species of forbs and grasses. In 1997, with a piece of farm machinery used to plant grasses and alfalfa, Diboll added an additional two and a half acres of 60 native species common to shortgrass and tallgrass prairies.

“Every time we come out here we see something new,” says Carol, who was first attracted to having a prairie by its beautiful forbs, or flowers. “Maybe it’s because of the weather, the season, or just the time. It’s really a dynamic system.” Birds and wildlife habitat were more Bob’s interests. Near the edge of their property, he lifts the lid of a bluebird nesting box and peeks inside.

Three nestlings—mouths agape—gawk back. A few steps farther he flushes a mourning dove. Other days the couple sees wood thrushes, bobwhite quail, fox sparrows, and kingbirds hunting insects. “Our grandsons are 8 and 11, and they love the prairie, especially when the grass is tall and well over their heads,” says Bob. “In late summer they catch grasshoppers and put them into the big webs of the garden spiders. They actually feed the spiders.”

Prior to European settlement, the Midwest and Great Plains were home to the continent’s most extensive grassland ecosystem. But grasslands occurred in other areas: in Florida, on both sides of the Rockies, well into Canada, and throughout the East. Many systems were maintained by sparse rainfall, browsing animals, and Native Americans who set fires to kill woody growth and encourage wildlife.

Prairie, a French word, became synonymous with the vast perennial grasslands of the Plains, while the English word *meadow* (meaning “grazing land”) described openings in the hardwood forests. Both are grasslands, and they share many plant species. Meadows, however, are more characterized by cool-season plants that prefer relatively moist soils and humid conditions. Prairies are dominated by warm-season plants accustomed to full sun, wind, and dry conditions.

Many of the showiest grassland forbs—purple coneflowers, black-eyed Susans, blazing stars, and New England asters—have become favorite “specimen” flowers of American gardeners. But it’s only when the forbs are combined with native grasses, such as big and little bluestem, sideoats grama, or Indian grass, that the plants function as a community. For the gardener who chooses to plant a real prairie or a meadow of interdependent plants, the rewards are many.

Prairie plants are hardy and well adapted to weather extremes of the Midwest and the Plains. They don’t require mulching in winter or supplemental watering in summer. These plants—particularly the grasses—have extensive root systems that penetrate deep into the soil, open the ground to water penetration, and reduce runoff. At the end of the growing season, about one-third of the roots die off, adding organic matter to the soil, which improves fertility. Prairie plantings require no fertilizers or pesticides, and the plants resist most problem insects.

By selecting the right suite of plants, you can establish a prairie in clay, gravelly, and sandy soils, and even on slopes, since the root systems hold the soil. “Prairie plants can solve a lot of landscaping problems—you just need to match up your site conditions with the right plants,” says Diboll. Ideally, a prairie contains at least 5 grasses and 15 to 20 forbs. By ratio, grasses should make up 60 percent of the prairie. They fill the spaces between flowers and occupy otherwise bare ground that would be invaded by weeds. Grasses physically support the forbs, holding them erect, and they build and regulate much of the soil’s nutrients. Plus, their subtle hues complement the flowers. “A lot of gardeners get fixated on flowers, but the grasses do important work

ecologically,” says C. Colston Burrell, a garden writer and designer who owns Native Landscape Design and Restoration, in Free Union, Virginia. “They are quite beautiful, too, and with their fall colors carry the aesthetic interest of the garden well into winter.”

Now that the Niendorfs’ prairies are well established, their only major maintenance is a spring burning. They mow sections of the prairie to break it into smaller pieces and then back-burn these areas of downed grass to create firebreaks. Still, when the small sections of standing grass catch fire, the flames can reach up to 20 feet. “We’ve gotten pretty good at it, but you need to have a lot of respect for the fire,” says Bob. Because 70 percent of a grassland’s biomass lies beneath the soil, burning doesn’t harm native plants, but it kills encroaching weeds and woody growth. And the blackened soil absorbs the sun’s heat.

After burning (or mowing, for those who live in town), a prairie springs back to life with new growth sought by insects, which are the primary consumers in these ecosystems. Aphids, leafhoppers, planthoppers, and grasshoppers feed on the plants. Parasitic wasps and other predators eat other insects. Birds nesting in the prairie or nearby woods forage the grasslands for the insects, which they feed to their young.

“Birds are the obvious members of the community you’ve created, but I’ve always been astounded by the diversity of the insect population,” Burrell says. Butterflies are drawn to milkweed, asters, and, of course, butterfly weed. Hummingbirds visit columbine, cardinal flower, bergamot, and fireweed. Grasses create habitat for rabbits, mice, weasels, voles, and other mammals. And because prey is present, it isn’t unusual to see red-tailed hawks, kestrels, and owls.

A prairie provides cover and food for wildlife well into the coldest months of the year. Birds forage for overwintering grubs, pupae, and eggs, and they feast on seeds left on the stems. The tall forbs—coneflowers, compass plants, and prairie dock—protrude through snow cover. “You can probably eliminate a bird feeder,” says Burrell. “There’s an extraordinary amount of available seed, and the birds feed right up on the stalks, where you can see them.”

How well your prairie attracts birds and wildlife depends on its size. A larger prairie offers more habitat and food. Yet if you are replacing a lawn—which offers little to wildlife—you will see dramatic improvements. When Burrell lived in Minneapolis, he maintained a city garden that included a prairie planting. In nine years he recorded 172 bird species (with an average of 70 species a year) and 19 different butterflies on just one-eighth of an acre. “A prairie offers a lot of ecological niches to wildlife,” says Burrell. What it offers to gardeners is the opportunity to work with nature and be in tune with the seasons’ rhythms. “Native plants acquaint you with the pulse of the landscape—the regional environment,” Burrell says. “Besides, they are beautiful. Even if you never see a bird on your prairie or meadow, it is worth

doing.”

James McCommons, *who teaches journalism at Northern Michigan University, wrote “So Lawn” in the May-June Audubon.*

Seed/Plant Sources

Here are some sources of seeds and/or information to help you build a prairie in your own backyard.

Seed Resources:

Prairie Nursery, PO Box 306, Westfield, WI 53964; 800-476-9453;
www.prairienursery.com

Missouri Wildflowers Nursery, 9814 Pleasant Hill Rd. Jefferson City, MO 65109; 573-496-3492; <http://www.mowildflowers.net/index.htm>

Native American Seed, 127 North 16 St., Junction, TX 76849;
915-446-3600; www.seedsource.com

American Meadows, 223 Avenue D, Suite 30, Williston, VT 05495;
802-951-5812; www.americanmeadows.com

Education Resources:

Wild Ones, PO Box 1274, Appleton, WI 54912; 920-730-3986 or
877-394-9453; info@for-wild.org; <http://www.for-wild.org/>

Lady Bird Johnson Wildflower Center, 4801 La Crosse Ave., Austin, TX 78739; 512-292-4100, 512 292-4627 (fax);
<http://www.wildflower.org/>

Get to Work

Establishing your prairie will involve a number of steps. First you must prepare a relatively weed-free site in a sunny location. Then you put in the seeds or plugs (transplants), or a combination of the two. The best shape for your prairie is a circle, which maximizes the interior space and reduces the perimeter. Long, narrow plantings along driveways will work, but they require more weeding.

Plant Choice

Choosing the forbs and grasses for your prairie will depend on your site, your soils, and what plants are native to your region. You can gather seeds from native plants along roadsides and fields, or order seeds and transplants from mail-order companies.

Preparing the Site

Many garden designers use herbicides—especially on a large site—to kill off the existing vegetation. If you prefer an organic alternative, you can spray the groundcover with household vinegar, which acts as a contact herbicide and kills most broadleaf plants. Another approach is to smother weeds by covering them with mulch, newspapers, cardboard, old rugs, or black plastic for up to one year.

Seeds or Plugs?

Whether you use seeds or transplants, disturb the soil as little as possible. It's okay to plant in the spring, but raking and rolling in prairie seeds brings up weeds buried in the soil. Fall planting eliminates the problem. Simply spread the seed in late September or, in many cases, up until the snow falls, and let it work into the soil as the ground freezes and heaves in winter. One notable exception, however, is if you're planting rye, an annual often used as a "nurse crop." It grows quickly, occupies areas likely to be invaded by annual weeds, doesn't compete with prairie plants, and nourishes the soil. Plant rye early because it needs time to grow before it dies in winter. It also works well on slopes because it holds the soil in place until plants get established.

Maintenance

In their first year, prairie plants are small and vulnerable to annual weeds like foxtail and common purslane. Spring mowing, or burning, and some hand weeding eliminates these invaders. Eventually, the plants should spread out, self-seed, and muscle out the competition. With a weed trimmer or scythe, mow the plants to a height of 6 inches before they seed, but spare the youngest. In year two mow to 12 inches and cut the planting once or twice—especially in June, when biennial weeds such as Queen Anne's lace appear. By chopping off the flower heads, you'll break the two-year cycle. You can also hand-pull weeds—but do so carefully.

In year three mow the planting to ground level and rake out the debris. If you can burn the prairie, that's even better. Either way, you'll remove the dead growth, set back perennial weeds, warm the soil, and encourage the prairie plants to grow. Keep a prairie moist between snowmelt and the time when the plants emerge in late spring. In succeeding years you need only repeat the spring burning or annual mowing.

—James McCommons

© 2006 National Audubon Society

Sound off! Send a [letter to the editor](#) about this piece.

Enjoy Audubon on-line? Check out our [print edition!](#)

HOME 