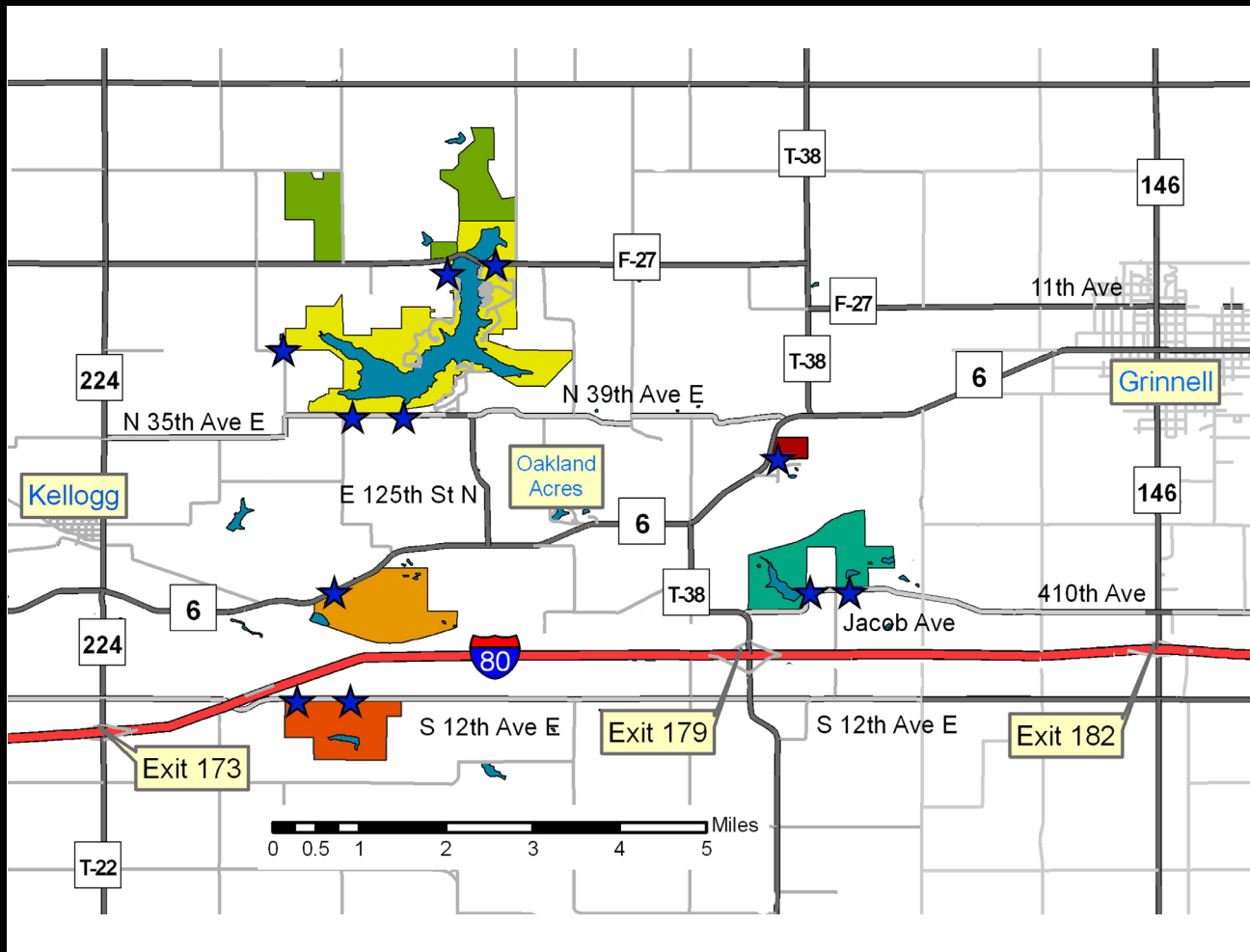










Preserve Locations

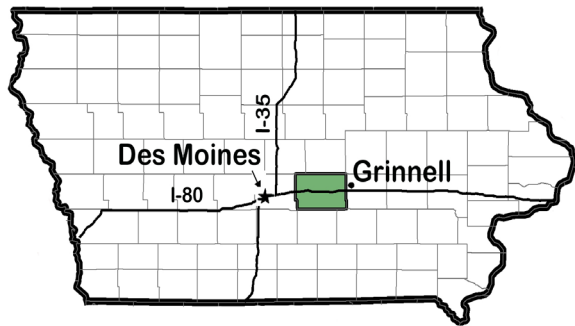


Legend



-  Reservoirs and ponds
-  Jacob Krumm Nature Preserve (450 acres)
-  Rock Creek State Park (1,697 acres)
-  Rock Creek Wildlife Management Area (254 acres)
-  Reichelt Unit of Rock Creek State Park (444 acres)
-  Conard Environmental Research Area (365 acres)
-  Sugar Creek Audubon Nature Sanctuary (49 acres)
-  Preserve entrances

Preserves Guide Area



Introduction

This guide introduces five natural areas within 15 miles of Grinnell that are open to the public. All are west of town in Jasper County. Rock Creek State Park and the Reichelt Unit of Rock Creek State Park are owned by the Iowa Department of Natural Resources. Conard Environmental Research Area (CERA) is owned by Grinnell College. Sugar Creek Audubon Nature Sanctuary is owned by the Tallgrass Prairie Audubon Society, the local Audubon chapter; and Jacob Krumm Nature Preserve is owned by the Jasper County Conservation Board. Together these five preserves provide a good representation of the nature of “natural areas” in this part of Iowa.

Background

Because the land that became Iowa was surveyed and sold by the federal government in the mid- and late-19th century, no public preserves were established from land in the public domain. No features of Iowa’s landscape inspired a movement such as that which saved Yellowstone from disposal. The single focus was to get land into private hands. Thus, all of Iowa’s parks and other protected natural areas have been established by acquiring private land. There is only a tiny amount of federally owned land in Iowa. The largest piece, Neal Smith National Wildlife Refuge, is a several-thousand-acre prairie reconstruction in southwest Jasper County, about 35 miles from Grinnell as the crow flies.

While many other state governments were establishing public land preserves in the 19th and early 20th centuries, Iowa did not pass a law authorizing state parks until 1917. The first such park, Backbone State Park along the Maquoketa River, was not established until 1920.¹ County-owned natural areas, such as Krumm Preserve, were not possible until much later. In 1955, the state legislature authorized counties to vote on whether to “levy taxes for park funds and to create county conservation boards with authority to acquire, control, and manage several

types of public areas, including parks, preserves, playgrounds, recreation centers, forests, and wildlife areas.”² Although the land trust movement has not become well established in Iowa, two private organizations have played a recent role in natural area preservation. The Iowa Natural Heritage Foundation (www.inhf.org) and the Nature Conservancy of Iowa (www.nature.org/wherewework/northamerica/states/iowa) acquire lands with significant natural values, usually transferring ownership or management to the Iowa Department of Natural Resources or to a county conservation board.³

As a consequence of this history of land preservation, all natural areas in Iowa, including those described here, have been impacted by agricultural or other utilitarian practices. Understanding this fact is central to understanding the nature of Iowa’s natural areas. It is also key to understanding the challenges of managing the resources.

Prairie

In 1847, at the time of survey by the Government Land Office, this part of Iowa was largely tallgrass prairie, an ecosystem dominated by grasses and colored with dozens of species of wildflowers (“forbs”). Periodic fires, either caused by lightning or set by Native Americans, kept most heat-sensitive brush and trees from invading. But in Iowa, prairie has virtually disappeared, mostly under the farmer’s plow, but also under the shade of trees and shrubs after the elimination of regular fires. Only scattered remnants of native prairie remain today, including small patches at all five of these Jasper County preserves, the largest and best one being at the Reichelt Unit.

In recent years, as enthusiasm for prairies has grown, many individuals and organizations are “reconstructing” prairie by sowing or drilling seeds on land, especially cropland, from which prairie has long been absent. Although reconstructions



big bluestem



Indiangrass



Canada wild rye



switchgrass

¹ Rebecca Conard, *Places of Quiet Beauty: Parks, Preserves, and Environmentalism*. Iowa City: University of Iowa Press, 1997, 36, 54.

² Conard, 230–231.

³ The websites of these two organizations give information about their activities. Neither group owns land in the immediate Grinnell area.

usually lack the species diversity of good-quality native remnants, large ones, such as those at CERA and Krumm, can give us a hint of what it must have been like living in or traveling through the original tallgrass prairie.

It is the shoulder and head-high grasses that give this plant community its name. In order of prominence, they are big bluestem, Indiangrass, Canada wild rye, and switchgrass.



little bluestem



prairie dropseed



side-oats grama

Important shorter prairie grasses are little bluestem, prairie dropseed, and side-oats grama. What you cannot see of these plants is equally impressive: they have root systems that go down several feet into the ground, making them far more drought resistant than shallow-rooted grasses such as corn. (Yes, corn is a grass, though much modified by plant breeding and now genetic engineering.)

The common names of plants sometimes reflect folk wisdom. For example, the presence of lead plant supposedly indicated that lead ore was to be found there. Or the venom of a rattlesnake bite could be counteracted by applying a poultice made from the root of the rattlesnake master. However, in the case of the compass plant, there is a rough accuracy in the name. The large, many-lobed leaves do more-or-less face east-west, thus pointing north-south.⁵



compass plant

lead plant

rattlesnake master

round-headed bush clover

prairie blazing star

butterfly milkweed

Not so well represented in most reconstructions are the forbs, the wildflowers, that color high-quality native prairie. Early pioneer accounts of the Midwest marveled at the carpets of blossoms. Here is Joanna Harris Haines 1865 recalling her arrival in the Grinnell area in 1855: “Another thing I shall remember as long as I live with unalloyed and inexpressible pleasure was the magnificence of the wild flowers that made the

4 Reprinted in Glenda Riley, ed., *Prairie Voices: Iowa's Pioneering Women* (Ames: Iowa State University Press, 1996), 218–219.
 5 An excellent guide to prairie plants is *Tallgrass Prairie Wildflowers: A Field Guide to Common Wildflowers and Plants of the Prairie Midwest* (second edition) by Doug Ladd and Frank Oberle (Guilford, Conn.: Globe Pequot Press, 2005). The plants are arranged according to blossom color and, within the color groupings, by time of flowering. A guide specific to Iowa and with more technical detail is *An Illustrated Guide to Iowa Prairie Plants* by Paul Christiansen and Mark Müller (Iowa City: University of Iowa Press, 1999). It is arranged according to plant family and has excellent line drawings.

Savanna

Another important, though much smaller, plant community in presettlement Iowa was savanna. It was comprised of oaks of a similar age and of a ground layer of grasses and forbs. These plants and the fallen oak leaves provided fuel for the frequent fires that moved through from the prairie. The thick, heat-resistant bark of the oaks, especially bur oaks, allowed them to survive and grow, but the fires kept other heat-sensitive trees and brush from becoming established there. Savannas ranged from widely-spaced oaks in open, park-like settings—what the European settlers called “oak openings”—to close-growing stands.

Today savanna is rare in Iowa. The original has either been destroyed or, with the removal of fire, invaded by thick stands of shade-tolerant trees and shrubs. In wooded areas of several of these Jasper County preserves, you will notice large bur oaks with spreading lower limbs, but these lateral limbs are now dead and leafless. This is a good indication that the trees grew to maturity in an open setting, allowing sunlight to reach their lower limbs. But as shade-tolerant trees like elm, shagbark



bur oak

hickory, box elder, and mulberry took root and thrived around and beneath, they blocked enough light to the leaves on the lower branches of the oaks to cause the limbs to die. The presence of these “shade-pruned” limbs is a good indication that the oaks had grown to maturity in the open without competition.

Recently interest has been growing in savanna restoration. The process is very labor intensive, but without it there is no hope of retaining examples of this important, endangered Midwestern plant community. It involves cutting and removing the invasive trees, leaving the oaks. And it requires reintroduction of controlled burning of the ground layer to deter reestablishment of unwanted woody species and to stimulate growth of the forbs, sedges, and grasses that had been inhibited by shade or destroyed by grazing. There is an excellent example of savanna restoration at Grinnell College’s CERA.

Some of the herbaceous species one might expect to find in a savanna include bottlebrush grass, New Jersey tea, wood betony, and Joe pye weed.



wood betony

Woodland

Like savanna, Iowa woodlands, comprised of closer-growing trees, also had periodic ground fire in presettlement times, keeping them relatively free of dense understory. This allowed sufficient light for growth of a rich layer of wildflowers, sedges, and grasses. Today ungrazed woodlands are often thick with “weedy” trees such as mulberry, elm, and box elder and with underbrush such as gooseberry, multiflora rose, and gray dogwood, to name just a few. The resulting heavy shade has severely reduced the variety and number of ground-level plants, except in early spring before leaves on the trees and shrubs appear. Thus, today woodland wildflowers are primarily a spring phenomenon, typically from about April 15 through early May. They are often referred to as the “spring ephemerals.” Among those that brighten the woods in our area are Virginia bluebell, Dutchman’s breeches, and Mayapple.

If a woodland has been heavily grazed by cattle or other livestock, the invasion of trees and shrubs has been inhibited. However, grazing severely impacts the wildflowers and other plants that grow on the forest floor, eventually killing them and leaving the ground available to weedy species. In the woodlands of these five Jasper County preserves, you will see the whole range of quality. The spring wildflowers are especially nice at CERA and Sugar Creek Audubon Nature Sanctuary.



Virginia bluebell

Thicket

A prominent habitat type at several of these Jasper County natural areas is what might be called “thicket.” It has developed after preserve status on what was previously open land such as permanent pasture, hay land, or cropland. Now, however, large areas have been taken over by close-growing trees, shrubs, and brush. These include natives such as hawthorn, elm, wild plum, and gray dogwood, and exotics such as multiflora rose, autumn olive, and Tartarian honeysuckle, among others. Except for some areas at Reichelt, this explosive encroachment of woody species is not the result of plantings, but rather of natural reproduction in the absence of checks such as fire, grazing, or cultivation.

Aquatic Habitats

Because this part of Iowa has not been glaciated for at least 500,000 years, its gently rolling land is relatively well drained, and it therefore lacks the extensive wetlands found originally in the “prairie pothole” country of central and north-central Iowa. The absence of recent glaciation also means there are no natural lakes and very few natural ponds. To remedy this deficiency, a tradition has developed among landowners and natural resource agencies to impound water behind dams for recreation, for wildlife habitat, and for soil conservation purposes. Rock Creek Lake is a large, shallow artificial lake. And there are artificial ponds at CERA, Krumm, and Reichelt.

The streams that flow through three of these preserves—Sugar Creek through the Audubon sanctuary and Krumm and the North Skunk River through a corner of CERA—illustrate what has happened to many of Iowa’s drainages. Until the early 1900s, these streams had meandering channels that were narrow and shallow, often with adjacent wetlands, wooded areas, and floodplains. Now, however, they have widely and deeply eroded channels, and in much of their length crops grow right up to the treeless banksides. This results from two modifications to the land to accommodate row-crop agriculture: straightening streams (“channelization”) and tiling fields in the watersheds to speed drainage and to convert wetlands to cultivation.



Sugar Creek

Aerial photos from 1940 show Sugar Creek meandering into and through what is now the Audubon preserve and squiggling east and then south into, through, and below what is now Krumm. It is still flowing naturally in a 1955 aerial. But by 1967, the stream had been channelized except for the portion in the Audubon preserve and in the narrow strip of land that connects east and west Krumm. It runs straight and smooth above the Audubon preserve and between it and Krumm and below Krumm. The North Skunk now flows arrow-straight through a portion of CERA, but the original course is clearly visible on the adjacent floodplain. Historic and recent aerial photos are reproduced in the sections describing each preserve.

Straightening these streams allowed farmers to avoid having to conform their planting to the twists and turns of the channels in their fields. Also at about this same time farmers were installing extensive networks of drainage tile to draw the water away from low areas they cultivated or wanted to cultivate. The result of this tiling was to put water into the stream channel more quickly, and the effect of the channelization was to speed these larger surges of water downstream unimpeded by meanders. Thus we have the deeply and widely eroded channels we see now, what are essentially drainage ditches. These modifications of stream flow severely degraded or destroyed the habitat for native fish and other aquatic species and for many species of animals and birds that utilized the rich streamside wetlands and plant communities

The water in Sugar Creek and the North Skunk, like that in most Iowa streams, is polluted with excess sediment and nutrients. During periods of rain or snowmelt, runoff from fields carries soil, fertilizer, pesticides, and manure into the streams.

Wildlife

In the words of Indian Agent Joseph Street, describing a visit to an area in northern Iowa in 1833, “I had never rode through a country so full of game.”⁶ The prairies, wetlands, woods, and savannas of presettlement Iowa provided rich habitat for a variety of life. The subsequent division of the land and the conversion of it into farms has resulted in tremendous reduction and alteration of environments for wildlife. Iowa is said to have one of the most modified landscapes of any of the states. Further impact has been caused in recent decades by the rise of large-scale, intensive row-crop farming in which fence lines, pasture, and hay land have been drastically reduced and crop diversity has been virtually eliminated in favor of only corn and soybeans. Another recent trend is what can be called “rural sprawl”—the construction of residences on acreages that oftentimes had been good wildlife habitat, especially in pieces of mature woodland, but which now have become manicured landscaping.

⁶ Quoted in James J. Dinsmore, *A Country So Full of Game: The Story of Wildlife in Iowa*. Iowa City: University of Iowa Press, 1994, 1.



cedar waxwings

For all of these reasons, islands of nature such as these five preserves are especially important for wildlife today.

Managing Nature in a Nature Preserve

The level of natural resource management in these five protected areas in east Jasper County ranges from intense, active management at CERA to very little management at the Reichelt Unit. Visiting any of these “natural areas” can raise some interesting considerations about a “nature preserve.” What is the nature of the nature in these and similar protected areas in Iowa and the Midwest? After 150 years of intensive use, man’s imprint is everywhere: on the contours of the land, on the water resources, on the wildlife, and on the plant communities. What is it from earlier, more “natural” conditions that has been “preserved”? Does what we see now relate in any direct or important ways to the nature that was here 150 years ago at the time before European agriculture began? Should the goal of managing a nature preserve be to defend what little remains of earlier conditions and to reconstruct examples of what has been lost? This will mean continuing and aggressive efforts to reconstruct and manage the prairies, woodlands, savannas, and wetlands.

Or does any of that matter? If we are part of nature, then are the effects of our actions (and inactions) “natural” too? In presettlement time, fire and to a lesser extent grazing by bison maintained prairie, savanna, and woodland. With the coming of Europeans, cultivation and grazing by domestic livestock also kept invading brush and trees at bay. Now, however, with grazing and cropping removed from these preserves, the areas that are not managed with fire and cutting are being overtaken by woody invasives. Should this be a concern? Is this a “natural” process, and is that what should be “preserved,” that is, letting nature take its course?

The following assumptions seem true:

1. The nature that we see now in these and similar “natural areas” is not a fixed, “preserved” condition but is the result of a long prehistoric and historic process of change. That process of change is happening now and will continue.

2. Man’s actions—and inactions—have been integral to this process of change and will continue to be so.

3. Therefore, keeping hands off and “letting nature take its course” will not lead to some truer or more natural condition. Doing nothing is, in fact, doing something and will have different results from other management approaches.

In 30 or 50 or 100 years, what will people who visit these natural areas see? Will they feel that we have successfully fulfilled the purposes of a nature preserve?

Helping Nature in Nature Preserves

At each of these preserves—and in most others in the state—serious management challenges go unmet because of lack of funds and staff. You can help by volunteering. Increasingly nature enthusiasts are pitching in by committing their labor and expertise to a particular preserve or resource agency or organization, doing such things as cutting invasive brush, assisting with controlled burns, removing alien plants, collecting seed for restorations, leading nature hikes, serving on “friends of” groups, and doing species inventories. By becoming a volunteer, you will be rewarded with the knowledge that you are helping in a cause that is important to you, and you will have the pleasure of working with other like-minded people and with knowledgeable, dedicated staff. Each of the preserves described in this guide welcomes volunteers. Contact information is given in the individual sections.

You can also help by becoming an advocate for nature and for Iowa’s natural areas. Two membership organizations that promote appreciation and protection of our native habitats are the Iowa Prairie Network (www.iowaprairienetwork.org) and the Iowa Native Plant Society (www.public.iastate.edu/~herbarium/inps/index.php). The Iowa Nature Conservancy and the Iowa Natural Heritage Foundation are two organizations involved in acquiring land for natural area preserves. (Their websites were provided earlier in this Introduction section.) Both are membership groups and both use volunteers. County chapters of Pheasants Forever also provide financial support for habitat protection and enhancement (www.iowapheasantsforever.org). And of course, there is always the need to encourage legislators and state and county officials to give higher funding priority to natural areas. One organization that engages actively in the political and governing processes on behalf of nature is the Iowa Chapter of the Sierra Club (www.iowa.sierraclub.org).