

Background Information

Most outdoor enthusiasts seek quality natural areas to recreate, so we need to understand how humans have impacted Iowa's natural habitats, how we are working to preserve/restore habitats, and how individual actions affect natural areas (in both positive and negative ways). Accessible, quality natural areas are an essential ingredient for enjoyable outdoor recreation.

A Working Landscape

Iowa is a working landscape. We are among the nation's leaders in production of corn, soybeans, pork, and eggs. Over 90% of our land is used for agricultural purposes; approximately 60% for row crops and 30% for other agricultural purposes including pasture and hay land. By percentage, more land in Iowa is used for agriculture than any other state in the country. Another 1.7 million acres, nearly 5% of Iowa, is developed land. Nearly 14,000 acres were developed each year between 1992 and 1997. (2001 Iowa State Comprehensive Outdoor Recreation Plan, Iowa Department of Natural Resources)

Iowa has lost much of its original habitats. Within 100 years of Euro-American settlement, 95% of Iowa's wetlands were drained or filled. Seventy percent of the forests were cleared, and more than 99% of the prairies were plowed. Soils were exposed and natural vegetation along rivers and streams was removed. This led to a drastic increase in erosion in Iowa's watersheds and sediments entering our waters. Other land "improvements" included straightening stream channels (channelization), removal of streamside vegetation, and tiling* of wetlands (and wet soils) to increase agricultural productivity.

(* Tiles are pipes or tubes that drain wet soils. Tiles often empty into nearby ditches or streams.)

Iowa Habitats

Whether hiking or biking, fishing or hunting, camping or bird watching, or just "hanging out," outdoor activities are enhanced by the natural surroundings. Each Iowa habitat offers opportunities for outdoor recreation.

Prairies

At the time of settlement in Iowa, prairies covered approximately 28 million acres. Tall grasses interspersed with flowering plants and few trees dominated the landscape. The tallgrass prairie has grasses such as big bluestem, Indian grass, and switchgrass that sometimes reach 12 feet in height. Flowers such as compass plant, blazingstar, black-eyed Susan, and purple coneflower also are icons of the prairie. The Loess Hills in western Iowa, and dry sandy hillsides in other parts of the state were covered with a mixture of tall and short prairie grasses. Small remnants of prairies with very sandy soils remain because they were too dry or sandy to farm.

Savannas were grasslands with the occasional burr oak tree. Prairie elk depended on savannas. They were more common than bison on the Iowa prairie. Red fox, badgers, pocket gophers, plains spadefoot toads, grassland birds, and an assortment of butterflies also are associated with prairies.

Prairie soils are rich in organic matter, ideal for growing crops. Only small, isolated tracts of native prairie remain due to the conversion of the land into more intensive agricultural pursuits. Some 99.9% of Iowa's original prairie has been converted to other uses.

Fortunately, some of the best examples of our prairies have been protected through the state preserves system, the largest being 240 acres. Many government agencies, as well as private organizations and individuals reconstruct prairies because they are suited to Iowa's soils and climate and they are an important part of our heritage. Prairies offer unique opportunities for birders. Prairie snowfalls also provide cross-country skiing and snowshoeing.

Woodlands

In 1846, when Iowa became a state, there were 6.7 million acres of forests. In 2001, there were 2.5 million acres of forests and woodlands (fragmented forests). Just over 150,000 acres of forest are in urban areas. Over 90% of woodlands in Iowa are privately owned. Current State Forests include four major areas and six smaller units totaling about 41,000 acres. About 7% of Iowa is forested. A greater percentage of forests escaped development than prairies because many were in river floodplains and on steep slopes.

Forests offer a wide range of habitats. Forest types include: upland (oak, hickory, sugar maple, basswood, white ash), floodplain (silver maple, green ash, cottonwoods, willows), oak savannas (mostly grasses with isolated trees), windbreaks (multiple rows of trees and shrubs planted to block wind), urban forests (parks, neighborhoods), and plantations (planted specifically for harvest).

Waters

The typical perception of Iowa is that it is not rich in water resources. However, our major border rivers, the Mississippi and Missouri, total 494 miles in length and provide over 217,000 acres of diverse river environments near a large segment of the state's population. Iowa is the only state bordered by two navigable rivers. Congress recognizes the Mississippi as both a fish and wildlife refuge and as a major transportation channel. This is the only such designation in the nation.

Iowa had an estimated four million acres of wetlands in the mid 1800's (marshes, oxbows, floodplain wetlands, and natural lakes). As few as 27,000 acres remained in 1990 (over 99% had been eliminated), but thousands of acres of wetlands have been added/restored since the mid-1980's through partnerships between government agencies and private conservation organizations.

Iowa's water resources are summarized in the following table.

Aquatic Resources	Resource Length (Miles)	Area (Acres)
Cold water systems (streams)	747	545
Interior warm water rivers and streams	70,698	119,129
Mississippi River (Pools 9-19)	315	201,142
Missouri River (borders Iowa)	178	16,623
Natural Lakes (36)	NA	34,522
Artificial Lakes (283)	NA	25,572
Federal Reservoirs (4)	NA	40,580
Farm Ponds (87,000)	NA	NA

Source: 2001 Iowa Statewide Comprehensive Outdoor Recreation Plan (SCORP), Iowa Department of Natural Resources, Des Moines, 2001

Iowa's Valuable Natural Resources

Ecological

More than 650 different kinds of vertebrates (animals with backbones) and countless species of invertebrates (insects, spiders, etc.) can be found in Iowa, either as residents or migrants. The Mississippi River corridor is home to a wide array of fish and wildlife species and is a migration corridor for 40% of North America's waterfowl and shorebirds. Native prairies contain more than 300 plant species.

Wetlands are the most productive of Iowa's biological communities, ranking just below tropical rainforests in productivity (volume of living organisms). Wetlands recharge aquifers, cleanse incoming water of pollutants, and provide flood protection by holding and storing runoff and rainfall. They also act as fish nurseries and attract migrating birds.

Each plant and animal species may represent solutions to biological problems. Plants and animals provide medicines, food, and fibers. Many advances in biological and medical research have come through the studies of wild, or formerly wild, animals and plants. Individual animals and plants also contribute to the

well-being of the ecosystems they inhabit. If even one, seemingly unimportant, species is removed this delicate balance may be disturbed. People have only begun to understand the intricate relationships among species. Extinction of a species cannot be reversed and may have impacts that are not known until much later.

Iowa's biodiversity has declined over the past century because of intensive agriculture and urban development. Iowa has the unfortunate distinction as being perhaps the most ecologically altered state in the nation. Native ecosystems have been reduced in size and diversity. Many species of wildlife declined in numbers or disappeared from the state. In Iowa, 49 animals and 64 plants are listed as **endangered** (populations are low, scientists feel the species could become extinct). Another 89 plants and 36 animals are listed as **threatened** (populations are declining, may become endangered). Exotic species introduced from other lands (e.g., garlic mustard, purple loosestrife, zebra mussels, Eurasian watermilfoil, house sparrows, European starlings) out-compete native species, further reducing diversity. Maintaining or improving biodiversity is an important goal of natural resource managers.

Aesthetics (For the Sheer Beauty)

If natural resources had no other value, they would still be worth preserving for their sheer beauty and appeal to the human spirit. Aldo Leopold, an Iowan, author, and great conservationist, wrote of a "land ethic" in which plants and animals should have "at least in spots, their continued existence in a natural state." According to Leopold, humans must change from "conqueror of the land community to a plain member and citizen of it." He states in *A Sand County Almanac*, "The gadgets of industry bring us more comforts than the [passenger] pigeons did, but do they add as much to the glory of spring?" His sentiments give definition to the aesthetic and ethical values associated with natural resources.

Natural areas have positive impacts on people. Studies indicate that nature in or around the home appears to help protect the psychological well-being of children in rural areas. In poor, urban neighborhoods, green spaces are gathering places that create close-knit communities, improve well-being and in doing so, increase safety. A look at crime rates in such neighborhoods showed that they were much reduced in areas with trees, grass, and other plants.

Boaters and swimmers enjoy the beauty of a healthy ecosystem. Visitors to state parks and recreation areas cite scenery and natural features as important factors in selecting areas to visit.

Economics

Iowans who participate in hunting, fishing, wildlife watching, or other wildlife related activities spend \$1.7 billion on food, lodging, transportation, and equipment annually. Visitors to Iowa state parks contribute an additional \$160 million annually to Iowa's economy.

Millions of residents rely on water from impoundments and rivers for public use, industrial supplies, power plant cooling, and wastewater treatment. In Iowa, surface water supplies about 20% of the state's drinking water. Water is used for irrigation of crops in the Mississippi and Missouri River valleys.

The Missouri and Mississippi, like most large rivers in the U.S., are major modes of transportation. Barges transport food, fuel, and a host of other goods up and down the rivers. Current operation and maintenance costs on the Mississippi River for transportation are \$140 million per year. The dam at Keokuk is used to generate electricity. The Cordova nuclear power plant, upstream from the Quad Cities, uses river water for cooling. The electricity generated is used by many homes, businesses, and industries. Close to three million pounds of fish are removed from the Mississippi River along Iowa's border each year by commercial fishing.

Recreation

More than one million Iowans (55% of Iowa's population) participate in hunting, fishing, wildlife watching, or other wildlife related activities. Iowans spend 750,000 guest days (number of campers x number of days stay) camping in state parks each year. There are almost 230,000 registered boats and watercraft in the state. This includes canoes, sail boats, motorboats, and other watercraft. Other activities people enjoy in the outdoors include hiking, biking, walking, campfire cooking, photography, skiing, snow shoeing, target shooting, archery, and even feeding and/or landscaping for wildlife.

Cultural

People have always lived near water for drinking, food, and transportation. Iowa waters are no exception. Portions of the Upper Mississippi River are thought to have the highest density of cultural sites in North America—a study by the Great River Environmental Action Team identified over 1,000 anthropological and nearly 4,000 historic sites in the Rock Island District. The Dakota, Iowa, Oto, Winnebago, Fox, and Pottawattamie Indian tribes, as well as early Euro-American explorers, used the Missouri River. The natural lakes of northwest Iowa also were centers of cultural activity for native and prehistoric peoples.

Values related to wildlife and other natural resources are expressed in different cultures through legends, myths, religious teachings and writings, symbols, and ceremonies. These values vary from person to person, culture to culture.

Outdoor Recreation Basics

Safety

Have a Plan!

Before any outdoor experience, the first order of business is to plan. Lack of planning and preparation can mean a miserable experience, or can even put participants in dangerous situations. Some things to include in your plan:

- Where you are going and the route you are taking*
- When you will return
- Who is going
- Why you are going (what activities you'll be doing)
- What you need to take with you

Share at least your destination, the route you will be taking, and when you will return with someone just in case there is a problem. If you are going on an extended trip you should also check in with someone at specific intervals while on the trip. This could save your life.

*It is important to stay on the route/path you planned. If you are injured, help can get to you faster if they know where to look.

Have a Buddy!

Under the buddy system, groups are divided into teams of two. Partners can make learning new skills easier, safer, and more fun. Partners can learn from each other, spotting errors and incorrect methods before they become bad habits. In the field, partners can assist each other and even call for help, if needed.

Know Where You Are!

Being able to navigate across the land is useful and/or essential in a wide range of outdoor recreational activities. Even if you are not in a large wilderness area, you can become disoriented and get lost. This can be annoying, or it can even result in tragedy. Learn how to find your way using navigation tools such as the following:

Maps

A map is a drawing that represents a portion of the earth's surface. Transportation or highway maps show roads, cities, landmarks, and other features. Most county or state parks have trail maps at trail heads that will be useful to you when you go on a hike, picnic, or camp. Plat books show roads and ownership boundaries so you can be sure you are staying on public lands or lands where you have permission to be. The *Iowa River Access and Canoe Guide* has maps of Iowa rivers including access points. Topographical (topo) maps also include information about natural surface features in an area and have contour lines that provide information about the terrain (how steep or flat). Always make sure you have the right map for the outdoor activity in which you are engaging. Know where you are and how to get where you want to go.

Compass

A compass has a steel needle that is attracted by the earth's magnetic field. At rest, the needle points to magnetic north. The best type of compass for use with maps to navigate outdoors is an orienteering compass. This compass is designed for use with topographic maps and is inexpensive and durable. An orienteering compass can be used to find direction from a topographical map. You also can "lock" your direction of travel onto the compass dial and ruled scales along the base plate of the compass can be used to determine scale distances from a map. (For more information on using a compass, check out the on-line tutorial at www.learn-orienteering.org.)

Global Positioning System (GPS)

GPS receivers can be used to determine your location on Earth within 10-15 meters in a matter of minutes or seconds. You also can enter a set of coordinates for a given location and the GPS receiver will provide a compass bearing and distance that is updated as you move across the land. Even without a map, you can enter your starting position as well as positions along your route that you can use to guide you back to the starting point.

However, you must have a working knowledge of maps and navigational procedures to effectively use a GPS unit. GPS units also require batteries, which means you should not rely solely on them for navigation.

The Sun and Stars

The sun can indicate *general* directions. The sun moves across the sky from east to west during the day. On a clear night, the North Star (Polaris) indicates north. (Note: In Iowa, the sun is a bit north of vertical during the summer and moves from southeast to southwest in the winter.)

Landmarks

Major features on the landscape are important in finding your way. Features such as large trees, streams, hills, and large structures can help you orient yourself. Whether you are using a map or not, acquaint yourself with landmarks and your location in relationship to them.

Be Prepared!

It's a good idea for everyone, especially outdoor skills instructors to be trained in basic first aid. Even with the best planning and safety precautions, mishaps occur. First aid classes often are available through the local Red Cross or other community organizations.

First Aid Kit

You should always have a basic first aid kit handy. The contents of the kit may vary depending on the type of outdoor activity and how many people are participating. Following is a list of some basic items:

ace bandage	first aid booklet or flier with basic instructions
adhesive tape	gauze pads
analgesic cream	insect repellent
antiseptic ointment	mole skin (blisters, hot spots)
antiseptic towels	plastic bag
aspirin or other pain relief medication	single use pocket face mask (CPR, mouth-to-mouth)
band-aids	sunscreen
cold or heat source	triangular bandages
disposable rubber gloves	tweezers
flashlight (with fresh/extra batteries)	

Emergency Plan*

You should have an emergency plan whether you are taking a group on an extended backcountry trip or an afternoon excursion. Some things to consider:

- Location of the nearest hospital
- How to contact help if someone is ill or injured
- Who will communicate with authorities, parents, and organization leaders, and how will they do so
- Exit routes from an area in case of flood, fire, tornado, etc.
- Procedure to follow if a participant or leader is lost or missing
- Who stays with the group if there is an accident or illness
- If local authorities know you are in the area
- If you have necessary health forms with you

**Modified from Outdoor Living Skills Program Manual, American Camping Association*

Emergency Kit

You never know when trouble will strike. If you are prepared, such situations may be annoying. If you are not prepared, they can be deadly. Following are priorities for life and the general amount of time humans can survive without them:

Air: 3 minutes

Shelter: 3 hours or less (in extreme conditions)

Water: 3 days

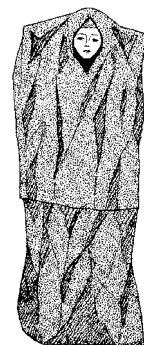
Food: 3 weeks

It makes good sense to carry an emergency kit. It is easy to assemble, inexpensive, and can fit in a backpack or the glove compartment of your car. Following are some items you might include.

Shelter:

garbage bags (2 large) and electrical or duct tape
sturdy string or small rope
space blanket

Garbage bags can be worn or torn apart and taped to form a makeshift shelter.



Fire starting:

1-2 hard wax candles about four inches long
“strike anywhere” wooden matches (waterproofed with a light coat of paraffin or fingernail polish)
waterproof match container (cylindrical with a flint bottom)
small plastic bottle of coarse, dry sawdust
heat tabs (or similar fire starter)
anything that will burn longer than a match after it’s been lit

Drinking:

small container
aluminum foil (2-4 feet long) to make a pot to heat water
 Fold in accordion pleats and roll lengthwise around kit container to prevent holes that can form when folded in squares
bouillon, tea, coffee, soups, sugar, and/or honey
iodine tablets (in case you can’t heat water)

Communications/signaling device

whistle (loud, shrill)
reflective device (mirror, aluminum foil, polished metal surface)
money for a phone call
cell phone

Cutting Tool:

small knife with sharp blades

Food:

Most people are rescued before food is a critical need (3+ weeks). Include high-energy items such as raisins and peanuts if you include food.

Dress

Appropriate clothing is a must for outdoor activities. It can mean the difference between a fun-filled time and a completely miserable experience. The basic principle is to dress in layers. Each layer should provide warmth, but allow for ventilation. Clothing should allow for freedom of movement during strenuous activity, but dangling or flapping garments can be a hazard, especially around fires. Properly fitting, sturdy footwear will protect feet and ankles on uneven terrain.

The following chart describes some benefits of different types of clothing and accessories:

Item	Benefits
Synthetic/polypropylene clothes	Good insulation, even when wet; dry much more quickly than cotton
Loose layers of clothing	In cold weather: keep in heat; can be added or shed as temperature changes
Wool clothes	Good insulation, even when wet; dry much more quickly than cotton
Light colored cotton clothes	In warm/hot weather: reflect sun's rays and absorb perspiration; avoid cotton clothing in cold weather
Hat	In cold weather: helps retain body heat; in hot weather: protects head from sun's rays
Sunglasses	Block reflected light, protecting eyes and enhancing vision
Sturdy shoes (athletic shoes, hikers)	Help maintain footing on uneven terrain; protect feet
Rubber-soled shoes	Help maintain footing on wet or slippery surfaces
Long pants	Protect legs from poison ivy, scratches, sunburn, insect bites
Water-repellent outer wear	Keep you dry; helps block wind on cooler days

Ethics

Written laws determine whether or not a behavior is legal, but one's moral values help each individual decide how ethical a behavior is. Many activities that are not illegal may be damaging to the resource or the social perception of a given activity.

Some general rules of good ethics that apply to all outdoor recreation activities include:

- Learn about the resource. Know the effects of your personal actions on it.
- Respect wildlife and their range; don't harass or pursue them.
- Never disturb or handle young animals in the wild.
- Use developed areas.
- Stay on established trails.
- Be considerate of others using the resource.
- Leave the area where you recreate in the same, or better condition, as when you came.
- Tote your own trash out of the area or deposit in designated garbage containers. Litter is ugly and can be harmful to wildlife.
- Respect private property
 - Always get permission to recreate on private land.
 - If the landowner has certain rules for his/her land, obey them.
- If you are hunting, fishing, or otherwise using the resource, take only what you can use.
- Plan ahead and prepare.
 - Know the regulations and special concerns for the area you visit.
 - Prepare for extreme weather, hazards, and emergencies.
 - Schedule your trip to avoid times of high use.
 - Visit in small groups. Split larger parties into groups of four to six people.
 - Repackage food to minimize waste.
- Use a map and compass. Don't leave noticeable marks on the landscape.
- Leave what you find
 - Preserve the past: examine, but do not touch, cultural or historic structures and artifacts.
 - Leave rocks, plants, and other natural objects as you find them.
- Avoid introducing or transporting non-native species.
- Do not build structures, furniture, or dig trenches.
- Let nature's sounds prevail. Avoid loud voices and noises.