

Illinois State Museum

School Program

Changes: Dynamic Illinois Environments



**Exploring the Illinois
Prairie**

Grades 6-8

Developed with support from a Learning Opportunities Grant from the Institute of Museum and Library Services

Dear Educator:

Thank you for reserving the *Exploring the Illinois Prairie* program for your students. This packet is designed to help you prepare your group for the program and make the most of your field trip time at the Museum. For your convenience we've included:

General background materials for your use;
Pre and post trip activities;
Suggested books and Web sites; and
State Learning Standards for this program.

We are eager for your feedback on this packet, especially what is useful and what is not. Please feel free to contact Nina Walthall, Associate Curator of Education, at walthall@museum.state.il.us with comments or suggestions.

Sincerely,

ISM Education Section

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Preparing for Your Visit

Getting Here

The Illinois State Museum is located on the corner of Spring and Edwards Streets in the Capitol Complex. Routes into Springfield and to the Museum are well marked. Buses may unload and load directly in front of the Museum on Edwards Street westbound. Bus parking is available at the State of Illinois Visitor Center Parking Area. When you arrive at the Museum, please register your group at the Front Desk in the Lobby.

Visit Guidelines

Please bring one adult for every ten students. Backpacks, food, beverages, gum, and candy are not allowed in the building. Adult chaperones are required to be with students in the Museum Store and *A Place for Discovery*. Please note that *A Place for Discovery* is closed on Mondays.

Accessibility

The Museum is accessible to visitors with special needs. Wheelchairs are available at the Front Desk. Please let us know if you have a student with special needs.

Food Service

Food service and vending machines are not available at the Museum. There is a picnic area at the State of Illinois Visitor's Center, one block away. There are a number of fast-food restaurants within one mile of the Museum.

Photographs

Visitors are welcome to take photographs in all areas of the Museum except the Art Gallery (depending on the exhibition).

Program Introduction

Exploring the Illinois Prairie features the Illinois River gallery in the *Changes* exhibit. The program covers the formation of the Illinois prairies, why the soil is so rich in the prairie, why fire is essential for prairies, plants and animals in the prairie, and how the prairie disappeared.

This program includes two activities. Your class may do one or both activities:

Guided Program: This interactive program takes 45 minutes and is presented in the Illinois Prairie gallery by a Museum educator.

Independent Activity: An unguided activity in the *Changes* exhibit, where students explore the Illinois Prairie, its history and ecology. The Museum will provide activity sheets, clipboards, and pencils for your group.

After taking part in *Exploring the Illinois Prairie*, students should:

- Know how the prairie in Illinois was formed.
- Know 2 of the major prairies that still exist in Illinois today.
- Be able to explain why fire is essential for prairies to remain healthy.
- Be able to name one plant and one animal common to the prairie.
- Be able to explain when and why the prairie disappeared.

Exploring the Illinois Prairie can serve as either an introductory lesson or as a summative review for your students.

IL State Goals for Learning

Exploring the Illinois Prairie addresses the following Illinois State Goals for Learning:

State Goals, Middle/Junior High School

- **4.A.3a** Demonstrate ways (e.g. ask probing questions, provide feedback to a speaker, summarize and paraphrase complex spoken messages) that listening attentively can improve comprehension.
- **12.B.3b** Compare and assess features of organisms for their adaptive, competitive and survival potential (e.g. appendages, reproductive rates, camouflage, defensive structures).
- **12.E.3a** Analyze and explain large-scale dynamic forces, events and processes that affect the Earth's land, water and atmospheric systems (e.g. jetstream, hurricanes, plate tectonics)
- **13.B.3d** Analyze the interaction of resource acquisition, technological development and ecosystem impact (e.g. diamond, coal or gold mining; deforestation).
- **16.E.3b (US)** Describe how the largely rural population of the United States adapted to, used and changed the environment after 1818.
- **17.B.3a** Explain how physical processes including climate, plate tectonics, erosion, soil formation, water cycle, and circulation patterns in the ocean shape patterns in the environment and influence availability and quality of natural resources.
- **17.B.3b** Explain how changes in components of an ecosystem affect the system overall.

Educator's Background Information

Illinois once consisted mostly of tallgrass prairies. The state was part of the vast

grassland in Central North America that once stretched from Indiana west to Nebraska, south to Texas, and north to the Canadian Provinces of Saskatchewan and Alberta. This great prairie quickly disappeared once the European settlers arrived and began farming the land. Even though most of its prairies are gone, Illinois is still known today as the "Prairie State."

The prairie is a fairly recent ecosystem in Central North America developing after the last glacial epoch approximately 12,000 to 15,000 years ago. When the climate was much colder than it is today, a series of glaciers moved through Illinois grinding and flattening the land. One of the glaciers made it as far as Carbondale in southern Illinois. These glaciers are responsible for many of the land forms we have in Illinois today including lakes, rivers, and prairies.

The prairies grow on different types of soils created when the glaciers melted, leaving behind residue and large amounts of water. Prairie soils are very productive and fertile. Beneath the thick grasses of the prairie, the European settlers found rich black soil. This soil was well suited for growing crops. The most common type of soil in the prairies and the Illinois State soil is called the Drummer Soil Series.

At one time, Illinois consisted of about 60% prairie. The majority of the prairie was destroyed between 1840 and 1900. Now only about 1/100 of 1% of the original prairie remains. The pieces of the prairie remaining tend to be very small patches. Most of them are smaller than 10 acres. The Illinois prairies are tall grass prairies. There are different types of prairies including grasslands, shortgrass, desert grassland, and mixed-grass all throughout the world. Some major prairies around the world include the Pampas of Argentina, the steppes of central Asia, and the veldt of Africa.

The prairie soil is so rich because of the large amounts of roots left behind in the soil. Prairie plants have large root systems, which contribute to the richness of the soil. Each year some of these plants die off, leaving behind roots in the soil. This continual cycle made the soil very rich, as we are still using the richness of the soil today. The soil is not as rich today as it once was. The plants grown on the prairie soils today do not have large root systems and do not leave as much organic material behind. This causes the soil to erode. The soil is also becoming less and less fertile.

The prairie climate consists of hot, dry summers and cold, harsh winters. Prairie plants can withstand these varying conditions because of their large, deep roots. The top of the plant dies off during harsh times, but the roots which are underground remain alive. When the conditions are right, the plant sprouts back up.

Fire is an important part of the prairie ecosystem. Prairies need fires in order to survive. Many prairie plants need direct sunlight. When trees and shrubs begin to grow in the prairie, the sunlight is blocked and the prairie plants begin to die. Fires burn off these trees and shrubs and allow for sunlight to get through. The fires also burn the dead plant material so it does not accumulate. Because of the prairie plants' deep roots, they are able to withstand these fires and grow back quickly. Native Americans used fire as a hunting technique, so the prairies continued to thrive. When European settlers arrived, this practice was discontinued because of the possible threat to livestock, crops, buildings, and people. The settlers realized how fertile the soil is and began to farm every inch they could for food. They plowed the prairies, causing the prairie to shrink tremendously.

The prairie has a variety of common plants and animals. These plants and animals have adaptations that enable them to withstand the changing weather, predators, and fire. Some of the plants include the rattlesnake master, compass plant, and big bluestem. Some of the animals include the thirteen-lined ground squirrel, northern harrier, and prairie kingsnake.

Because the prairie is becoming so scarce, many of the plants and animals that live there moved to new habitats have become endangered species, or in the wild in our state. Animals such as the bison and elk used to live in Illinois prairies, but no longer. Prairie restoration efforts are now taking place across the state. For example, a few prairie reservations are the Nachusa Grasslands in Northern Illinois, the Midewin Prairie in Northern Illinois, and the Scrub Oak Nature Preserve along the Illinois River. These efforts will hopefully restore some of our prairie and help keep the prairie plants and animals alive.

Before Your Visit

Look at some maps of Illinois showing the amount of prairie there used to be compared to the amounts we have today. These websites may be useful:

Historic prairies: www.bio.ilstu.edu/anderson/

Present prairies:

Look at pictures of basic prairie plants and animals. Figure out which species no longer live in the state and why. Have the students classify the plants and animals into grasses, wild flowers, mammals, birds, etc.

After Your Visit

As a class, work with a local nature or lawn/garden center to create your own small version of an Illinois prairie on the school grounds. The students can be responsible for taking care of it and learn what it takes for a prairie to survive. Directions to do

this can be obtained on the museum website:

<http://www.museum.state.il.us/muslink/prairie/htmls/ga.html>.

(DNR and ILEPA might offer grants for this type of project) Students could also by themselves or in groups to create a documentary or oral history project on the prairie. They might interview elderly people in the town who might remember living on the prairie or speak with someone from a nearby nature center to learn more about what the prairie was like. The students could present their projects to the class, so everyone can hear what their classmates learned.

Web Resources

The following Web sites can provide additional resources for you and your students:

Fermilab Web site. This Website includes information from a maintained prairie in Illinois. It has photographs, information on the animals and plants, and has activities.

http://ed.fnal.gov/data/life_science.html

Illinois Department of Natural Resources. Information on Illinois prairies geared towards students.

<http://dnr.state.il.us/lands/education/prairie/games.htm>

Illinois Department of Natural Resources. Includes detailed information on the prairies of Illinois.

<http://dnr.state.il.us/conservation/naturalheritage/florafauna/document.htm>

Illinois State Museum. Site contains information about Illinois prairies in the past, present, and the future.

www.museum.state.il.us/muslink/prairie/index.html

Midewin National Tallgrass Prairie website. This website contains particular information about the Midewin National Tallgrass Prairie located in Wilmington, Illinois.

<http://www.fs.fed.us/mntp/>

National Geographic. This site includes basic information about different habitats including the prairie. Photographs are also included.

<http://www.nationalgeographic.com/geographyaction/habitats/prairies.html>

National Geographic. This site includes a photo gallery of the prairie.

<http://green.nationalgeographic.com/environment/photos/prairies.html>

The Nature Conservancy. Information on the Indian Boundary Prairies in Illinois and how they are working to preserve them.

<http://www.nature.org/wherework/northamerica/states/illinois/preserves/art1119.html>

The Nature Conservancy, "New Site Acquired to Help Rare Grasslands Bird Recover." This site contains an article about a group working to protect the greater prairie chicken.

<http://www.nature.org/wherework/northamerica/states/illinois/press/press2262.html>

The Nature Conservancy, Nachusa Grasslands. Information about the Nachusa Grasslands located in Illinois.

<http://www.nature.org/wherework/northamerica/states/illinois/preserves/art1116.html>

The Nature Conservancy, "The Nature Conservancy's Nachusa Grasslands Preserve Expands to 2,500 Acres." This is an article about the recent expansion of the Nachusa Grasslands Preserve in Illinois. <http://www.nature.org/wherework/northamerica/states/illinois/press/press1977.html>

Books

Jeffords, Michael R., Susan L. Post, and Kenneth R. Robertson Illinois Wilds. Cloth, 1995: 156 pgs. ISBN: 0-1-886154-04X

This book contains the natural history of the wildlands in Illinois.

Johnson, Rebecca L. A Walk in the Prairie. Carolrhoda Books, Inc, 2001: 48 pgs. ISBN: 1-57505-153-2

This book "walks" through the prairie examining plants and animals along the way.

Jones, Stephen R. The North American Prairie. Houghton Mifflin Company, 2004: 528 pgs. ISBN: 0-618-17929-1

This book has info on the prairies throughout North America including Illinois.

Ladd, Doug Tallgrass Prairie Wildflowers. Falcon, 1995: 264 pgs. ISBN: 1560442999

This book is a field guide to wildflowers of the midwestern tallgrass prairie.

McClain, William E. Illinois Prairie: Past and Future: a Restoration Guide. Illinois Department of Conservation, 1986: 26 pgs.

This book contains specialized information about the Illinois prairies and what can be done to restore them.

McGehee, Claudia The Tallgrass Prairie Alphabet. University of Iowa Press, 2004: 14 pgs. ISBN: 0-84475-897-9

This book has great pictures and is suitable for all ages.

Patent, Dorothy Hinshaw Prairies. Holiday House, 1996: 40 pgs. ISBN: 0-8234-1277-6.

This book includes information about American prairies and contains many photographs.

Wallace, Marianne D. America's Prairies and Grasslands. Fulcrum Publishing, 2001: 48 pgs. ISBN: 1-55591-992-8

This book is a friendly guide to the unique plants and animals that live in the prairie.

Activities

Help save the prairie project for 6-8 graders. (Fermilab)

<http://ed.fnal.gov/help/prairie/6prairie/>

The students are given different roles to take on, each having a different viewpoint of the prairie based on an article that is read. Some students want to preserve the prairie, some want to use the prairie, and some want a little bit of both. The class must work together to find a solution and argue their points of view. The entire project is expected to take about 2 weeks worth of class periods.

Xpeditions, National Geographic.

<http://www.nationalgeographic.com/xpeditions/lessons/08/g68/prairies68.html>

This lesson compares the climate and conditions in a small area with the climate and conditions of a large prairie. This lesson will take a few hours to complete.