

OAK OPENINGS  
REGION:  
Discovering Our  
Natural Heritage

*Teacher Guide*

## **Oak Opening Region: Discovering Our Natural Heritage** **Explore One of America's Last Great Places**

A Unit of Study for Grades 5-12

### **Curriculum Connections:**

National Council for the Social Studies

Curriculum Standards for Social Studies: II. Thematic Strands

- Time, Continuity, and Change
- People, Places, and Environment
- Individuals, Groups, and Institutions – Local, State and Federal Government support. Local taxpayer support to establish park system
- Power, Authority, and Governance – Great Depression
- Production, Distribution, and Consumption
- Science, Technology, and Society - Modes of Transportation
- Civic Ideals and Practices

Mid-continent Regional Education Laboratory (McREL)

United States History Standards (3rd Ed.)

Era 8 - The Great Depression and World War II (1929-1945)

23. Understands the causes of the Great Depression and how it affected American society
24. Understands how the New Deal addressed the Great Depression, transformed American federalism, and initiated the welfare state

Era 9 - Postwar United States (1945 to early 1970s)

26. Understands the economic boom and social transformation of post-World War II United States
28. Understands domestic policies in the post-World War II period

Era 10 - Contemporary United States (1968 to the present)

31. Understands economic, social, and cultural developments in the contemporary United States

### **Video Synopsis:**

Long before America's colonial settlement and westward expansion, dense Eastern forests gave way to an extensive patchwork of oak savannas and wet prairies that covered 30 million acres, eventually meeting up with the vast Western grasslands. "Oak Openings Region: Discovering Our Natural Heritage" explores a rare vestige of this unique and beautiful habitat, located in Northwest Ohio and designated by the Nature Conservancy as "one of America's Last Great Places."

Beginning with the first settlers in the early 1800's, agriculture, urban and suburban development have wiped out most of America's Oak Openings. However, remnants can still be found in Ohio, Illinois, Michigan, Wisconsin, and Iowa. One of the largest and best examples is a 130-square-mile ecosystem in Northwest Ohio, extending through Lucas, Henry and Fulton Counties.

Oak Openings is a wonderful diversity of landscape that includes sand dunes, open oak woods, swamp forest, alder bogs, and wet and dry prairies. When the region was first settled, much of the wetlands were drained, the forests cut and the grasslands burned. Although reduced in size, small pockets of valuable habitat have been saved and other areas are being returned to their original state.

Viewers of “Oak Openings Region” will see stunning images of the flora and fauna living within the region, including the rare lark sparrow, eastern prickly pear cactus, black and white oaks, the elusive spotted turtle, brilliant blue lupines, and the endangered Karner blue butterfly. The destruction and development of America’s oak savannas has meant widespread loss of the wild lupine, the Karner blue caterpillar’s sole source of food. Since the late 1990’s, the Toledo Zoo has been working with naturalists in Northwest Ohio’s Oak Openings Region to preserve the wild lupine, and reintroduce the Karner blue butterfly to the area.

On-going efforts to conserve habitat have been taking place since the late 1920’s when Edwin Lincoln Moseley, a professor at what is now Bowling Green State University, brought the region to the attention of naturalists worldwide. Since then, Oak Openings has been a “hot spot” for researchers and scientists, keen on studying this rare ecosystem, created thousands of years ago as the last glaciers and post-glacial lakes receded north. Today, a group of dedicated men and women are dedicated to creating a network of natural spaces and corridors, or a “Green Ribbon,” to connect and preserve the last remnants of the region.

The Oak Opening Region of northwest Ohio includes Irwin Prairie, Secor Park, Oak Openings Park, Maumee State Forest and Toledo Express Airport – a 130 square mile area. Geographically, it includes much of Lucas, Fulton and Henry counties and is one of Ohio’s most unique natural assets.

### **Pre-viewing:**

Questions for students to think about:

What they think daily life was like in the past?

Use this video program, historical artifacts, photographs, biographies, maps, diaries and folklore to answer questions about daily life in the past.

Identify kinds of work that people performed to make a living in the past. Explain how jobs in the past are similar and/or different from those of today.

How has transportation changed from the time of the Great Black Swamp of the Midwest in the 18<sup>th</sup> century to modern times?

Identify and describe examples of how science and technology have changed the daily lives of people and compare:

- a. Forms of communication from the past and present;
- b. Forms of transportation from the past and present.

Classroom guest

Invite a local park ranger or environmentalist to help introduce the program, and ask him or her to compare and contrast your local region to that of the Oak Openings.

Invite a local historian or community VIP and ask him or her to present information about a local park or other natural site that your community has invested time, money and community efforts to develop, build and maintain.

### **Post-Viewing:**

#### **Activity 1**

Assign the reading of “The Oak Openings (aka) The Bee Hunter” by James Fenimore Cooper (available as an e-book). Although this is a work of fiction, it focuses on life in the Oak Openings Region in 1812. Compare and contrast the description of Oak Openings in the book and what we know of the region from the film, nearly 200 years later.



E-book can be found at The Making of America (MOA) digital web site  
<http://www.hti.umich.edu/m/moagrp/>

E-book link: The oak-openings; or, The bee-hunter. By J. Fenimore Cooper., Cooper, James Fenimore, 1789-1851. <<http://onlinebooks.library.upenn.edu/webbin/book/titlestart?O>> Site accessed: September 3, 2004.

Permission to print e-book cover image provided 9/3/04. Additional information about the MOA Project can be found at:  
<http://www.hti.umich.edu/m/moagrp/>

#### **Activity 2**

##### **Occupations**

Have students identify kinds of work that people performed to make a living in the past. Have students research the skills that were needed and learned for one or more of these occupations. Have students write a letter to a family member to inquire the jobs that their grand-parents and/or great grandparents held. Have the students include in the letters what level of education the workers earned, rate of pay, what modes and transportation were used to get to and from work, and what methods of communication were available.

Have students choose one occupation that they might wish to have and research the education and skills necessary today for that career.

Have students compare how jobs in the past are similar and/or different from those of today.

##### **Transportation**

A compare and contrast timeline activity can be used to compare modes of transportation in your local area to those shown in the program.

Have students record the modes of transportation that they view during the program.

### **Timelines**

Create a large timeline in your classroom that begins in the mid-17<sup>th</sup> century and ends in the 21<sup>st</sup> century.

Have students research modes of transportation were invented and used over these time periods. Inventions and engineering or scientific advances often developed simultaneously across the country. When students discover a new mode of transportation or invention, have the students also identify the inventor, the country, state, and/or city that the invention was made, and in what date/year.

As individuals or in cooperative groups, analyze the classroom timeline. Were similar inventions being made in other countries at the same time? What environmental impact did these inventions or transportation advancements have? What similarities and differences can students identify about the inventors, the inventions, and the local environments? Extension idea: What environmental impacts were created in the past in your local area that your community is now trying to 'fix'?

## Additional Lessons & Resources

### Lessons

Journey to Planet Earth

The Urban Explosion

Educational Resources

<http://www.pbs.org/journeytoplanetearth/education/urbanexplosion.html>

Reflections of Hunger and Poverty:

the Works of Lange, Kollwitz, and Orozco

Timeline focus: Great Depression

Lesson: <http://www.mcrel.org/standards-benchmarks/activities/output.asp?Activity=237>

McREL Standards Activities

Purpose: Through the photographs and artworks of Dorothea Lange, Kathe Kollwitz, and Jose Clemente Orozco, students should arrive at a greater appreciation of the widespread hunger and poverty of the Great Depression. Students will participate in class discussion, followed by the creation of a travel brochure illustrating the common suffering of residents in countries impacted by the Great Depression.

Materials: Art books, Artcyclopedia: The Fine Art Search Engine

<http://www.artcyclopedia.com/>

Note to Teacher: This activity should be included in a unit on the global impact of the Great Depression. It also assumes that students will be at least somewhat familiar with three very different political systems and cultures (the United States, Nazi Germany, and post-revolutionary Mexico)

American Field Guide

Teacher Resource Packet

Economic Use of Public Natural Areas, grades 9-12

Access this lesson plan online at:

<http://www.pbs.org/americanfield/teachers>

*Scientific American Frontiers: EXPEDITION PANAMA: Rat Soup, A MAN, A PLAN, A CANAL -- PANAMA!*

Understand how locks work & Compare the Ohio Canal with the Panama Canal. Use modeling to understand how locks work.

[http://www.pbs.org/safarchive/4\\_class/44\\_guides/guide\\_801/4481\\_rat.html](http://www.pbs.org/safarchive/4_class/44_guides/guide_801/4481_rat.html)

## Web Resources

### Endangered Plants and Animals

<http://www.oakopen.org/>

How many globally rare plant communities are located in the Oak Openings Region? There are five globally rare plant communities in the Oak Openings Region. Black Oak/Lupine Barren and Midwest Sand Barren are dry or upland communities that occur on ancient dunes and remnant beach ridges where water drains quickly making it a harsh environment for plants to survive. Mesic Sand Tallgrass Prairie, Twigrush Wet Prairie, and Great Lakes Pin Oak-Swamp White Oak Flatwoods are wet or lowland communities found in swales (low depressions) between the higher sand ridges and dunes.

Select Animal Communities and Plant Communities to view a particular species.

### Black Swamp Bird Conservatory

#### Oak Openings Avian Habitat Usage

This is a cooperative project with the Metroparks of the Toledo Area and the Observatory to study the bird associations in different habitats in the Oak Openings Preserve. Four habitats are being studied - grassland/dune, successional grassland, mature oak forest with prescribed burn management, and mature oak forest with no burn management. This site also includes excellent bird species photos and relevant web links to established Birding and Wildlife web sites.

<http://www.bsbobird.org/oak.html>



## Classroom Extensions & Outreach Guide Suggested Activities

### Native Species/Invasive Species

The Oak Openings Region: Discovering our Natural Heritage film talks about the importance of re-introducing native species in the area to restore one of the Midwest's rarest ecosystems – allowing native insects, birds and butterflies and animals who depend on the native plants to live. For example, in Oak Openings, the wild lupine is the only food source for the rare Karner Blue butterfly. Find out what species are native to your region and use these to beautify your garden instead of bedding plants.

Invasive species may or may not be what we think of as weeds. Although many are weeds, invasive species are those which are not native to the region, (usually introduced by humans) reproduce rapidly, and take up space or “choke out” native plants.

Find out about invasive species in your region and join volunteer groups to help control these invaders.

### Conservation Easements

Among the fastest growing method of land preservation in the United States today, conservation easement is a restriction placed on a piece of property to protect its associated resources. The easement is either voluntarily donated or sold by the landowner and constitutes a legally binding agreement that limits certain types of uses or prevents development from

taking place on the land in perpetuity while the land remains in private hands. Many times, property owners are provided tax benefits for agreeing to a conservation easement.

Find out about the use of conservation easements in your community. Find a speaker from a local environmental agency to speak on the topic.

### **The Last Great Places on Earth**

The Nature Conservancy (<http://nature.org>) has declared the Oak Openings Region one of the Last Great Places on Earth. These areas are described as unique areas that harbor a concentration of rare species and offer excellent examples of endangered ecosystems. Here is a list of the others. If one is in “your neck of the wood,” plan to visit.

Alabama	Bibb County Glades Grand Bay Savanna
Arizona	San Pedro River Verde River
Arkansas	Big Woods
California	Cosumnes River Lassen Foothills
Colorado	Arikaree River San Luis Valley
Connecticut	The Berkshire and Taconic Valleys Tidelands of the Connecticut River
Delaware	Delaware Bayshores of New Jersey and Delaware Nanticoke River
Florida	Apalachicola River and Bay The Florida Keys St. Marys River/See Islands
Georgia	Altamaha River Conasauga River Cumberland Island
Hawaii	The Hawaiian Forests
Idaho	Upper Henry’s Fork River Vanishing Rivers

### The Last Great Places on Earth (cont.)

Illinois	The Illinois River Valley
Indiana	The Blue River
Kansas	Sunset Prairies
Kentucky	The Green River Bioreserve
Louisiana	Black Bayou Persimmon Gully Lafitte Woods at Grand Isle
Maine	Upper St. John River Cobscook Bay
Maryland	Sideling Hill Creek Nanticoke River
Massachusetts	The Berkshire and Taconic Valleys The Sandplains of the Massachusetts Islands
Michigan	Ives Road Fen
Minnesota	Tallgrass Aspen Parkland
Mississippi	Grand Bay Savanna
Montana	Rocky Mountain Front
Nebraska	The Platte River
Nevada	Pyramid Lake and Stillwater Marsh
New Hampshire	Great Bay Estuary Ossipee Pine Barrens
New Jersey	Delaware Bayshores
New Mexico	Gila River Mimbres River

## The Last Great Places on Earth (cont.)

New York	Adirondack Park Eastern Shore of Lake Ontario French Creek Neversink River Peconic (Eastern Long Island) The Shawangunk Mountains Southern Lake Champlain Valley
	North Carolina The Jocassee Gorges The Green Sea Wetlands The South Mountains
North Dakota	Missouri Coteau
Ohio	Darby Creeks Edge of Appalachia <b>Oak Openings</b>
Oklahoma	Cucumber Creek Preserve
Oregon	Upper Klamath Basin Wetlands
Pennsylvania	Pocono Mountains
Rhode Island	Block Island
South Carolina	The Jocassee Gorges Winyah Bay Bioreserve
South Dakota	Missouri Coteau Northern Hills Spring Creeks
Tennessee	The Clinch Valley Conasauga River The Hatchie River
Texas	Clymer Meadow Laguna Madre Lower Rio Grande Valley Edwards Aquifer
Utah	Bar J Ranch Macrosite Dugout Ranch Great Salt Lake

## **The Last Great Places on Earth (cont.)**

Vermont	Southern Lake Champlain Valley
Virginia	The Clinch Valley The Green Sea Wetlands Virginia Coast Reserve
Wisconsin	Lulu Lake
West Virginia	Smoke Hole/North Fork Mountain
Wyoming	Northern Hills Spring Creeks

## **Volunteer Opportunities and Resources to Help the Environment**

*Ohio's Scenic Rivers Stream Quality Monitoring Project* trains volunteers to monitor macro invertebrates which live in the rocks and cobbles of a riverbed. by monitoring their presence, the Ohio Dept. of Natural Resources can assess stream quality and note changes. For more information: [www.dnr.state.oh.us/odnr/dnap](http://www.dnr.state.oh.us/odnr/dnap)

*Ohio's Scenic Rivers Program* involves citizens in litter cleanups removing trash from riverbanks and channels, planting of trees and stream bank stabilization projects. For more information: [www.dnr.state.oh.us/odnr/dnap](http://www.dnr.state.oh.us/odnr/dnap)

The NOAA Coastal Services Center: Linking People, Information and Technology  
Volunteering for the Coast: Resources for Volunteer Coordinators & Volunteers. Links to volunteer resources and tips.

The NOAA Coastal Services Center is an office within the National Oceanic and Atmospheric Administration devoted to serving the nation's state and local coastal resource management programs.

<http://www.csc.noaa.gov/techniques/volunteer/text/resources.html>

Toronto and Region: Conservation for the Living City

<http://www.trca.on.ca/events/volunteer/>

Choose Environmental Excellence-Gateway Region: Encouraging and Celebrating Environmental Excellence in the greater St. Louis area.

The list of links includes environmental related sites that have been classified as relating to "Volunteer Opportunities." They may also be listed in other categories. Locations sorted by: Missouri/Illinois or National/International.

<http://www.ceegr.org/links/Volunteer.shtml>

### Global Change Research Information Office (GCRIO)

Since 1993, disseminating scientific research information useful in preventing, mitigating, or adapting to the effects of global change. Links include general information sites on environmental educations, climate change and global effects, Online Courses and Syllabi, Teacher resources, and more.

<http://gcrio.org/edu/>

### EPA Environmental Education

The homepage is a portal to all EPA (Environmental Protection Agency) educational websites for students, teachers and kids.

<http://www.epa.gov/epahome/students.htm>

### Natural Heroes

A new Public Television series featuring independently produced films from all over the country with a common theme: real people making a difference for the environment and enhancing the world around us. This 13 episode series is developed by GreenTreks Network, Inc. and KRCB - TV. Contact your local Public Television station for air dates.

<http://www.greentreks.org/naturalheroes/index.asp>