

Restoring the Prairie



Grade: 3rd **Season:** Winter **Time:** 1 ½ hours
Group Size: 1 class **Ratio:** 1:5 (adult: children)

For the Teacher:

Overview	Students design an investigation about prairie restoration driven by their own questions. They participate directly in restoring the prairie by planting seeds in the prairie. (If possible, they may also be able to make observations of seedlings in the greenhouse and/or plant seeds there.) Lastly, they reflect upon their discoveries and answer their investigation questions.
Subjects Covered	Science
MN Academic Standards Supported	Helps support 17 standards. See section “2009 Minnesota Academic Standards in Science” and “2010 Minnesota Academic Standards in Language Arts.”
Skills Used	Investigating, following directions, listening, cooperating, asking and answering questions, observing, describing, measuring, sketching, reflecting, concluding, magnifying, collecting data, analyzing data, restoring habitat, thinking critically, writing, examining, discovering, teamwork, organizing
Performance Objectives	After completing this activity, students will be better able to... <ul style="list-style-type: none"> • Identify two methods of prairie restoration (sowing in the field, sowing in the greenhouse and planting seedlings in the field) • Name two kinds of prairie plants (grasses and forbs) • Name at least one prairie plant species • Plant prairie seeds in the field • Explain why people restore prairie • Enjoy making a difference improving the health of the prairie
Vocabulary	Investigate, prairie, restore, seedling, greenhouse, seeding/sowing, grass, forb, germinate, sowing

For the PWLC Instructor:

PWLC Theme	The Prairie Pothole Region
Primary EE Message	The prairie pothole region is valuable and in need of restoration and protection.
Sub-message	People: The U.S. Fish and Wildlife Service works with others to preserve, manage, and restore prairie wetlands in the prairie pothole region.
PWLC EE Objective	Understand and participate in restoration, enhancement, protection, and management methods of prairie and wetlands. (Habitat and People)
Materials	Harvested or purchased prairie seeds and/or classroom set of 6-pack pots and soil, rulers, magnifiers, colored pencils
Location	Classroom; greenhouse and/or prairie

Background Information

In this lesson, students use the prairie as their classroom to investigate and participate in prairie restoration. The KWHL chart and method often used in reading is applied to science, providing structure to their investigation. The specifics of their investigation are driven by the questions they generate. Providing a hands-on, direct opportunity for students to make a difference for the prairie increases their loci of control and sense of connectedness to the land which they will be responsible for stewarding as adults.

There are many ways to restore prairie. One way is by sowing seed in late winter or

early spring when the snow pack is melting. The seeds can be sprinkled into the snow and mud, and then walked over to ensure that direct contact is made with the substrate so the wind cannot blow them away. As the snow continues to melt, the seeds are pulled down to the soil surface. PWLC staff selects the best location for sowing such as gopher mounds, thinly vegetated slopes, construction sites, or burned areas. They choose places where the prairie canopy is scant or where recent disturbance to the canopy allows plenty of sunlight to penetrate to the soil surface. Such openings help the seeds germinate with less competition from other plants.

Another way to use seeds in prairie restoration at the PWLC is to sow them in the greenhouse, allow them to germinate and grow, and then plant them outside. First, PWLC volunteers use a natural flour paste to glue the tiny seeds to tissue paper. These seed tapes make handling the seeds by students for planting much easier. PWLC staff and students usually sow these seeds in late winter into small 6-pack pots. The seedlings are transplanted from the 6-packs to small pots in mid-spring, and then planted outside in late spring. Depending upon when students visit in winter and the timing of greenhouse operations, they may be able to plant seeds and/or observe and record data about seedlings in the greenhouse in addition to planting in the prairie.

Fergus Falls Wetland Management District staff employs several other methods to help restore the prairie without the assistance of students. Prescribed fire and mowing create openings in the prairie, reduce the layer of dead and decaying plants, open the canopy, and reduce weeds and trees. Introducing biological control agents like the weevil *Cyphocleonus achates* decreases populations of spotted knapweed, a noxious weed. Mechanical cutting and removal of tree fence lines opens up small grassland areas into larger blocks required by some birds for nesting. It also reduces predator habitat and increases nesting success for grassland birds.

Native seedings are managed intensely for about five years after sowing in the field. Mowing in the first and second years to control weeds and stimulate growth helps the seeding become better established. Spraying is only done to control difficult patches of weeds. Fire is typically used in the third and fifth years after seeding to help stimulate the production of seed. Once a seeding is established it is difficult for weeds to invade these dense native grass stands with their robust root systems.

Why restore the prairie? Many species of wildlife require grassland habitats, and in the Fergus Falls Wetland Management District, nearly 99% of the native tallgrass prairie has been lost to the plow and development. Grasslands provide shelter for birds, mammals, reptiles, and insects. Species like greater prairie chickens, marbled godwits, short-eared owls, bobolinks and other songbirds require large tracts of grasslands to make their homes. All species of ground nesting birds like waterfowl, pheasants, and songbirds need grasslands to build and conceal their nests. The prairie is a critical habitat to species that call only the prairie home or that need the prairie in order to complete part of their life cycle.

Likewise, some plant species can only live in the prairie. More than 500 species of

native wildflowers are found on the prairies of northwest Minnesota. More than 150 species of grasses live in the prairie with about 10 species dominating grassland cover. Other categories of prairie plants include shrubs, vines, mosses, algae, ferns and horsetails, and even trees. However, prairie plants mainly include grasses and flowers (forbs). The native grass species in the northern tallgrass prairie vary in size from side-oats grama that is about one foot tall to prairie cordgrass and big bluestem which can reach seven feet tall. These plants develop root systems that are sometimes twice as long as the plants are tall. Because of this dense root system, these plants form sod that has a tremendous capacity to absorb run-off and rain water. They can take up chemicals and nutrients that are carried into the grassland by run-off thus filtering the water that flows through a tract of grassland.

These plants and animals in the prairie interact with each other to help form a complex ecosystem. A diverse seed mixture is important because the wildflowers provide food for many species of insects. Grassland birds feed on the insects found in these prairies. A grassland tract with diverse species composition can support more wildlife that is dependant on that food source. Plant species diversity also provides variability in the grassland structure. Some wildlife species need dense grasses overhead and passageways near the ground; others like shorter, open areas in a grassland. Plant diversity provides better cover, nesting habitat and food for a larger variety of wildlife species.

Although it was once the most widespread ecosystem in North America, the tallgrass prairie today is in danger of extinction. In Minnesota, for example, less than 0.1% of native prairie remains. One way to help the prairie is to increase the biological diversity of the restored prairie at the PWLC. Seeds harvested by students in fall from richly producing sites are planted in late winter/early spring in less diverse areas. By participating in this field investigation, students are also helping to re-establish part of our natural, national, and agricultural heritage.

Restoring the prairie is not only an opportunity to discover more facts about North America's grasslands, our home biome. It is also a chance wonder about the miracle of growth that starts with a tiny seed in the dry, windy, hot-and-cold prairie and culminates in a sea of grass up to seven feet high, speckled with brilliantly colored blossoms. It is a chance to celebrate beauty and participate in beauty-making as we strive to restore this almost lost landscape.

Teacher Preparation

- To maximize outdoor classroom time at the PWLC,
 - Teachers may conduct steps 2 through 4 in the section "Field Investigation Procedure" at school. Upon arrival at the PWLC, teachers may provide PWLC staff with a written list of what students know and wonder for quick review before heading out into the prairie.
 - Please organize your students into small groups at school, each small group led by an adult chaperone, everyone wearing nametags.
- For a significantly more successful visit, we highly recommend conducting one or

more of the suggested extensions before your visit in order to integrate this field investigation into the classroom study of prairie, grasslands, biomes, plants, seeds, life cycles, or other topics. (See section, "Teacher-Led Extensions/Adaptations/Assessment Ideas.")

- Please help save paper. Bring your students' science notebooks or journals to record their field data and discoveries in. If science notebooks are not available, please inform the PWLC staff that you will need paper and clipboards when booking your date.

PWLC Staff Preparation

- Coordinate with the visitor services manager regarding the availability of seeds for sowing in the field. Determine the best location(s) considering current conditions.
- Coordinate with the greenhouse manager to determine if help is needed with a seeding project in the greenhouse. If so, the greenhouse manager needs to ensure that pots and soil are available and organized.
- Coordinate with the greenhouse manager to determine if observing seedlings in the greenhouse is possible. If so, the greenhouse manager needs to set out six-pack pots, rulers, and magnifiers for students to use.
- Depending upon the arrangements, determine how much time students can spend in each location.

Field Investigation Procedure

1. In a classroom, welcome students, teachers, and chaperones to the Prairie Wetlands Learning Center.
2. Arrange students into small groups with their chaperones (see section "Teacher Preparation," above), and inform chaperones of their role in following through on instructions for students.
3. To begin the investigation, start a KWHL chart. (Classes using loose-leaf paper can fold their papers into quarters to help set-up the chart.) Ask students what they know about prairie restoration. What is it? How and why is it done? When? Who does it? Record their responses on the white board and suggest they do likewise in their journals. (This is the K of the KWHL model. What do we know?)
4. Tell students that today they will get to help restore the prairie. What questions do they have about that? What would they like to find out about prairie restoration while we are there? Again, responses should be recorded on the white board and in journals. (This is the W of the KWHL model – what do we wonder?)
5. Inform students whether they will be sowing or planting seeds in the field, greenhouse, or both; and/or if they will be making observations of seedlings in the greenhouse. Set up one or more field journal pages depending upon the arrangements and questions they generated.
6. Review rules for the trail before heading out, and bring the bag(s) of seeds if sowing in the field.
7. Follow this procedure for sowing in the field:

- a. Invite students to smell their seeds, use hand lenses to examine one of their seeds, and share observations. Doing so increases students' awareness of what a single seed looks like as well as increases their sense of wonder about prairie restoration. In addition, this activity enables students to better differentiate between seeds and other flower parts, including seed heads, which may contain hundreds of seeds.
 - b. If sowing into gopher mounds or patches of bare soil, show students the mounds and ask them who made them? Tell them a little bit about plains pocket gophers and their habits. Then, walk around and not on the mounds while bending down and slowly sprinkling seeds very close to the mound soil. They should break up any large seed heads before dropping them.
 - c. If sowing into a large area of melting snow or a burned area, arrange students in one line, side by side. Demonstrate how they will smell and closely observe their seeds, then walk in parallel lines across the snow. Bend as you walk, sprinkling seeds very close to the snow, and break up any large seed heads. Show them where to stop and turn back around. Then walk back to the original line on top of the seeds. Explain why we sow in winter and in snow and why we walk on the seeds. This method is very different from how students typically plant garden seeds at home.
 - d. If time allows, go to another area close by and encourage students to search for seeds on the soil surface. These seeds have been planted by the wind or animals or simply gravity. Are any sprouting? Can they find any tiny seedlings? What is the soil like? Invite them to smell and feel the soil by rubbing a small amount between their thumb and forefinger, creating a soil ribbon. What textures can they detect? They may take a tiny dab and rub it on their journal page.
8. Follow this procedure if students are sowing in the greenhouse:
- a. Before entering the greenhouse, students should create a drawing in their journals of their six cells and number their drawings.
 - b. In the greenhouse, ask each student to stand near a six-pack pot. They should check to make sure that their drawing is numbered to match how the six-pack pot is labeled, correcting their drawing as needed.
 - c. Provide each student with a few loose seeds, preferably of the same species being planted in the seed tapes. Invite them to use hand lenses to examine one of their seeds, and share observations. They should then make an enlarged sketch illustrating the details revealed by the hand lens. How do they think those adaptations help the seed disperse and survive in the prairie?
 - d. Direct students to place each of their six seed tapes in the cells, seed side up, and sketch the seed tapes in their journal drawings. Depending upon the questions they generated earlier, students may need at this time to measure each seed and label the journal sketches accordingly.
 - e. Lastly, they should cover each seed tape gently with about four millimeters of soil or until the seed tape is completely covered so they no longer see it. They must not tap or press the soil down. They may carefully brush off

- excess soil, though.
- f. If time allows, students may carefully and thoroughly water their seeds with a water can or bottle, but not the hose.
9. Follow this procedure if students are observing in the greenhouse:
 - a. Before entering the greenhouse, students should create a drawing in their journals of their six cells and number their drawings.
 - b. In the greenhouse, ask each student to stand near a six-pack pot. They should check to make sure that their drawing is numbered to match how the six-pack pot is labeled, correcting their drawing as needed.
 - c. Students should observe their plants write down what they think is the most interesting thing about plant or plants they are viewing. Then they may record their observations in their journal using colored pencils and rulers. A few possibilities might include sketching the six-pack cells and the plants growing in them, measuring the tallest plant, or sketching one seedling with and without use of the magnifier.
 10. Return to the classroom. Share discoveries and use collected data to answer the questions which formed the investigation. In reflection, ask them what was the most important thing we did today? Why was it important? What can people do to help put prairies back on the land? Lastly: what do we now know about prairie restoration? Ask them to write a complete sentence to share their favorite discovery about it and select a few to read aloud. What new questions do they have about prairie restoration?
 11. Thank everyone for their help in making the prairie healthier and the chaperones for their leadership. Invite them to come back again to visit and bring a friend or relative – show that person where their seeds are planted.

Weather Alternatives

Field investigations take place rain or shine. Everyone should dress appropriately for the weather. In the event of unsafe weather (extreme cold or lightning), everyone must come indoors. PWLC staff makes every effort to make your travel worthwhile despite the weather and prepare indoor, age-appropriate plans. PWLC staff welcomes teacher input into these plans. Some possible alternatives might include:

- Go outside near the building for a very short amount of time to sow seeds. Soil eroded, exposed, or compacted by human activities can typically be found near paved trails and roads.
- If students are eating lunch at the PWLC, ask them to keep some of the seeds from their food – apples, oranges, kiwi, strawberries, bread, etc. What do they look like? Which parts of their lunch grew from seeds? Do these plants grow in Minnesota?
- Tour the exhibit area and watch prairie wetlands videos with the objective of finding out more about how people restore prairie. The fire fighter display, fire exhibit, and video productions are all appropriate destinations.
- Read [A Seed is Sleepy](#). Brainstorm ideas together on what a seedling is, or what a plant is. Then write a poem together as a class, in partners, or individually using the same concept in the book.

- Read How a Plant Grows by Bobbie Kalman. Show examples of seeds such as coconut, milkweed pods, pine cones, maple seeds, wild licorice, bur-reed, sunflower. Students may examine and sketch these seeds.
- Read pages 6-24 and 42-45 of A Walk in the Prairie by Rebecca L. Johnson as students listen for and write down facts about prairie plants.

Teacher-Led Extensions/Adaptations/Assessment Ideas

- To maximize outdoor classroom time at the PWLC, teachers may conduct steps 2 through 4 in the section “Field Investigation Procedure” at school. Upon arrival at the PWLC, teachers may provide PWLC staff with a written list of what students know and wonder for quick review before completing the remaining steps.
- Go outside at school and search for seeds. What do they look, smell, and feel like? What adaptations do they have? What kinds of plants do they come from? How do they travel? Cockle burs attach to people and other mammals; winged samaras of maple trees and fluffy airborne cottonwood seeds blow in the wind; cattail seeds float on the water; buckthorn seeds are eaten and excreted by rabbits and songbirds. Save the seeds you find in the school yard or local park and tape them into a seed journal.
- Read A Tallgrass Prairie Alphabet by Claudia McGehee. Make a similar class book based on your visit to the PWLC and the species planted, using the names of as many plants as possible.
- Make a giant prairie seed out of paper Mache with the various parts labeled.
- Study plant parts such as roots, stems, leaves, seeds, flowers. Study the parts of a seed and the parts of a flower. Use coloring sheets, 3-D plastic models, puzzles, or real plants from a florist or that you grow.
- Use art materials to make the life cycle of a plant (such as seed, stems/leaves, and flowers). Or collect weed plants from your school yard and use them to make life cycle diagrams.
- How does a seed come to be? Study the process of pollination, the parts of plant involved in creating seeds, and pollinators who assist. Important prairie pollinators include bees, flies, ants, butterflies, moths, and beetles.
- Look for opportunities at school or in your community to restore native habitat or use native plants in a rain garden project.
- Borrow the Growing Native Trunk from the PWLC as a resource to grow native plants in your school yard. Use the laminated plants for classroom study. Call the PWLC to reserve it, 218-998-4480.
- Provide ways that students can share their prairie restoration experience with other students at school through poetry, drama, storytelling, artwork, etc.
- Using written material in your students’ science notebooks, share their discoveries through your parent newsletter, school newsletter, school district newsletter, or web site.
- Purchase native seed from a business. Visit the following web site on the internet for a listing of suppliers for northwest Minnesota.
http://files.dnr.state.mn.us/assistance/backyard/gardens/native_plant/suppliers_n

[orthwest.pdf](#).

- Research the ways Native Americans and pioneers used prairie plants for food, medicine, dye, rope, and other purposes. Are some prairie plants used by some Native people today? How do people use purple coneflower (*Echinacea*) in natural medicine today?

2009 Minnesota Academic Standards in Science

This lesson helps support the following state standards.

Stand 1 THE NATURE OF SCIENCE AND ENGINEERING

Substrand 1 The Practice of Science

Standard 1 Scientists work as individuals and in groups, emphasizing evidence, open communication and skepticism.

Benchmark 3.1.1.1.1 Provide evidence to support claims other than saying “Everyone knows that,” or “I just know,” and question such reasons when given by others.

Standard 2 Scientific inquiry is a set of interrelated processes incorporating multiple approaches that are used to pose questions about the natural world and investigate phenomena.

Benchmark 3.1.1.2.1 Generate questions that can be answered when scientific knowledge is combined with knowledge gained from one's own observations or investigations.

Benchmark 3.1.1.2.3 Maintain a record of observations, procedures and explanations, being careful to distinguish between actual observations and ideas about what was observed.

Benchmark 3.1.1.2.4 Construct reasonable explanations based on evidence collected from observations or experiments.

Substrand 3 Interactions Among Science, Technology Engineering, Mathematics, and Society

Standard 2 Men and women throughout the history of all cultures, including Minnesota American Indian tribes and communities, have been involved in engineering design and scientific inquiry.

Benchmark 3.1.3.2.1 Understand that everybody can use evidence to learn about the natural world, identify patterns in nature, and develop tools.

Benchmark 3.1.3.2.2 Recognize that the practice of science and/or engineering involves many different kinds of work and engages men and women of all ages and backgrounds.

Standard 4 Tools and mathematics help scientists and engineers see more, measure more accurately, and do things that they could not otherwise accomplish.

Benchmark 3.1.3.4.1 Use tools, including rulers, thermometers, magnifiers and simple balances, to improve observations and keep a record of the observations made.

2010 Minnesota Academic Standards in Language Arts

This lesson helps support the following state standards.

- Strand** READING
- Substrand** Informational Text K-5
- Standard** Analyze how and why individuals, events, and ideas develop and interact over the course of a text.
- Benchmark 3.2.3.3** Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
- Standard** Read and comprehend complex literary and informational texts independently and proficiently.
- Benchmark 3.2.10.10** By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2–3 text complexity band independently and proficiently.
- Strand** READING FOUNDATIONAL SKILLS K-5
- Substrand** Reading Foundational Skills K-5
- Standard** No anchor standards for foundational skills
- Benchmark 3.3.0.4** Read with sufficient accuracy and fluency to support comprehension.
- Strand** WRITING
- Substrand** Writing K-5
- Standard** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- Benchmark 3.6.4.4** With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose.
- Standard** Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
- Benchmark 3.6.7.7** Conduct short research projects that build knowledge about a topic.
- Standard** Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.
- Benchmark 3.6.10.10** Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
- Strand** SPEAKING, VIEWING, LISTENING, AND MEDIA LITERACY
- Substrand** Speaking, Viewing, Listening, and Media Literacy K-5
- Standard** Prepare for and participate effectively in a range of conversations and collaborations with diverse partner, building on other’s ideas and expressing their own clearly and persuasively.
- Benchmark 3.8.1.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others’ ideas and expressing their own clearly.
- a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas

under discussion.

b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).

c. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.

d. Explain their own ideas and understanding in light of the discussion.

e. Cooperate and compromise as appropriate for productive group discussion.

f. Follow multi-step oral directions.

Standard Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

Benchmark 3.8.2.2 Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

Standard Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.

Benchmark 3.8.3.3 Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.

Standard Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

Benchmark 3.8.6.6 Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.

Strand LANGUAGE

Substrand Language K-5

Standard Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

Benchmark 3.10.3.3 Use knowledge of language and its conventions when writing, speaking, reading, or listening.

a. Choose words and phrases for effect.

b. Recognize and observe differences between the conventions of spoken and written standard English.

Standard Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

Benchmark 3.10.5.5 Demonstrate understanding of word relationships and nuances in word meanings to develop word consciousness.

b. Identify real-life connections between words and their use (e.g., describe people who are friendly or helpful).

c. Distinguish shades of meaning among related words that describe states of mind or degrees of certainty (e.g., knew, believed, suspected, heard, wondered).

Standard Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing,

speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to the comprehension or expression.

Benchmark 3.10.6.6 Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships

References and Resources

Books and Web Sites for Children

- A Seed is Sleepy by Dianna Hutts Aston and Sylvia Long
- A Tallgrass Prairie Alphabet by Claudia McGehee
- A Walk in the Prairie by Rebecca L. Johnson
- How a Plant Grows by Bobbie Kalman
- How a Seed Grows by Helene J. Jordan
- Plant Secrets by Emily Goodman
- Biology of Plants, Missouri Botanical Gardens, <http://www.mbgnet.net/bioplants/>

Books and Web Sites for Teachers

- Gardening with Prairie Plants: How to Create Beautiful Native Landscapes by Sally Wasowski
- Minnesota's Natural Heritage, an Ecological Perspective by John R. Tester
- Prairie, A Natural History by Candace Savage
- Prairie Seedling and Seeding Evaluation Guide by Bonestoo Rosene Anderlik and Associates Engineers and Architects
- Restoring the Tallgrass Prairie: An Illustrated Manual for Iowa and the Upper Midwest by Shirley Shirley
- Tallgrass Prairie by John Madson
- Tallgrass Prairie Wildflowers, a Field Guide by Doug Ladd
- The Prairie Garden, 70 Native Plants You Can Grow in Town or Country by J. Rober Smith with Beatrice S. Smith
- The Tallgrass Restoration Handbook: For Prairies, Savannas, and Woodlands edited by Cornelia F. Mutel and Stephen Packard
- Wildflowers of the Tallgrass Prairie, the Upper Midwest by Sylvan T. Runkel and Dean M. Roosa
- A Digital Aid Featuring Seeds, Seedlings, and Fruits, Eastern Illinois University, <http://www.eiu.edu/~prairie/index.htm>
- Biology of Plants, How Plants Grow, <http://www.mbgnet.net/bioplants/downloads/grow.pdf>
- Earth Partnership for Schools K-12 Curriculum Guide, University of Wisconsin-Madison Arboretum, www.uwarboretum.org/education/eps or call 608-262-9925
- Grassland Management, <http://www.fws.gov/midwest/FergusFallsWetland/grassland.html>
- Native Plant List, Prairie Resource Center,

<http://www.northamericanprairies.com/PrairieRestoration.asp?page=YourSiteHistory>

- Project Bluestem, a Curriculum on Prairies and Savannas, Neal Smith National Wildlife Refuge, <http://www.tallgrass.org/activities.html>
- School Forests in Minnesota, <http://www.dnr.state.mn.us/schoolforest/index.html>

Credits

This field investigation was developed and written by Prairie Wetlands Learning Center Staff, U.S. Fish and Wildlife Service. Thanks to the following teachers for reviewing this lesson plan: Stacy Busta, Breckenridge Elementary; Lori Carstens, Fergus Falls Public Schools; Vicki Hanneman, Cleveland Elementary, Fergus Falls; and Jan Thiele, Wahpeton Central Elementary.