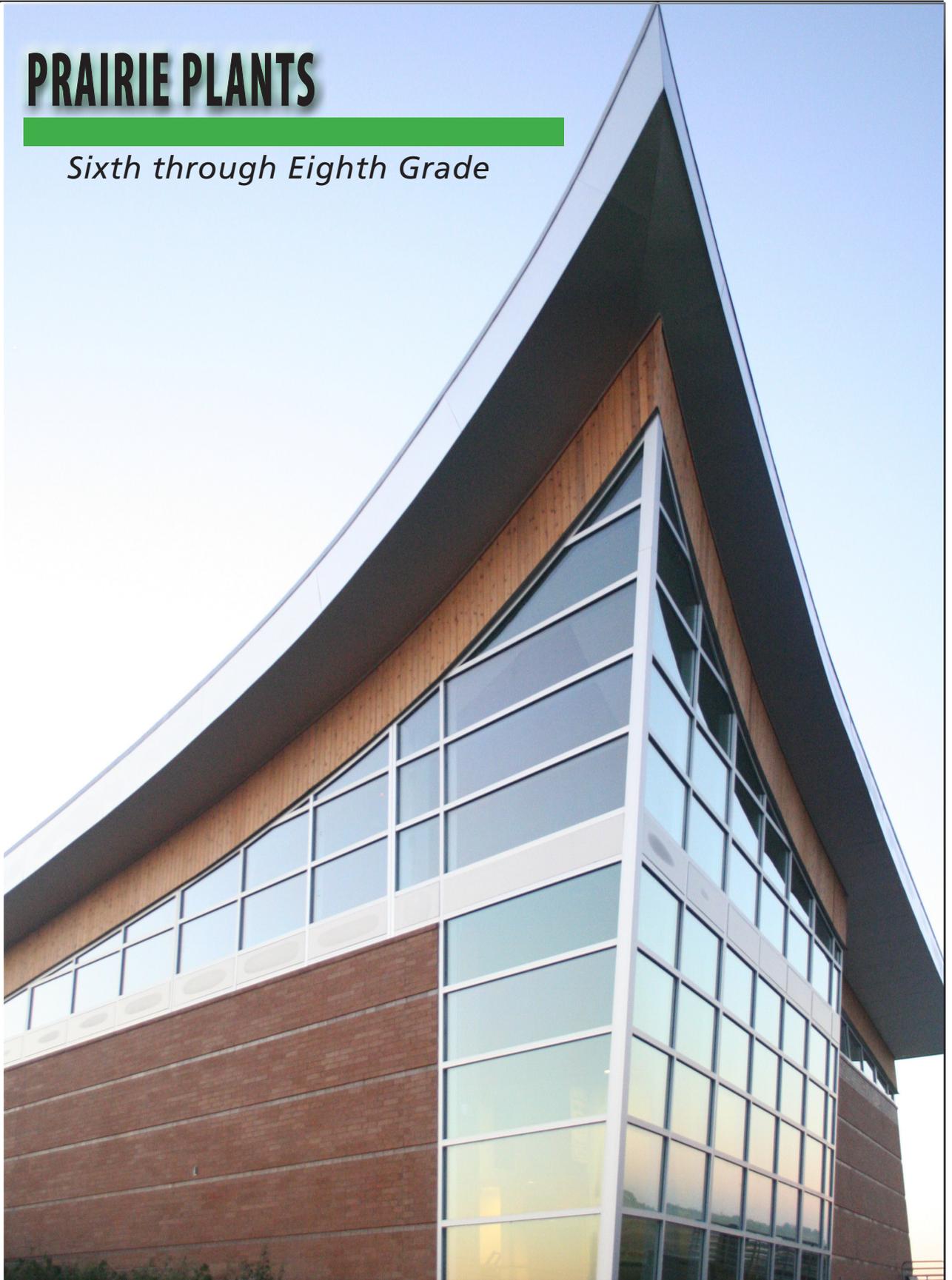


Free Land was the Cry!

PRAIRIE PLANTS

Sixth through Eighth Grade



Homestead

National Park Service
U.S. Department of the Interior

Homestead National Monument
of America, Nebraska



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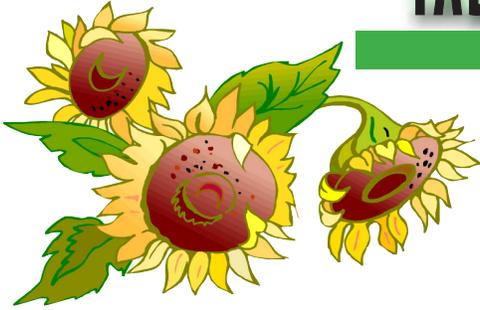
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Some of the ideas in this lesson may have been adapted from earlier, unacknowledged sources without our knowledge. If the reader believes this to be the case, please let us know, and appropriate corrections will be made. Thank you.

PROGRAM DESCRIPTION



What is a tallgrass prairie and which plant species live there? How have these species adapted to survive the harsh conditions of the prairie environment? How has the human understanding of the prairie changed over time? How have humans impacted and used prairie plants?

Activities and field experiences in this program help students answer these questions by exploring the past and future of the plants that make up the tallgrass prairie.

The geologic history of the North American continent shaped the soil and climate that forms the prairies, making a region with high humidity, intense heat, and decreased rainfall. Prairie plants adapted to these environmental conditions (for example, with roots that form a dense, rain-holding sod, and with tall

leaves and stems that catch sunlight and more water) in order to withstand heat and drought and thrive in an extremely variable climate.

People throughout history have used prairie plants: American Indian cultures found medicinal uses, for instance, and now scientists are researching plants' potential to function as bio-fuel. Human settlement of the tallgrass prairie region has contributed both to the depletion and the restoration of plants in the prairie ecosystem.

By not only studying plants on the prairie, students learn to identify species and adaptive characteristics, but they also begin to understand prairie plants within the wider contexts of ecology and environmental history.



CURRICULUM OBJECTIVES

- Students can name characteristics of prairie plants, including their adaptations to the harsh prairie environment.
- Students can describe how people throughout history have viewed and used various prairie plants.
- Students can explain how human settlement has impacted prairie plants, both in terms of depletion and restoration.
- Students can utilize various methods of research, consulting both textual and digital sources.
- Students can organize, cite, and present information learned.
- Students can explain how humans are working to restore the plants and ecosystem of the tallgrass prairie.
- Students can explore reasons for and against prairie restoration projects.
- Students can use evidence to support arguments pertaining to prairie restoration projects.

NATIONAL STANDARDS

NS.5-8.3 LIFE SCIENCE

As a result of their activities in grades 5-8, all students should develop understanding

- Structure and function in living systems
- Reproduction and heredity
- Regulation and behavior
- Populations and ecosystems
- Diversity and adaptations of organisms.

NL-ENG.K-12.7 EVALUATING DATA

- Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and nonprint texts, artifacts, people) to

communicate their discoveries in ways that suit their purpose and audience.

NL-ENG.K-12.11 PARTICIPATING IN SOCIETY

- Students participate as knowledgeable, reflective, creative, and critical members of a variety of literacy communities.

NSS-G.K-12.2 PLACES AND REGIONS

As a result of their activities in grades K-12, all students should

- Understand the physical and human characteristics of places.
- Understand that people create regions to interpret Earth's complexity.
- Understand how culture and experience influence people's perceptions of places and regions.

SPECIAL ICONS		Science 	Math 	Social Studies 	Enrichment Activities 	Language Arts 
	Indicates a reproducible handout is included	Indicates an additional science activity	Indicates an additional math lesson	Indicates an additional social studies lesson	Indicates advanced lessons	Indicates an additional language arts lesson

Pre-Visit Activity #1 (suggested)

PRAIRIE PLANTS THROUGH TIME

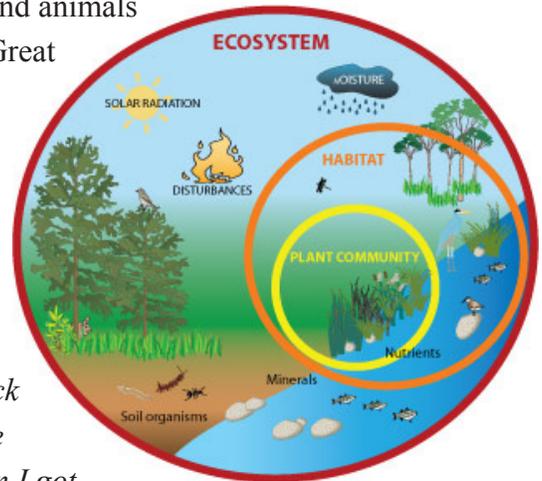
A Narrative of the “Great American Desert”

Throughout the world there are hundreds of species of plants and animals that depend upon the vast grasslands in which they live. The Great Plains of the United States is one of these grasslands, although much of the original prairie is gone. When the ecosystem of a grassland is disturbed, the prairie has to struggle to survive.

Have students read the following narrative about the prairie.

Narrative:

“When I first came out to the plains, I was very surprised. Back east they called it the “Great American Desert” - a land where nothing grew or lived except an endless sea of grass. But when I got here the grasses were just starting to sprout as it was late spring and I could see plants of all types, not just grasses. Several plants were in bloom with pretty flowers that I knew my wife would love. When she arrived with the children, the prairie violets, woodsorrels, and prairie ragworts nearly sold her on the Plains. If it weren't for the lack of trees she would have wanted to stay. And the sky, it was huge and went on forever and ever. Just prairie and sky were all I could see. I knew this place was for me, this wild and empty land of sky and prairie. By early fall, the grasses were at their full height. The horses and stock loved to graze the big and little bluestem, the Indian grass, and sideoats. In the wind, you could watch the grass wave gently across like the ocean lapping at the shore - an endless motion of grass and wind. Lately there is getting to be less and less of the tallgrasses as more homesteaders plow the land for their crops.” -Author Unknown



Ask students to define a prairie and relate it to the narrative's experience.

Using a world map in your classroom and the Prairie and Grasslands of the United States Map in the Homestead Handouts section, tell students about the different types of prairies or grasslands throughout the world.

On the world map in your classroom point out the following grasslands: African Savannah, Asian Steppes, Australian Outback, and Great Plains of North America.

Using the Prairies and Grasslands of the United States map explain that the Great Plains of North America can be defined into three different types called tall-, mid/mix-, and short-grass prairies and show where they are.



PRAIRIE PLANTS THROUGH TIME

**Pre-Visit
Activity #1
(suggested)**

Identifying Prairie Plants

Show students the Identifying Plants PowerPoint found on Homestead National Monument of America's website (www.nps.gov/home) under the For Teachers section. This will give students an idea of the plants found on the prairie at Homestead National Monument of America.

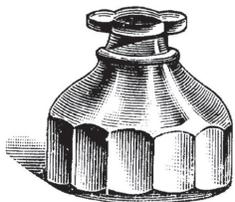
Assign individuals or small groups to collaborate on researching a single prairie plant: big blue-stem, bur oak, milkweed, etc. Using books and/or online sources, students should compile a written report, a poster display, a PowerPoint, a presentation to the class, etc.

Students should illustrate and describe the plant's features, but the main focus should be on explaining:

- 1) the plant's special adaptations to its environment
- 2) historical understandings of the use of the plant—how homesteaders viewed it, what American Indians might have used it for; and
- 3) how the plant's population has fared in the face of human settlement, as well as how and where it is being restored.



Enrichment Activities



Plant Growth Banner

Students could also complete a plant growth banner to show the life cycle of the plant through the seasons of the year. The class's banners could be lined up on the wall chronologically, to represent what a visitor to the prairie might see at any one time.

Other Activities

RANGER-LED EXPERIENCE

Seeing the Prairie Through the Homesteaders' Eyes

Homestead's Restored Tallgrass Prairie

Most of the native prairie sod in the United States was plowed up for farm land by early farmers. There still exist some scattered remnants of native prairie, but they are few. The tallgrass prairie at Homestead National Monument of America is a restored tallgrass prairie. When Congress established the site in 1936, the uplands of the monument were eroded due to continual plowing and the drought of the 1930s. The National Park Service decided to restore the tallgrass prairie to give visitors an idea of what homesteaders found in the "Great American Desert." The restoration continues and the National Park Service manages this area as a prairie.

Take students to visit Homestead National Monument of America's prairie preserve or to another local prairie preserve. Have students find and examine samples of plants that students researched from their Pre-Visit Activity. Students should look at samples of other plants to find clues about their responses to the environment.

Note: Explain to students that they cannot pick or remove any plants from the Monument as it is a protected area. Explain that if we let

everyone who came to visit the Monument pick a grass or a forb, then eventually there would be none left. Ask students if they can think of other reasons why not to pick the plants on the prairie.

Divide the students into two groups. Each group will be given a Prairie Identification Fact Sheet. Instruct students that they will be required to locate each of the grasses/plants listed on their sheet. Have one student from each group record the type of plant found, the location, and a brief description. Have students draw one plant that they found on the prairie



and label it. Drawing a plant helps students to notice the type of stem, shape and location of leaves, and the seed head/flower of a plant. You may choose to have students use a camera to photograph the plants.

An additional activity would be to have students bring a notebook or sketchbook to record their thoughts and observations. As they enter the prairie and walk through it, ask them to write or draw their reactions. For example: What do you see, smell, hear, touch? What plants can you identify? What emotions do you feel? What about this place attracts you?



Homestead National Monument of America is proud to be a pioneer in distance learning technology.

Contact the Education Coordinator at (402) 223-3514 to schedule your virtual field trip on Prairie Plants.

YOUR PRAIRIE EXPERIENCE

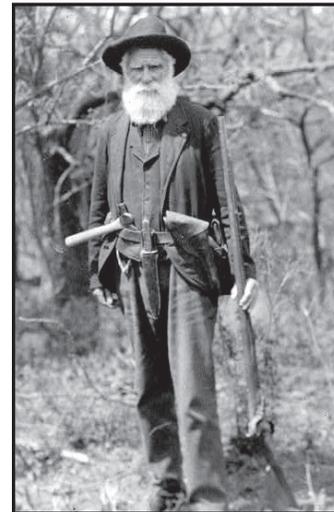
Post-Visit Activity #1 (suggested)

Tell Your Prairie Story

After the field trip ask each group to report what their group discovered on the prairie.

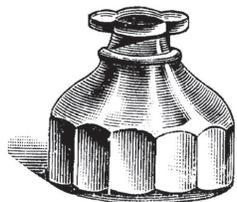
Discuss where they found the plant they chose to draw or photograph and why they found it growing in that location.

Have students display their drawings or photos. Students could create a bulletin board on prairie plants for the entire school, a local library or any other community facility.



Have students use their field notes/sketches and their ideas from class discussion to write a short essay comparing and contrasting their reaction to the prairie with that of homesteaders like Daniel Freeman. For more information on Daniel Freeman visit www.nps.gov/home.

Enrichment Activities



Just Imagine

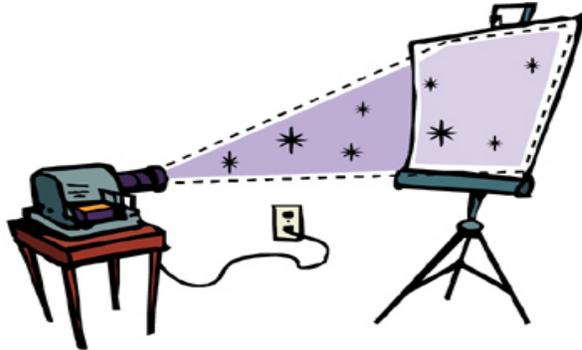
Ask students to extend their response by imagining they are arriving on the prairie for the first time in the nineteenth century. For example, ask: "If you knew you had to find food and make a home here, how might your reaction change? Would you notice or feel different things?"

Other Activities

Post-Visit Activity #2 (suggested)

ADVOCATING FOR PRAIRIE PLANTS

Show students a film about the prairie, such as *America's Lost Landscape: The Tallgrass Prairie* and discuss.



Using the information presented in the film, what students have learned at Homestead National Monument of America, and their research into a particular plant, have students construct arguments pertaining to prairie restoration projects. For example, students could create an argument in the form of a letter to the editor, an op-ed, or a persuasive essay.

Topics could center around:

- a local prairie restoration issue
- why Great Plains citizens should support prairie restoration
- why new prairie preserves should be established
- why certain plants need to be protected, valued, or studied.



CHARACTER EDUCATION

CARING

Caring students help, give, love, and are kind. You can tell a person is caring by what she or he does. They are caretakers of people, pets, plants, possessions and our planet, Earth.

In a letter home to Missouri in 1852, twelve year old Elizabeth Keegan wrote:

“(The trail) is beautiful and the scenery surpassing anything of the kind I have ever seen - large rolling prairies stretching as far as your eye can carry you. The grass so green and flowers of every description from violets to geraniums of the richest hue.”

5 Minute Focus

Write a paragraph or poem about a part of nature you see on your way to school.

ADDITIONAL RESOURCES

America's Lost Landscape: The Tallgrass Prairie. 60 minutes, directed by David O'Shields, produced by David O'Shields and Daryl Smith, photographed by William Carlson, edited by Clayton Condit, music by Brian Keane, narrated by Annabeth Gish, 2005, Bullfrog films. 60 minutes.

<http://www.lostlandscapefilm.com/lostland/>

Bell Museum's Prairie Plant Uses:

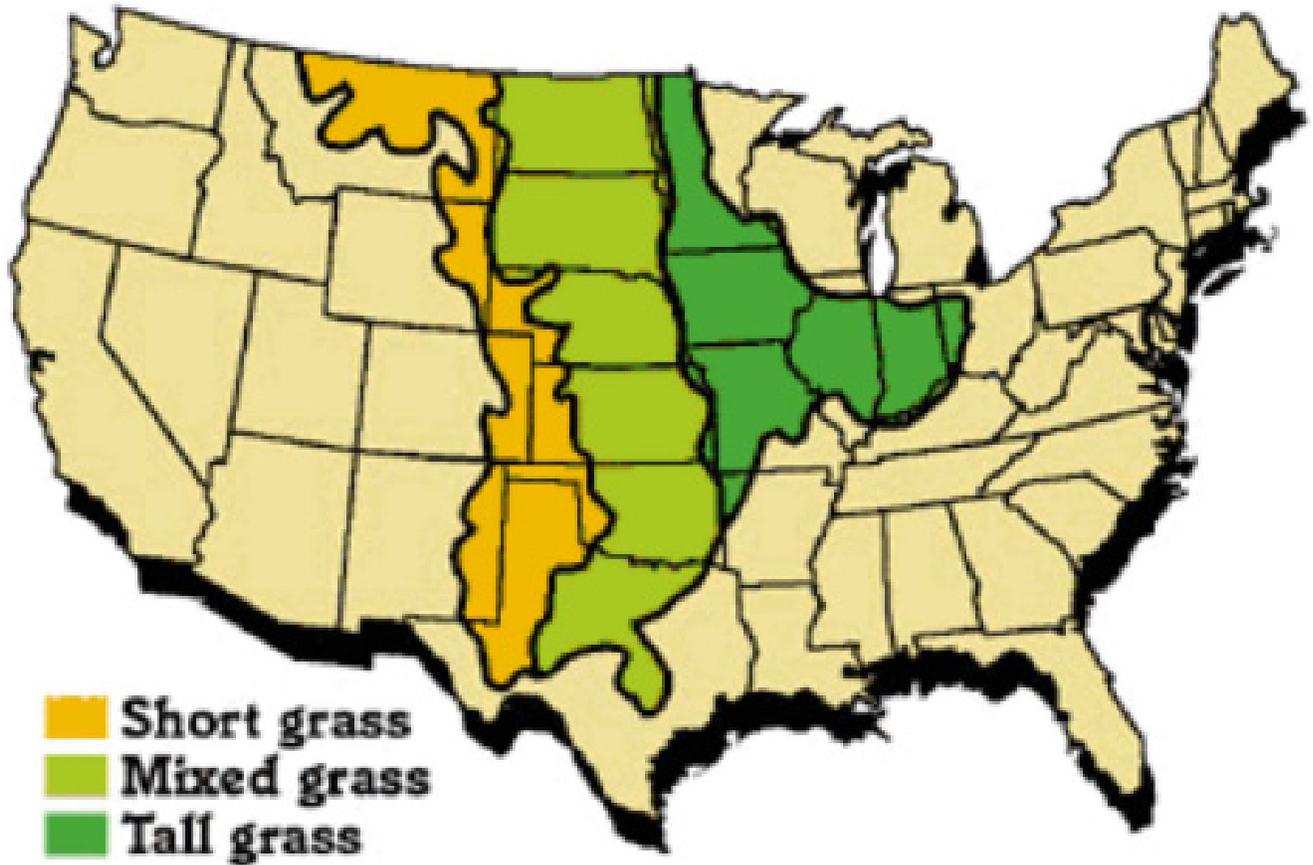
www.bellmuseum.org/distancelearning/prairie/plant_activity.pdf

Describes uses of different species, and includes safe recipes for a salad and insect sting poultice.

<http://herb.umd.umich.edu/>

Ethnobotany site; input prairie plant names, database returns American Indian uses for the plant, along with tribal affiliation.

Prairie and Grasslands of the United States



PRAIRIE IDENTIFICATION FACT SHEET



Big Bluestem: (King of the Prairie) The most dominant of the tall grasses, it grows up to 12 feet high; it is also called “turkey foot” because of its three branched seed head. It is often called the “ice cream” of grasses because cattle like it so well. Homesteaders found corn grew best where this had grown. The bluish color of its stems gives it the name.



Indian Grass: Named after the American Indian, this grass is golden-brown with plume-like seed masses. It grows up to 6 feet tall in varied soils. When in bloom, the bright yellow stamens give it a feathery appearance. It is very nutritious and is excellent hay for winter feeding.

It is the state grass of Oklahoma.



Little Bluestem: Smaller than its relative, big bluestem, it is a bunchgrass and has a striking reddish-tan fall color.

It is the state grass of Nebraska.

PRAIRIE IDENTIFICATION FACT SHEET



Prairie Dropseed: It is a beautiful ‘clump’ grass found in high-quality prairies throughout the region. It is readily identified by its narrow, long leaves, rarely wider than 1/8 inch, which spring from the soil and fall to the ground like a smooth waterfall. Dropseed leaves grow densely around a circular base. They vary in color from green to steely blue-gray, and grow up to 3 feet long.



Sideoats Grama: Growing up to 3 feet high, this grass receives its name from its seeds which tend to hang down on one side of the stem. It turns a beautiful reddish-white after the first frost.

It is the state grass of Texas.



Switchgrass: A common grass in low areas, it has an open seed head and may reach 10 feet in height. It is often cut for hay. Clumps of switchgrass were carefully avoided when American Indians cut up their meat. If the meat was laid on it, sharp glumes from the seeds would stick to it and then get caught in their throats when eaten.

PRAIRIE IDENTIFICATION FACT SHEET



Blackeyed Susan: Its leaves were dried and brewed as a kidney remedy by early Americans. Recent research indicates that it may have antibiotic properties.



Daisy Fleabane: The term “bane” refers to death. This plant’s name comes from the belief that if it were dried and stuffed in mattresses it would kill or repel fleas.



Evening Primrose: This plant is a food staple of Goldfinches. The leaves can be eaten as cooked greens. The boiled roots taste like parsnips.

PRAIRIE IDENTIFICATION FACT SHEET



Heath Aster: The inflorescence (flower head) looks like tiny stars. The word “aster” is derived from a Greek word meaning star.



Late Goldenrod: The state flower of Nebraska, this member of the sunflower family has a plume-shaped flower head.



Rigid Goldenrod: Goldenrod species have a rubbery sap from which Thomas Edison had hoped to make a rubber substitute. These plants are incorrectly blamed for causing hay fever and allergies, which are really the reaction to the pollen of ragweed and other plants.

PRAIRIE IDENTIFICATION FACT SHEET



Rough Grayfeather: It grows well in dry, sandy areas. Its corm root system stores water and nutrients.



Round Head Lespedeza: This plant is a member of the legume (bean or pea) family which enriches the soils nitrogen level. The seed heads are used in dried bouquet arrangements.



Showy Partridge Pea: Small bean or pea-like pods of this plant will “explode” or forcibly release their tiny brown seeds when ripe.



Upright Prairie Coneflower: The Ogalalla Sioux Indians brewed a tea-like beverage from this plant. Its name refers to the cone, or column of tiny flowers in the center of the flower head.