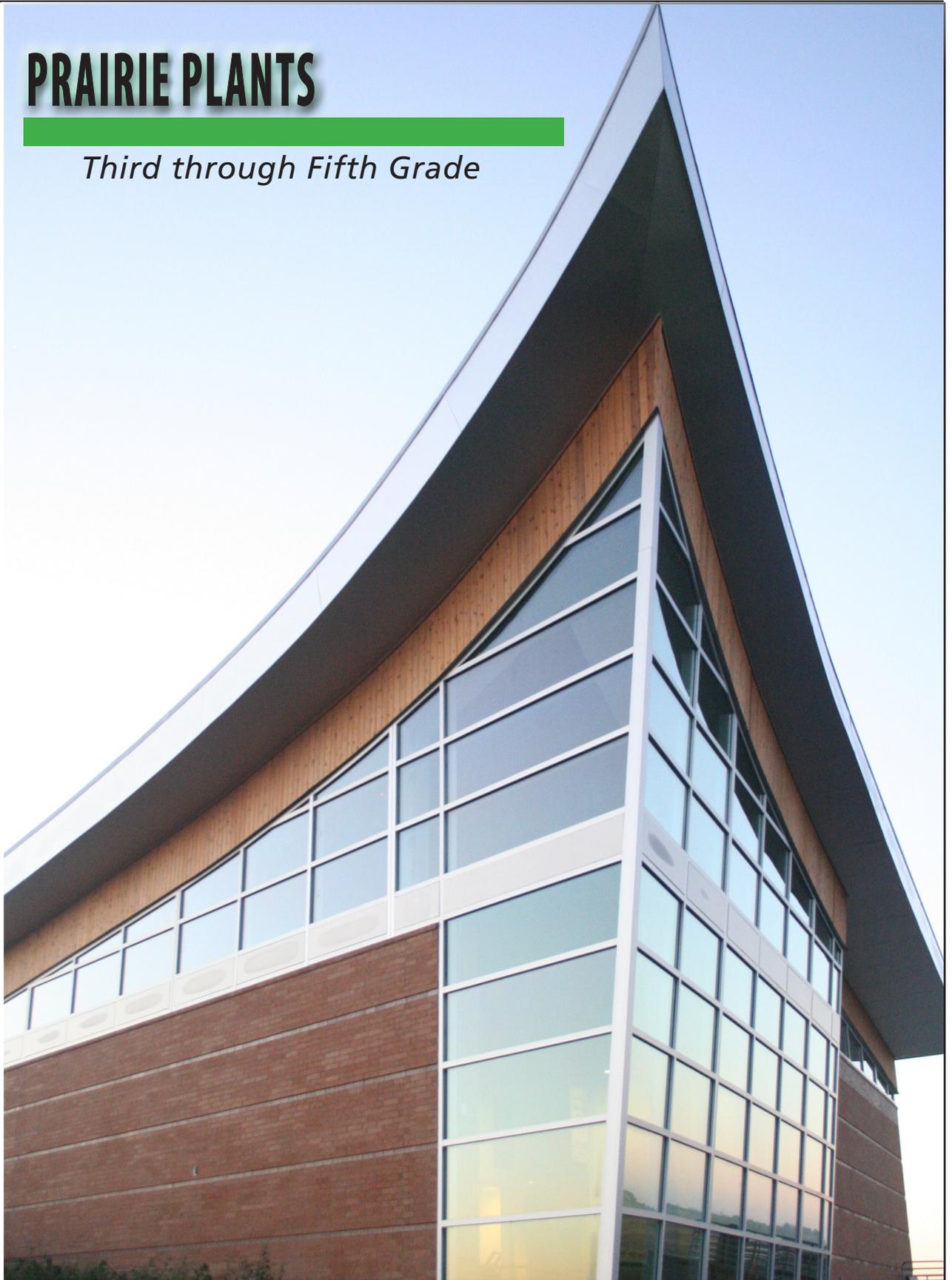


Free Land was the Cry!

PRAIRIE PLANTS

Third through Fifth Grade



Homestead

National Park Service
U.S. Department of the Interior

Homestead National Monument
of America, Nebraska



ACKNOWLEDGEMENTS

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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?

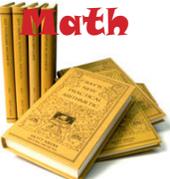
Activities and field experiences in this program help students answer these questions by exploring the past and future of the plants that make up the tallgrass prairie.

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 ex-

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

SPECIAL ICONS	 Homestead Handout	 Science	 Math	 Social Studies	 <i>Enrichment Activities</i>	 <i>Language Arts</i>
	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

CURRICULUM OBJECTIVES

- Students can differentiate between types of plants that live on the prairie.
- Students can identify characteristics of different categories of prairie plants, and name plant species within each category.
- Students can obtain information from a variety of sources, both textual and digital.
- Students can organize and present information learned.
- Students will identify what plants homesteaders saw when first encountering the prairie.
- Students will use historical information to explore homesteaders reactions to the prairie landscape.
- Students will explore their own sensory reaction to the prairie and compare and contrast this with the reaction they imagine homesteaders might have had.
- Students will use a narrative form to share what they know about life on or near the prairie.
- Students will be able to understand that a prairie is a unique and special ecosystem.
- Students will be able to name two things that help the prairie to function.

NATIONAL STANDARDS

NS.K-4.3 LIFE SCIENCE

As a result of activities in grades K-4, all students should develop understanding of

- The characteristics of organisms
- Life cycles of organisms
- Organisms and environments.

NS.5-8.3 LIFE SCIENCE

As a result of activities in grades K-4, all students should develop understanding of

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

NL-ENG.K-12.6 APPLYING KNOWLEDGE

- Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language, and genre to create, critique, and discuss print and nonprint texts.

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-USH.K-4.2 THE HISTORY OF STUDENTS' OWN STATE OR REGION

- Understands the people, events, problems, and ideas that were significant in creating the history of their state.

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

Pre-Visit Activity #1 (suggested)

THE PRAIRIE ECOSYSTEM

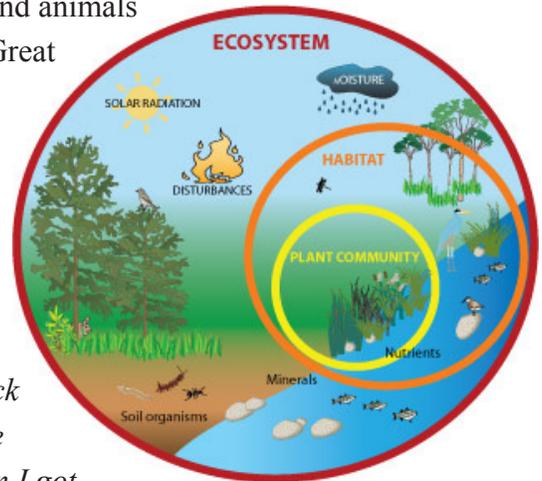
A Narrative of the “Great American Desert”

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 gramma. 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

Pre-Visit Activity #2 (suggested)

Identifying Prairie Plants

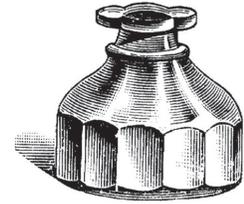
The prairie has a variety of plants besides grasses. This variety is called biodiversity. Have students work in small groups to research categories of prairie plants, such as grasses, forbs, and woody plants. Students should consult guidebooks and search for online photos and videos.

Have students compile characteristics of plants in their categories, as well as examples of specific species. Students should record their sources and prepare a report to share with the class, in the form of an oral presentation, a Powerpoint, a poster display, etc.



Show the students the *Identifying Plants*. This PowerPoint is on Homestead National Monument of America's website (www.nps.gov/home) under the For Teachers tab. Have students identify the categories of plants found on the prairie at Homestead National Monument of America.

Enrichment Activities



Divide the class into the following ecosystems: wetlands, old growth forest, rain forest, deserts. Have students send for information on their ecosystem to an organization that deals with what is happening to that ecosystem. Report their findings back to the class.

Science



Have students practice their plant identification skills by playing the Bell Museum's Build a Prairie Interactive Game: <http://bit.ly/d3Y6mA>

Other Activities

Seeing the Prairie Through 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.

Using pictures or herbarium specimens on-site, show the students some grasses and forbs of the prairie. Explain the differences between a grass and a forb (wildflower or non-grass plant).

Many museums and plant collection agencies preserve specimens for identification purposes.

This type of specimen is called a herbarium specimen.

Note: Explain to students that they can not 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.



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

Write Your Prairie Story

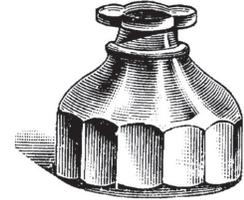
There are several stories written about encountering the prairie, such as *Matthew's Meadow*, *Heartland: A Prairie Sampler*, and *One Day in the Prairie*. Have students read one of them and discuss the main character's experiences. There are more books listed in the Additional Resources section.



Students could also write their own prairie story. Based on their own experiences, have them write a story in which they explain life on the prairie to someone who does not know about the prairie. Students should be sure to include information about the plants, climate, and soil that makes up the prairie, as well as the animals and peoples who have inhabited this space. Students could also illustrate their story.

Post-Visit Activity #1 (suggested)

Enrichment Activities



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, at a local library or any other community facility.

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.

5 Minute Focus

A young girl was traveling the Oregon Trail with her family. They camped by a stream one day for her mother to wash the clothing and bedding. The girl and her sister explored the prairie land and collected wild flowers.

Go outside and choose a wild flower or tree to draw.

ADDITIONAL RESOURCES

Bannatyne-Cugnet, Jo. *Heartland: A Prairie Sampler*. Toronto: Tundra, 2005.

Bell Museum. Build a Prairie Interactive Online Game: <http://bit.ly/d3Y6mA>

Bliss, Corinne Demass. *Matthew's Meadow*. Sandpiper, 1997.

George, Jean Craighead. *One Day in the Prairie*. New York: HarperCollins, 1996.

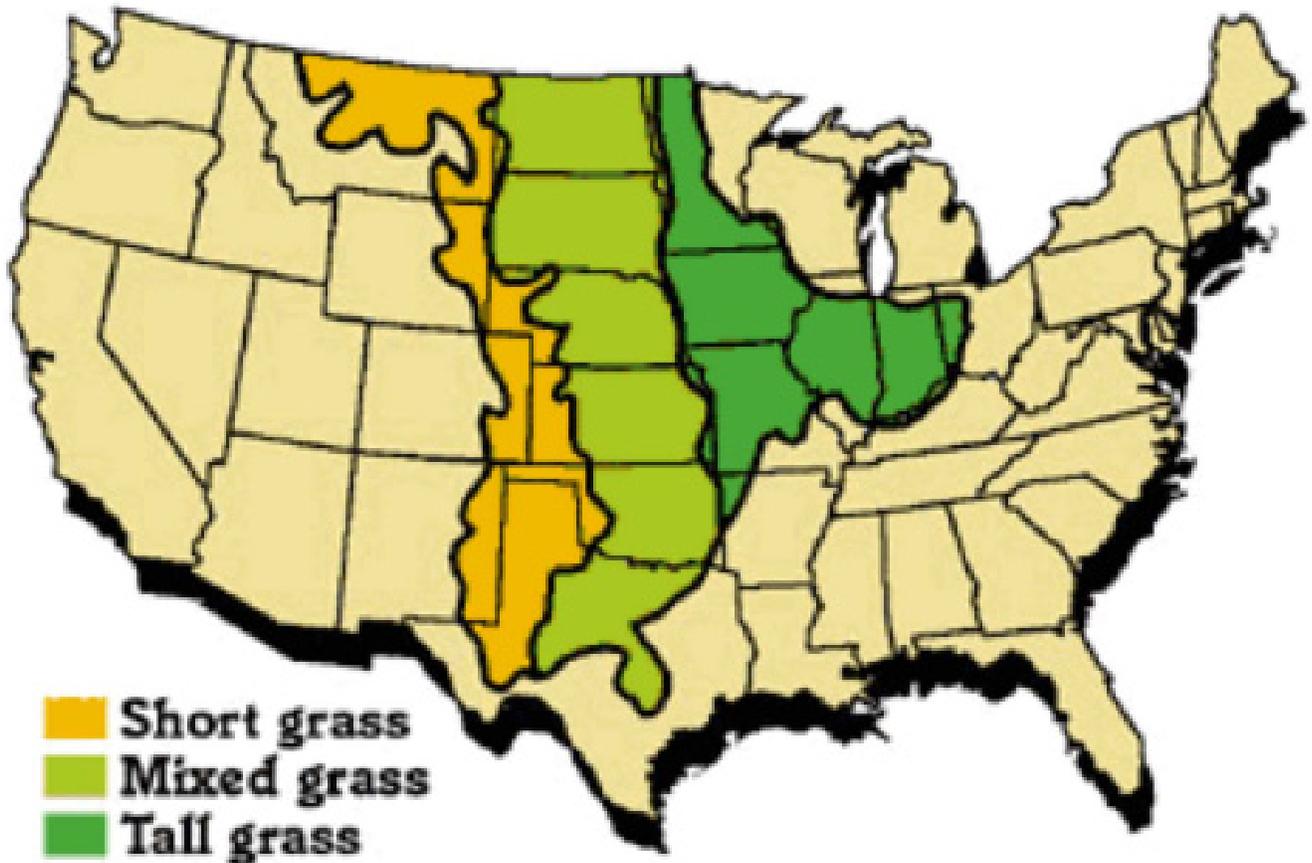
Jackson, Kay. *Explore the Grasslands* (Explore the Biomes Series). Mankato: Capstone Press, 2007.

Johnson, Rebecca L. *A Walk in the Prairie* (Biomes of North America). Minneapolis: Carolrhoda Books, 2001.

Mader, Jean. *Living on a Prairie* (Rookie Read-Aloud Geography). New York: Children's Press, 2004.

Wallace, Marianne D. *America's Prairies and Grasslands: Guide to Plants and Animals*. Golden: Fulcrum, 2001.

Prairie and Grasslands of the U.S.



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.



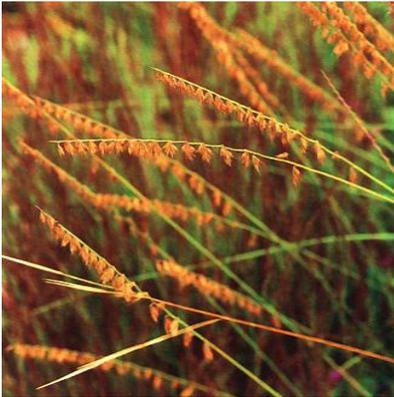
Little Bluestem: Smaller than its relative, big bluestem, it is a bunchgrass and has a striking reddish-tan fall color.

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.