SDSU Extension

New Ranger Guide

to South Dakota Rangeland

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New Rangers Guide to South Dakota Rangeland

Plenty to Learn

Rangelands and grasslands are important South Dakota resources. Ranchers depend on grazinglands to provide feed for their cattle. Rangelands also provide habitat for wildlife and recreation areas for people. Careful management is necessary to use this natural resource wisely.

Rangelands are lands that are useful for grazing livestock or wildlife foraging. The plants found on rangelands are grasses, grass-like plants, forbs, and shrubs. In South Dakota, our rangelands are both natural and introduced grasslands, woodlands, and forests.

Before you get started with Rangeland Days, you may want to take the Range Quiz on the next page. After Rangeland Days, take the quiz again. If you don't know an answer to a question, make it a goal to find out, to see if you have learned some things that have changed your answers.

If you want to learn more about rangeland plants, enroll in the 4-H range project, and exhibit your growing plant collection at your county's 4-H Achievement Days. To learn more about 4-H, visit extension.sdstate.edu.

Most of all, enjoy your study of South Dakota's rangelands!

Range Quiz

The quiz consists of fill-in-the-blank, multiple-choice, and true-or-false questions.

1. Name a grass that is common in your area. _____

2. Name four parts of a plant.

   _____ _____

   _____ _____

3. About how many different grasses and plants grow on South Dakota rangelands?

   a. 20-29 b. 30-49 c. 50-100 d. more than 100

Indicate whether the following statements are true or false.

4. T or F Plants have only one name.
5. T or F All range plants are grasses.
6. T or F Grouse nest in grass that is short.
7. T or F All plants have the same parts.
8. T or F Some plants are closely related.
9. T or F The proper way to collect a grass specimen is to pull it.
10. T or F Weather can change the kind of plants that grow in an area.
11. T or F Range plants begin growing at the same time each spring and stop growing at the same time in the fall.
12. T or F New plants can be grown only from seed.
13. T or F Grazing animals will eat some kinds of range plants more than others.
14. T or F Plant specimens should be mounted before they dry.
15. T or F Unfamiliar plants are impossible to identify.
16. T or F All important grasses are native to North America.
17. T or F Rangeland can be managed for higher production.
18. T or F Range plants may live for many years.
19. T or F Some native range plants are poisonous to livestock and to humans.
20. T or F Some native range plants have edible parts.

You'll find answers to these questions as you study during Rangeland Days.

Parts of Plants

You have probably found plants you couldn't name. You can use a plant identification key to find out the names of the ones you don't know. However, before you can use a key, you need to know the parts of a plant.

Like your body, a plant is made up of many different parts. Each part has a different job or function.

The underground parts of plants are very important. The **root** takes up both nutrients and water from the soil and anchors the plant firmly in place. Some plants have **rhizomes**. These are special underground stems used to establish new plants nearby. Perennial plants store food in their underground parts (the **crown**, roots, and rhizomes) to help them live through the winter and start growth again in the spring.

A stem performs several functions. Tiny tubes inside the stem carry food and water between the roots and the leaves. Stems also provide a structure for leaves to grow from. Plants get most of their height from their stems, which is important because the tallest plants capture the most sunlight. Some plants have special stems called stolons. Stolons grow on top of the soil and allow the old plant to clone itself into new plants.

Leaves capture the sunlight, which provides most of the energy that plants use. Plants use sunlight to make sugar and other foods from water, soil nutrients (such as nitrogen), and a gas in the air called carbon dioxide. This process is known as **photosynthesis**.

Much of the food made by the plant is used to produce the flower, or seedhead. Mature seeds fall from the flower and grow into new plants—if they aren't eaten first.

The main plant parts—stems, leaves, and **flowers**—are made up of smaller parts. Different species of plants have different combinations of these smaller parts. The shape and appearance of the parts are important clues in identifying all plants.

Focusing on Grass

All grass leaves have a **blade**. It is the long, thin part we call the leaf. The leaf also has a **sheath**, which wraps around the stem. The blade is attached to the top of the sheath. Nutrients and plant food move between the stem and the leaves through the base of the sheath.

Several other parts may be found where the blade and sheath join. This area is called the **collar** because it looks like the collar of a shirt. A small flap, the **ligule**, is sometimes found between the blade and the sheath, where the back of a shirt collar would stick up. The ligule may be a row of hairs, or it may look like a tiny piece of tissue paper. At the front of the collar, some grasses have two more flaps, like shirt lapels, called **auricles**. A hand lens or magnifying glass may help you see these smaller parts when you examine grasses.

The grass **stem** consists of two main parts: **nodes** and **internodes**. The nodes are hard, solid knots or bumps, while the internodes are the long, hollow lengths between the nodes.

The flower (seedhead) is also made up of many smaller parts. You would definitely need a microscope or a hand lens to study the parts of the seedhead. However, most of the plants you will be identifying will not require you to learn the parts of the flower.

Review the description of each plant part. Now match the parts on the drawing to the part names listed. Check your answers in the back.

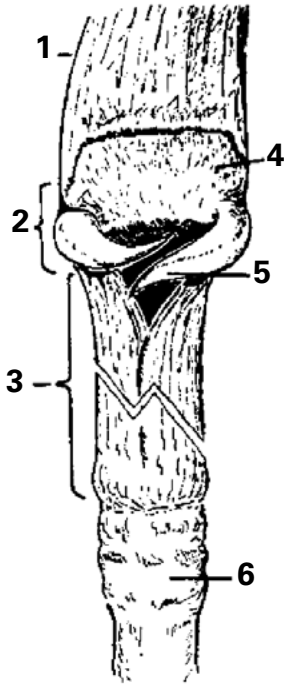
Find one or two grass plants you can name. Use a key to identify them. How did knowing where to look for each part help you identify the plants?

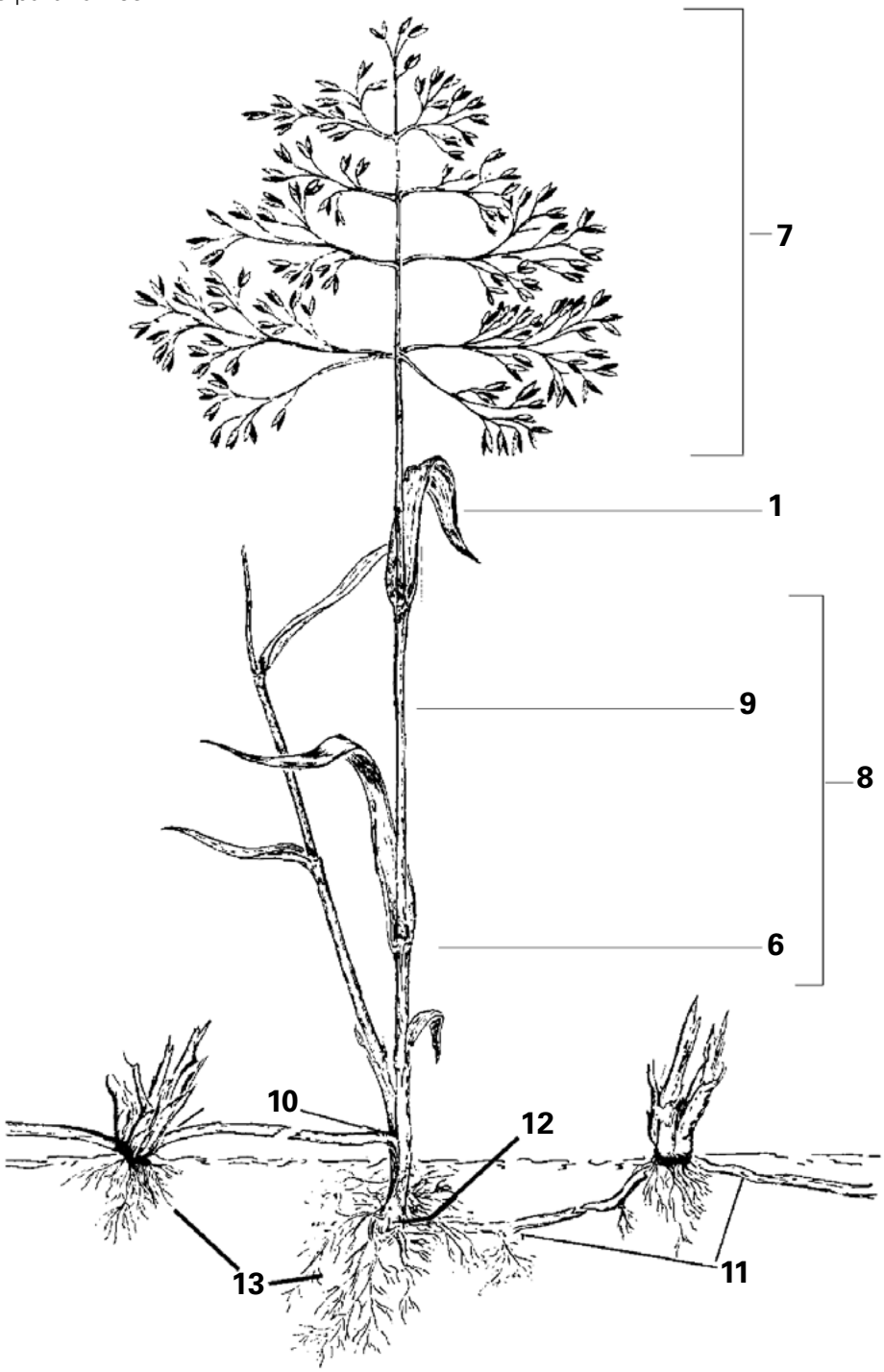
_____

_____

Match the number with the grass part names.

a. crown _____
b. leaf blade _____
c. node _____
d. rhizome _____
e. collar _____
f. internode _____
g. flower _____
h. auricle _____
i. stolon _____
j. leaf sheath _____
k. ligule _____
l. stem _____
m. roots _____





Characteristics of Common Grassland Plants

Why Do We Need to Identify Plants?

Many people are interested in learning plant characteristics and plant names. Here are some of the more common reasons:

1. To satisfy a general curiosity. Usually, the first question that comes to mind when we see a new or strange plant is, "Now, what is that plant called?"
2. To be able to talk or write about the plant. It simply makes life more interesting and fun when we can talk to others about plants that are important to us in our daily lives.
3. To be able to look up information about plants. Many books and Web pages are filled with facts about plants. They can tell us lots of interesting things about plants.

Once we have answered the question "What is the name of that plant?" then we have the information necessary to ask, "What good is it; what is it used for?"

Scientific and Common Names

Each plant has two names: its scientific name and its common name. The scientific name always has two parts. The first part tells what genus the plant belongs to, and the second part tells what species it is. Each plant can have only one scientific name and is the same throughout the world. The scientific name for **breadroot scurfpea** is ***Psoralea esculenta***. *Psoralea* tells what genus the plant belongs to, and esculenta tells what species it is. New Rangers only need to know the common names of the plants studied.

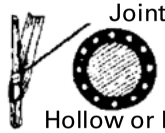
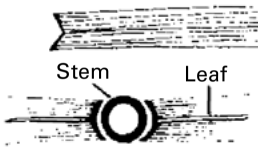
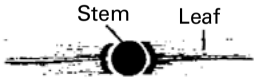
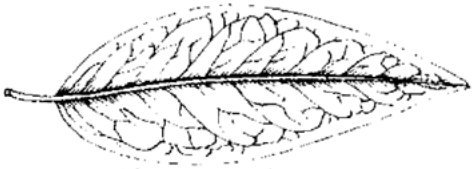
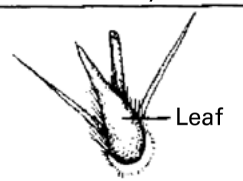
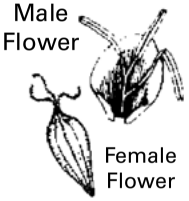
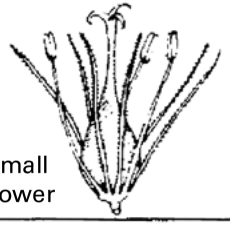
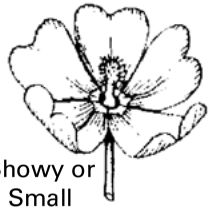
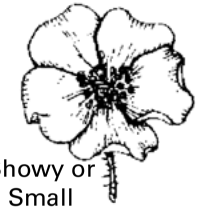
Unlike their single scientific name, plants are often given more than one common name. **Breadroot scurfpea** is also called **Indian breadroot**, **prairie turnip**, or **tipsin**. All four common names are acceptable, but there can be confusion because there are similar plants with similar names; that is where scientific names become important. The scientific name applies to only one plant species.

Kinds of Range Plants

There are several hundred different plants on South Dakota rangelands. Each is a different species. If you can learn to recognize the most common range plants, you also can learn which plants are weeds or are poisonous or are important to wildlife.

Because there are so many different kinds of range plants, it helps to group them based on appearance and growth habits. The four main groups of range plants are **grasses**, **grass-likes** (sedges and rushes), **forbs**, and **shrubs**. **Succulents** are sometimes placed with forbs, as we have done with the pricklypear. The diagram on the following page will help you to compare the different groups of range plants. Knowing these groups will help you identify plants that you don't know.

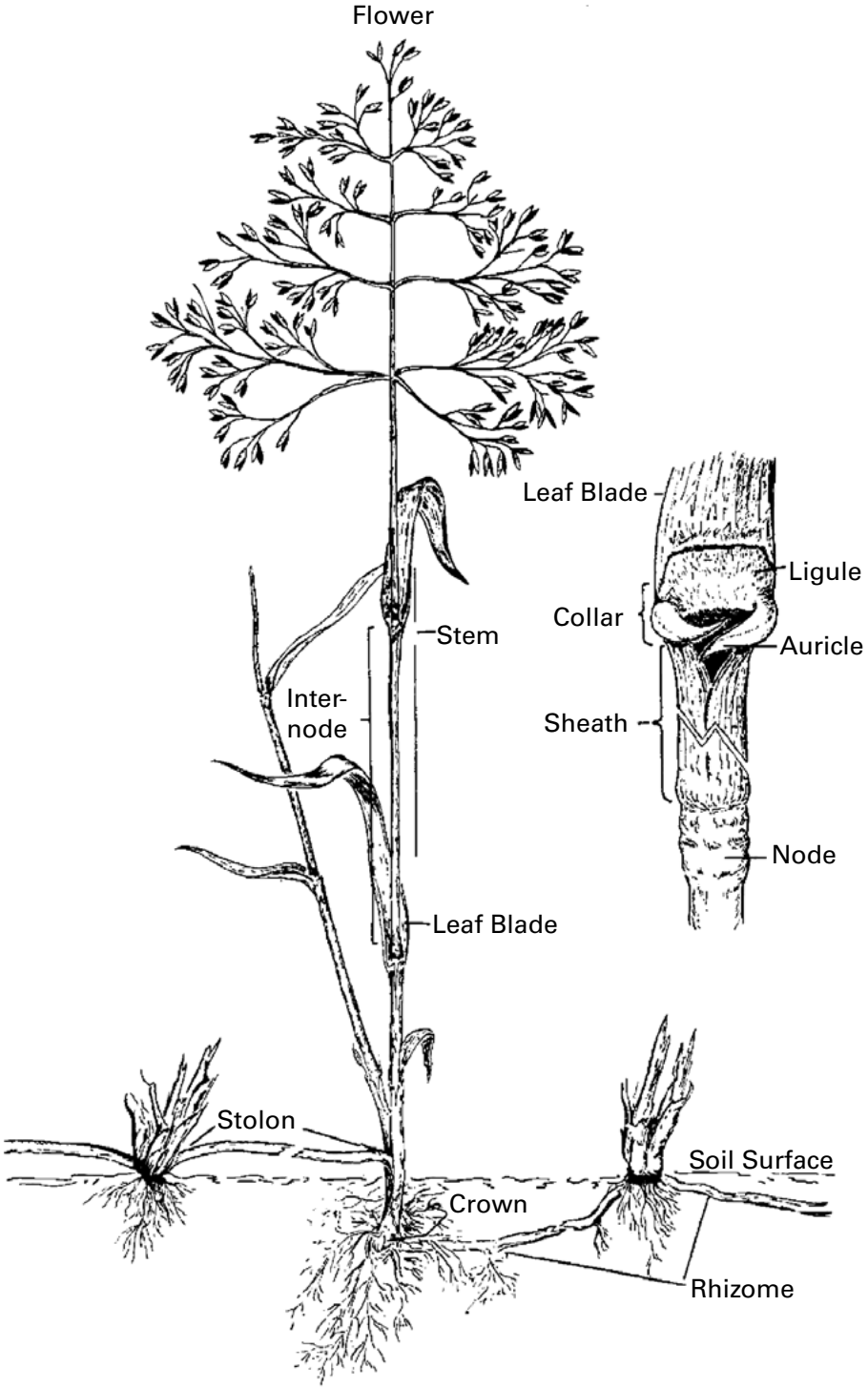
Comparing Plant Groups

	Grasses	Grasslikes		Forbes	Shrubs	Succulents
Stems	 Jointed Hollow or Pithy	 Solid, not Jointed		 Solid or Pithy	 Growth Rings Solid	 Fleshy
Leaves	 Veins or Parallel Stem Leaf Leaves on 2 Sides	 Stem Leaf Leaves on 3 Sides	 Stem Leaf Leaves on 2 Sides	 Veins are Pinnate (Netlike)		 Leaf Small, seldom present
Flowers	 Floret	 Male Flower Female Flower	 Small Flower	 Showy or Small	 Showy or Small	 Showy
Examples	 Western wheatgrass	 Threadleaf sedge	 American bulrush	 Scarlet Globemallow	 Prairie wildrose	 Plains pricklypear

Grasses

Grasses have jointed stems. Stems are often hollow between joints. The leaves are in two rows on the stem. The veins in leaves are parallel. Examples: western wheatgrass, annual brome, blue grama, and little bluestem.

Here is a diagram of the important parts of a grass plant:



Sedges and Grass-likes

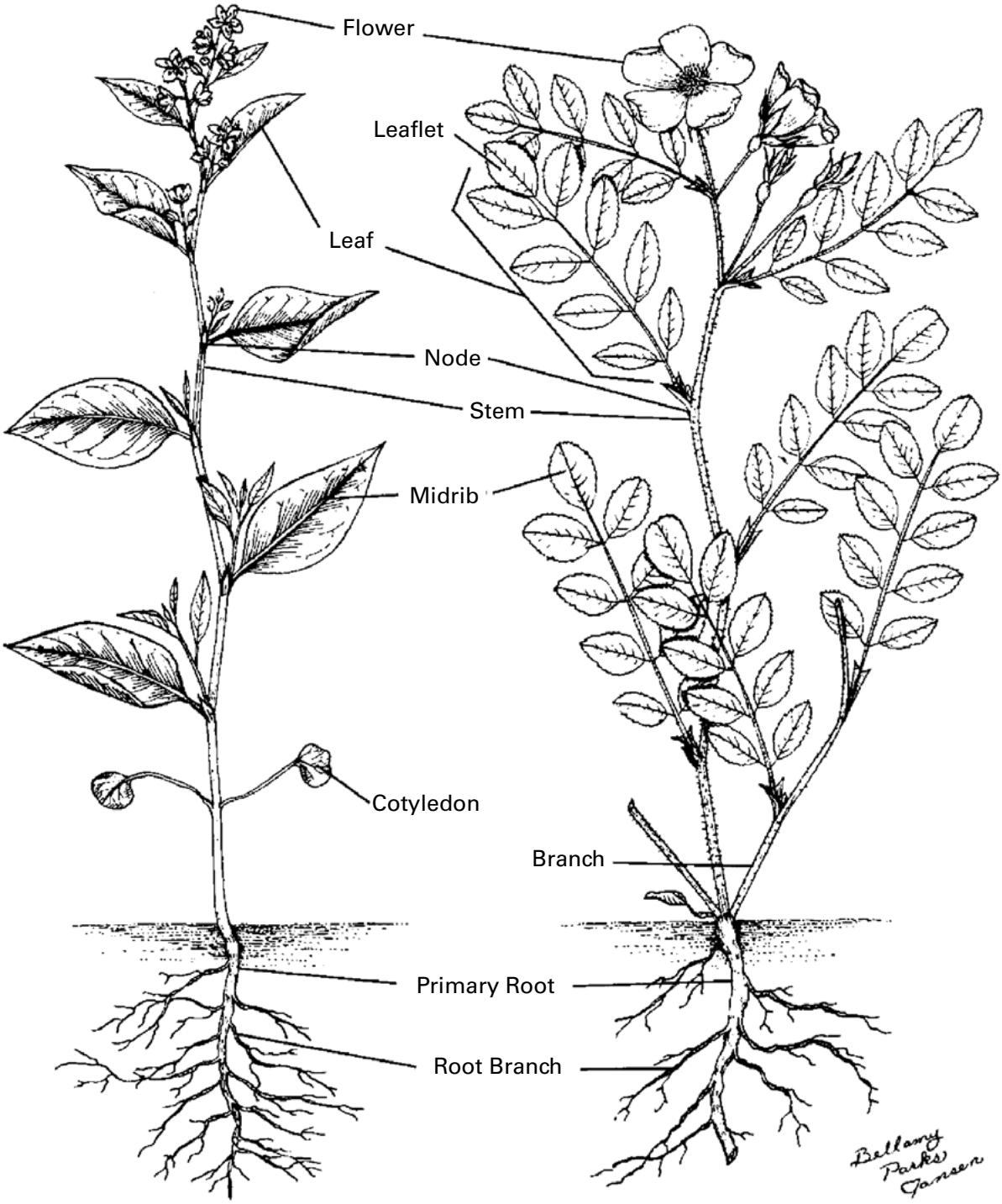
Sedges look like grasses, but the stems are solid (not hollow). Sedges have triangular stems and leaves with parallel veins. Stems do not have joints (nodes). For New Rangers, all sedges are put together and are simply called "sedges."

Forbs

Many forbs have showy flowers. Their leaves have veins that spread out like a net, usually with a main vein going down the middle (like a tree leaf). Forbs are often called weeds, but most are not. If a plant is not a weed, it is a desirable plant. Perennial forbs die back to the ground each year. We have included the succulent pricklypear in this group. Examples: goldenrods, fringed sagewort, prairie clover, sweetclover, and leafy spurge.

Shrubs

Shrubs have woody stems and leaves much like forbs. Stems can live for several years, even though most shrubs' leaves fall off each winter. Examples: leadplant, western snowberry, and chokecherry.



Other Interesting Plant Characteristics

Life Span

Plants live from a few days to hundreds of years. Most range plants live for several years. The length of time a plant lives is called its life span.

3 years or more: **Perennials** live from a few years to many years. They typically overwinter and withstand droughts by living on stored food in roots, crowns, or stems. Examples: big bluestem, pasqueflower, yucca.

2 years: **Biennials** complete their life cycle in two years and then die. Seed is produced in the second year. Examples: sweetclover, common mullein.

1 year: **Annual plants** live for less than one year. Sometimes only a few weeks pass by from the time a seed sprouts until its plant produces seed and the plant dies. Some annuals start to grow in the fall, completing their growth the next year. Examples: annual brome, annual sunflower.

Season of Growth

Plants begin growth in the spring when the soil warms. Some plants begin growth early, when soil temperatures are still quite cool. **Cool-season** plants make their principal growth in the spring, and some in the fall, if moisture is available. **Warm-season** plants begin growth in late spring, when the soil is warmer, and make their principal growth in the summer. Native pastures have both cool-season and warm-season plants and provide excellent grazing throughout the year, when properly grazed.

Poisonous

Some range plants are poisonous if eaten by grazing animals. Others are poisonous when eaten by humans. **Remember: Never eat a plant unless your parent or teacher tells you that it is safe!**

Medicinal Value

Many range plants **historically** have been used to treat all sorts of human ailments. North American Indians and European settlers made good use of range plants for many herbal medicines. Today, interest is growing in herbal medicines produced from range plants. The use of range plants for this field is expanding.

Edible for Humans

Many range plants have been used for human food. You may be familiar with chokecherry jelly. Many Great Plains tribes and settlers once relied heavily on many range plants for part of their diet.

Other Human Uses

An amazingly large number of range plants have been used by humans. These uses range from hair brushes to dyes, and from toilet paper to smoking. Although most uses are historical, many range plants are still used today.

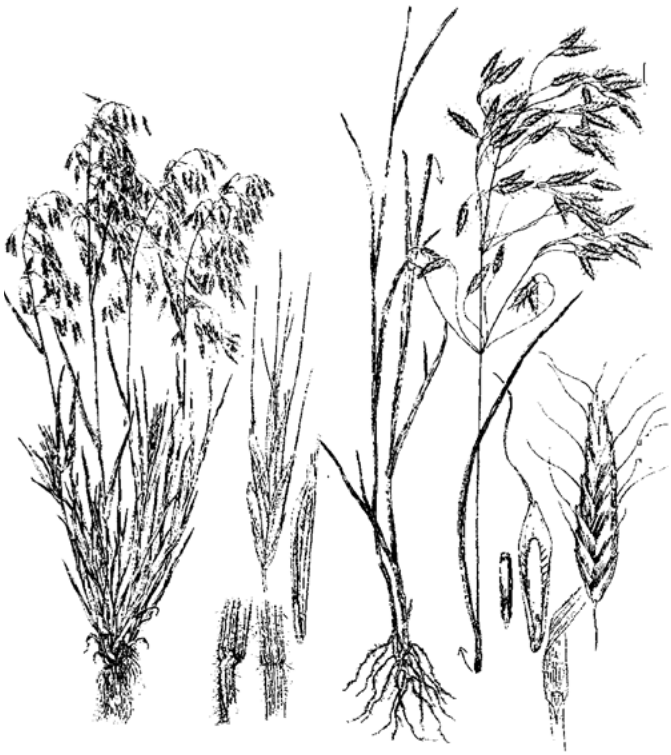
Origin

Some plants are **native** to a continent; they are a natural part of rangelands. Others are **introduced** from other continents, and some are now a part of nearly every range plant community. Many, although not all, introduced plants are troublesome or weedy, competing strongly with native plant species.

Noxious Weeds

South Dakota has seven weeds that are so troublesome that they are called **noxious weeds**. All seven are introduced from other continents, most having been transported accidentally to North America. They flourish in North America, principally because of the lack of the insects or disease(s) that keep them under control on their native continent, mostly either Europe or Asia. Other weeds are troublesome in certain counties; such weeds are called **locally noxious weeds**.

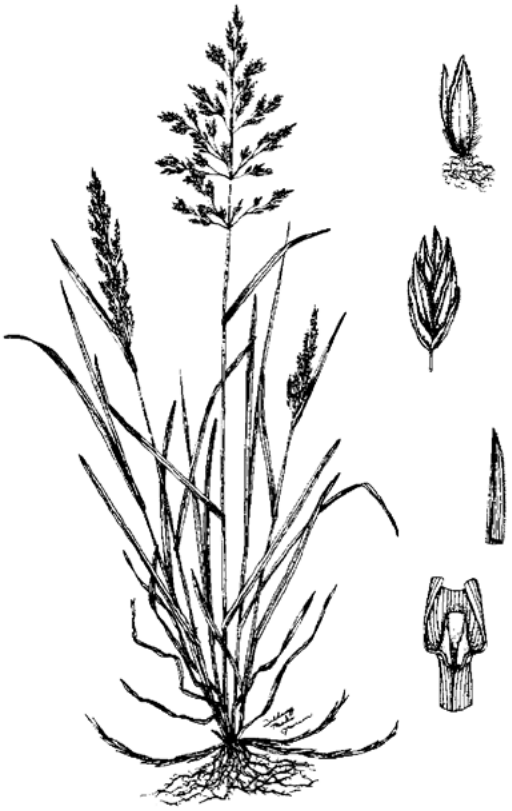
Grasses



Annual brome

Big bluestem

Blue grama

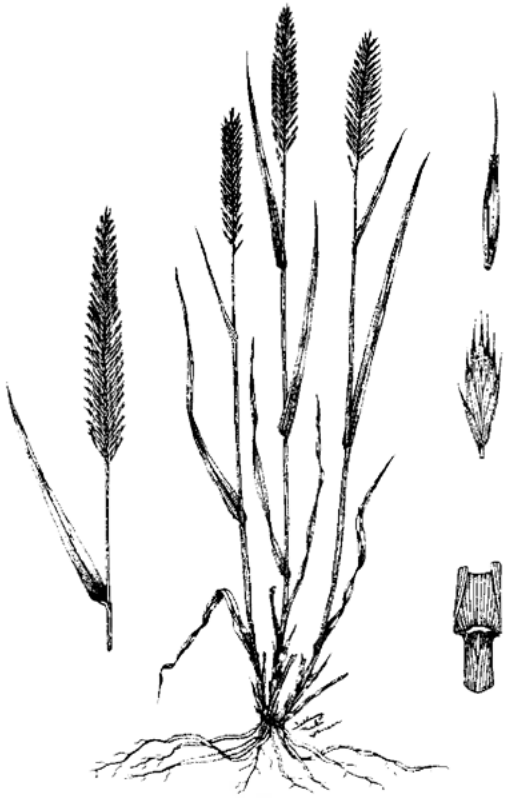


Bluegrass

Grasses

Buffalograss

Canada wildrye



Crested wheatgrass

Foxtail

Grasses

Green needlegrass

Indian ricegrass

Indiangrass

Intermediate wheatgrass

Grasses

Little bluestem

Needleandthread

Prairie cordgrass

Prairie junegrass

Grasses

Red threeawn

Sedge

Sideoats grama

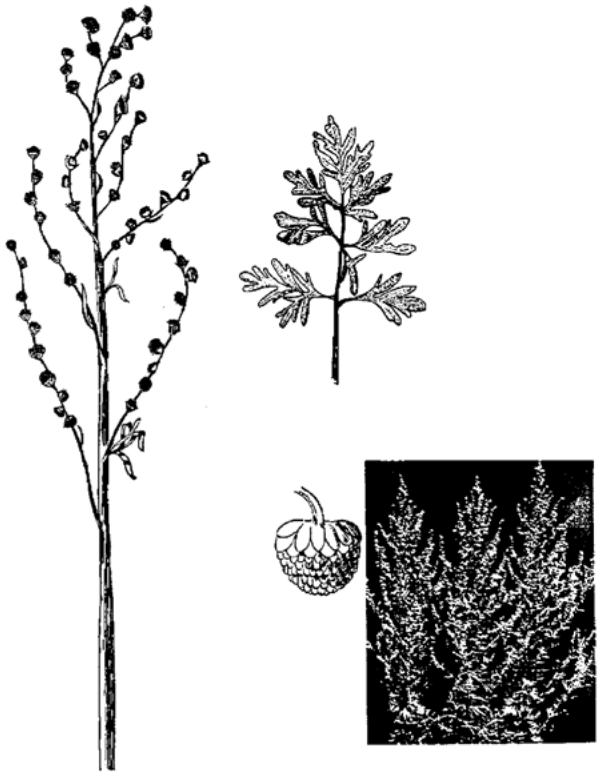
Smooth bromegrass

Grasses

Switchgrass

Western wheatgrass

Forbs



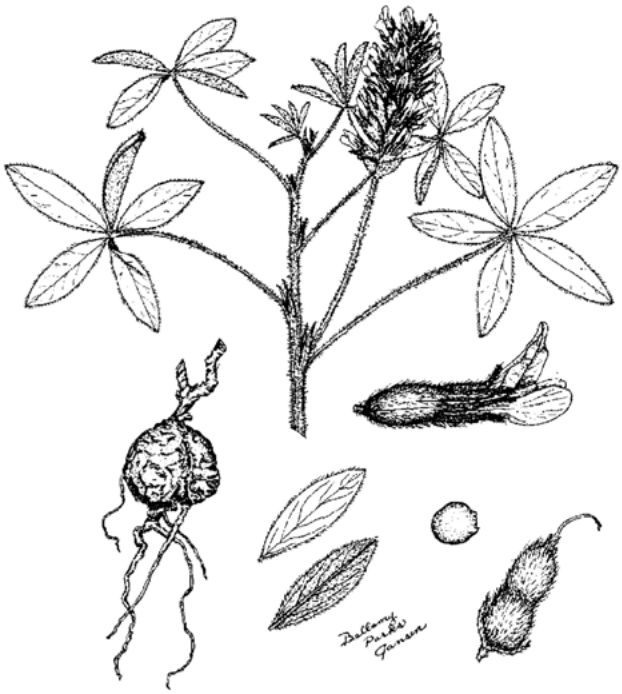
Absinthe wormwood

Alfalfa

American vetch

Annual sunflower

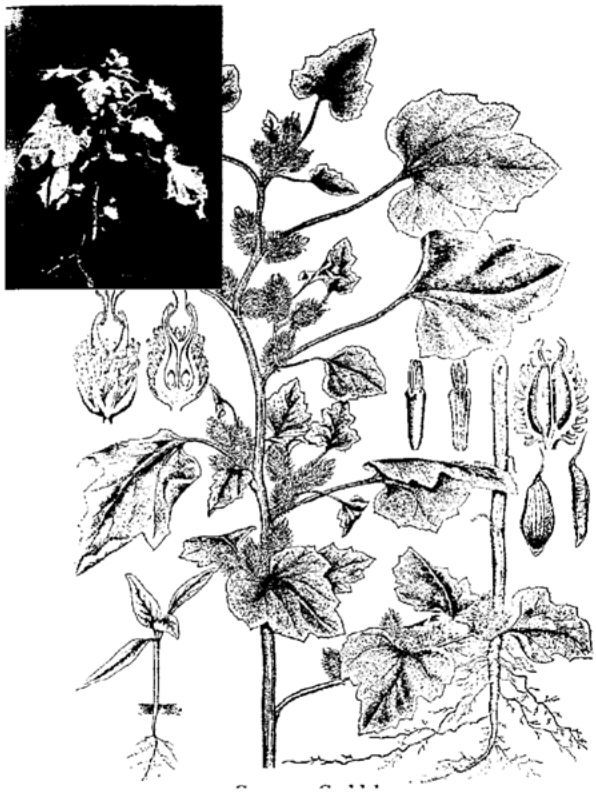
Forbs



Breadroot scurfpea

Canada thistle

Clover



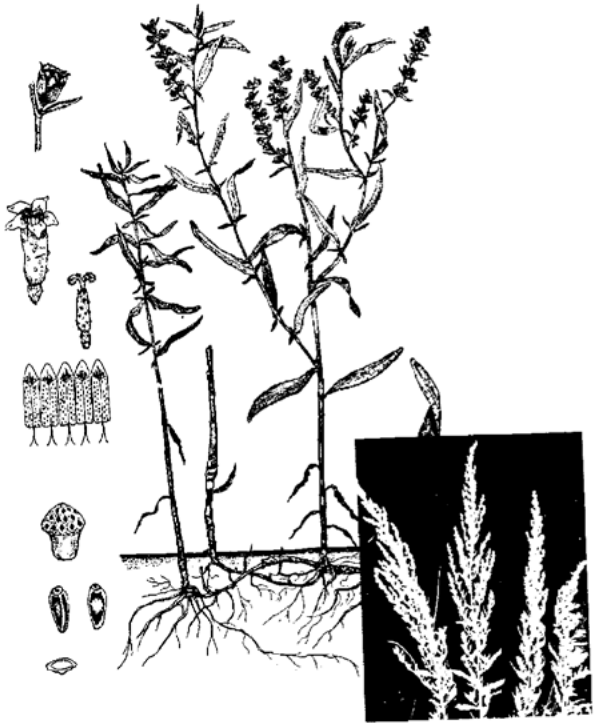
Cocklebur

Forbs

Common mullein

Common yarrow

Crazyweed

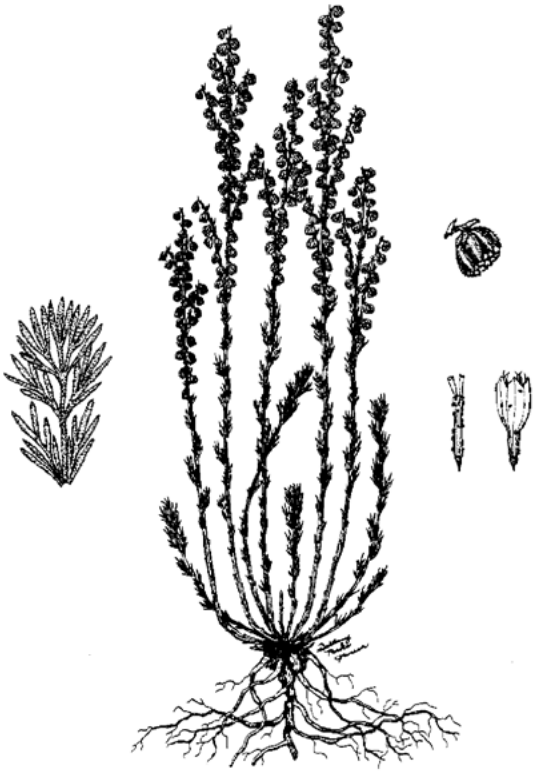


Cudweed sagewort

Forbs

Curlycup gumweed

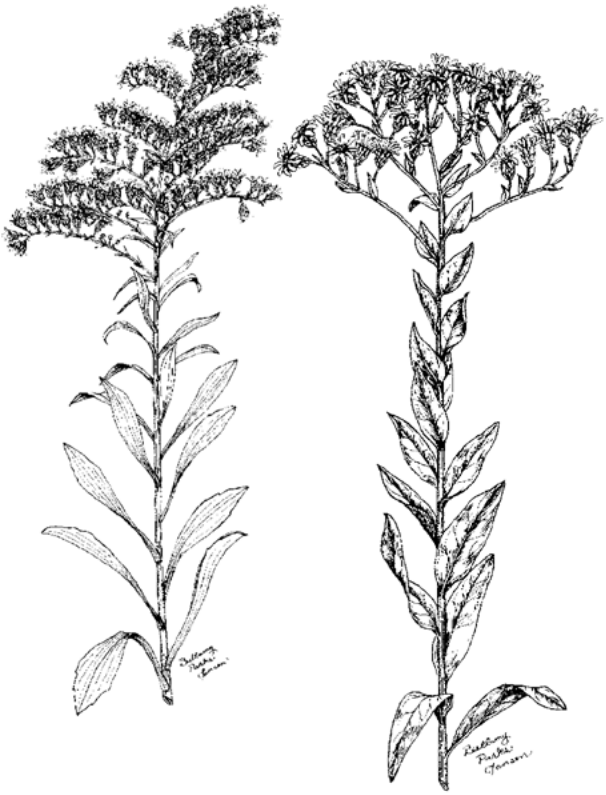
Deathcamas



Fringed sagewort

Gayfeather

Forbs



Goldenrod

Groundplum milkvetch

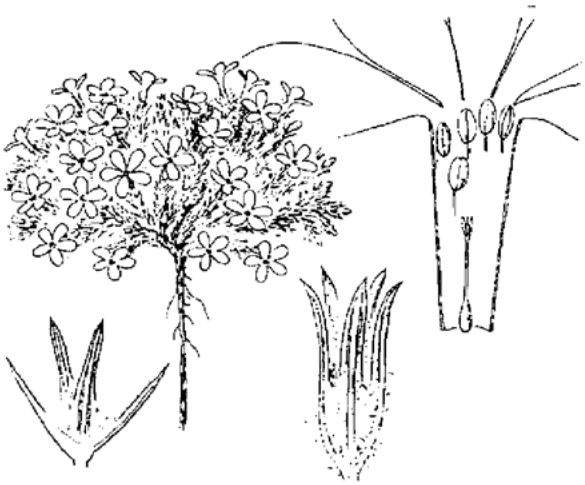
Leafy spurge

Milkweed

Forbs

Penstemon

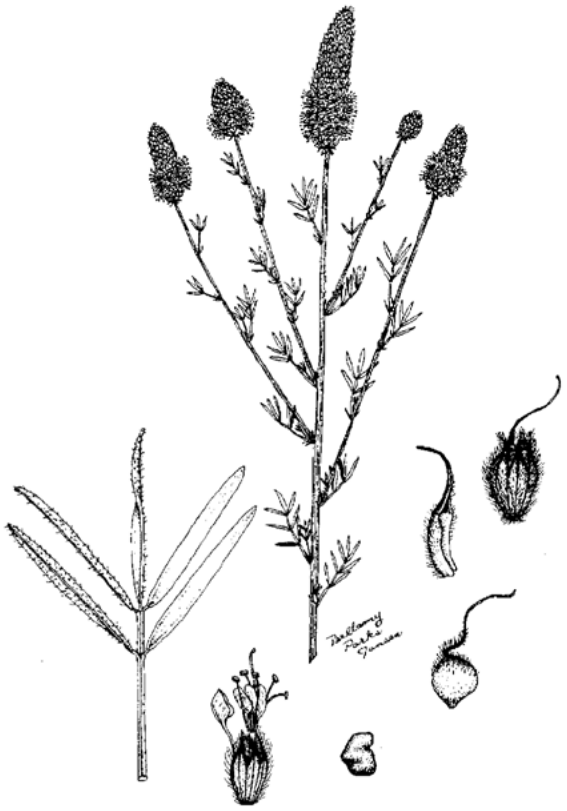
Perennial sunflower



Phlox

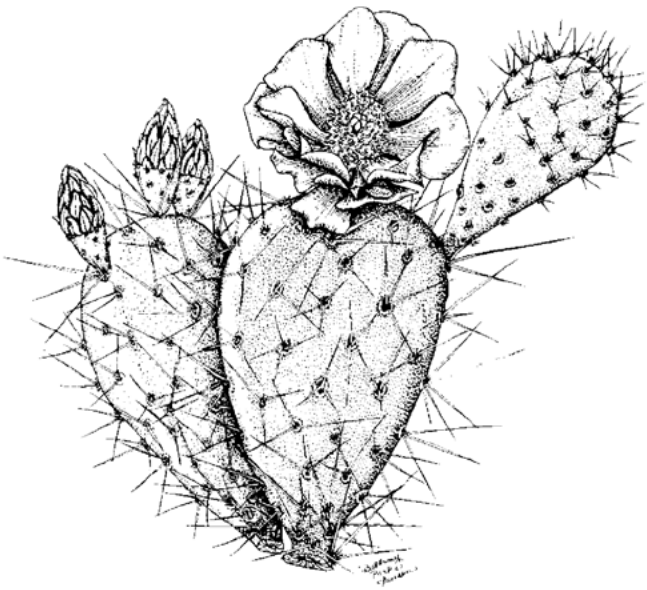
Poison hemlock

Forbs

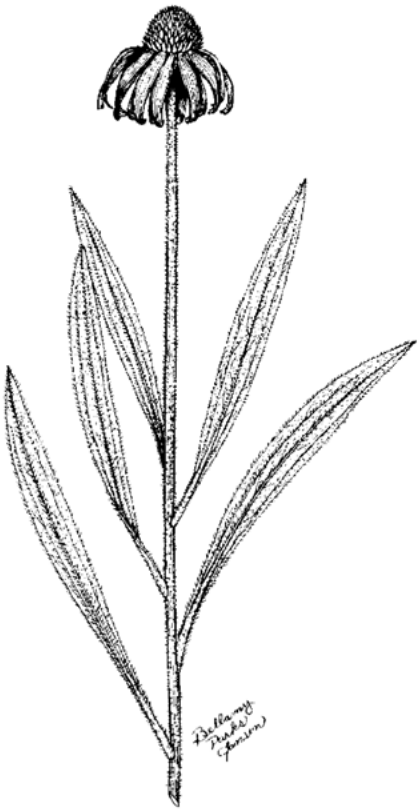


Prairie clover

Prairie coneflower



Pricklypear



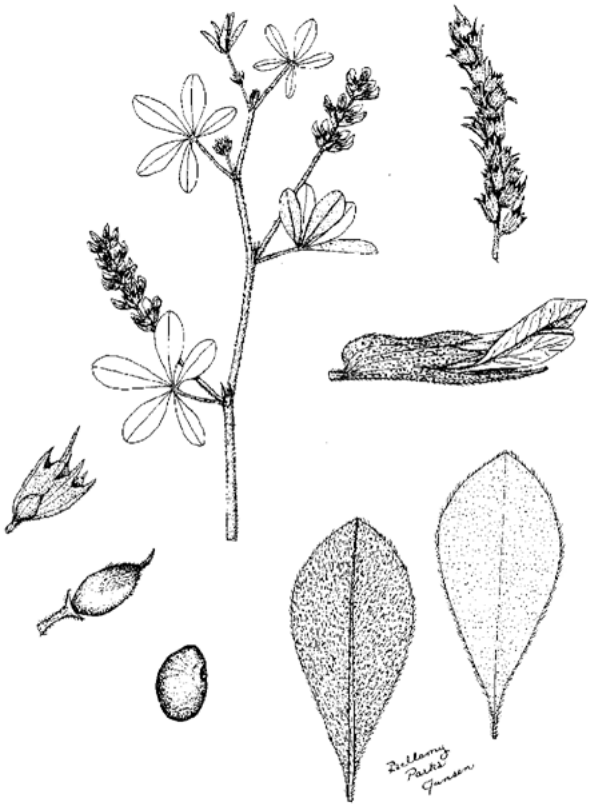
Purple coneflower

Forbs

Rush skeletonweed

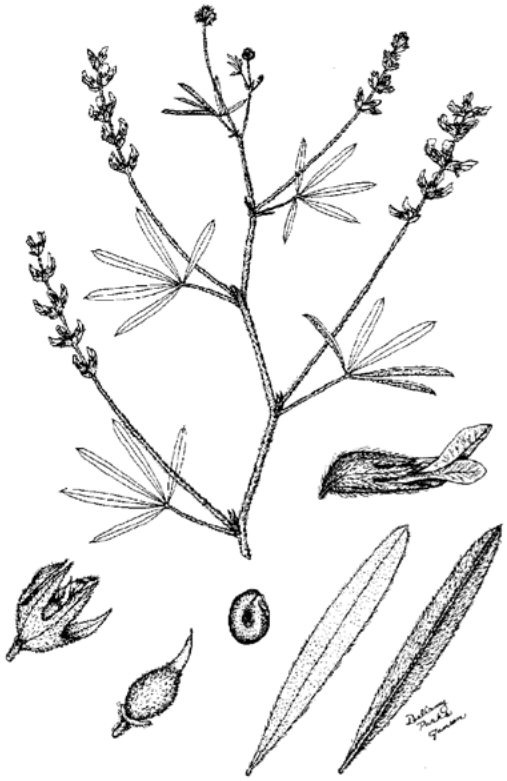
Salsify

Scarlet globemallow



Silverleaf scurfpea

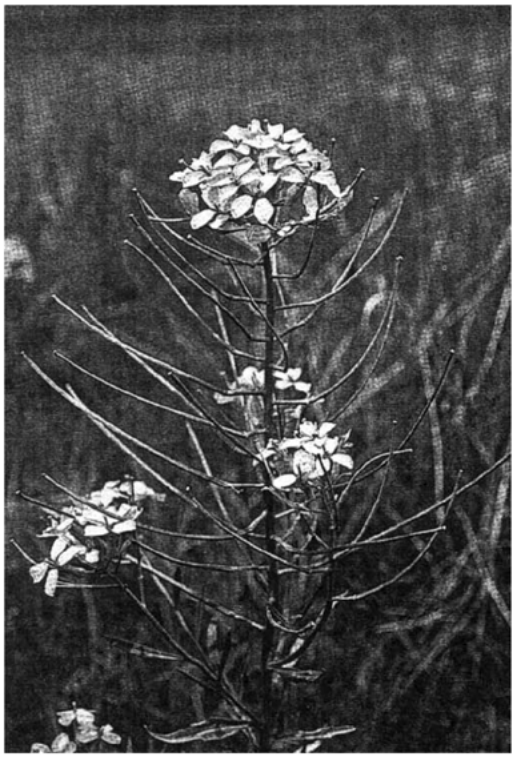
Forbs



Slimflower scurfpea

Spiderwort

Sweetclover



Western wallflower

Forbs

Wild onion

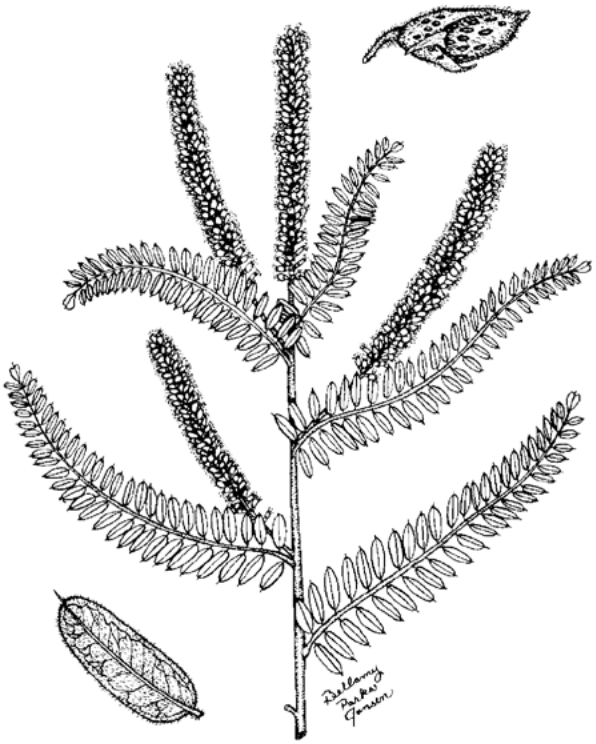
Wooly verbena

Shrubs

Big sagebrush

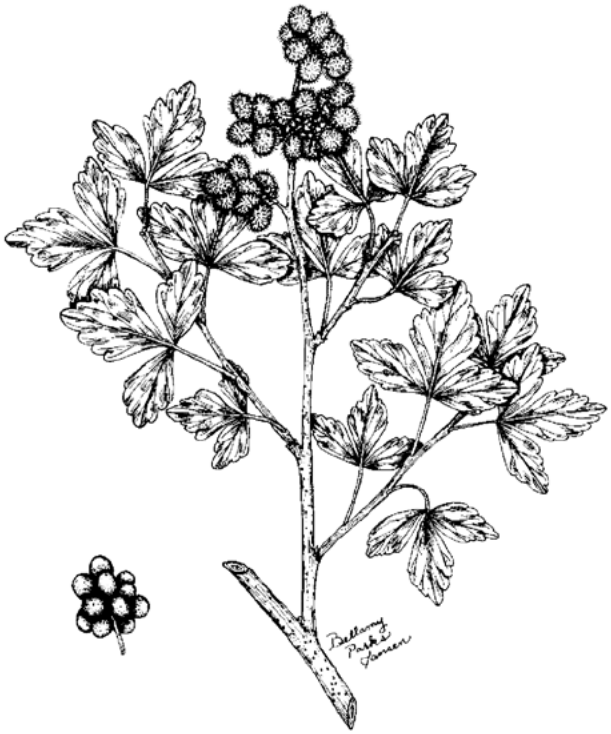
Broom snakeweed

Chokecherry



Leadplant

Shrubs



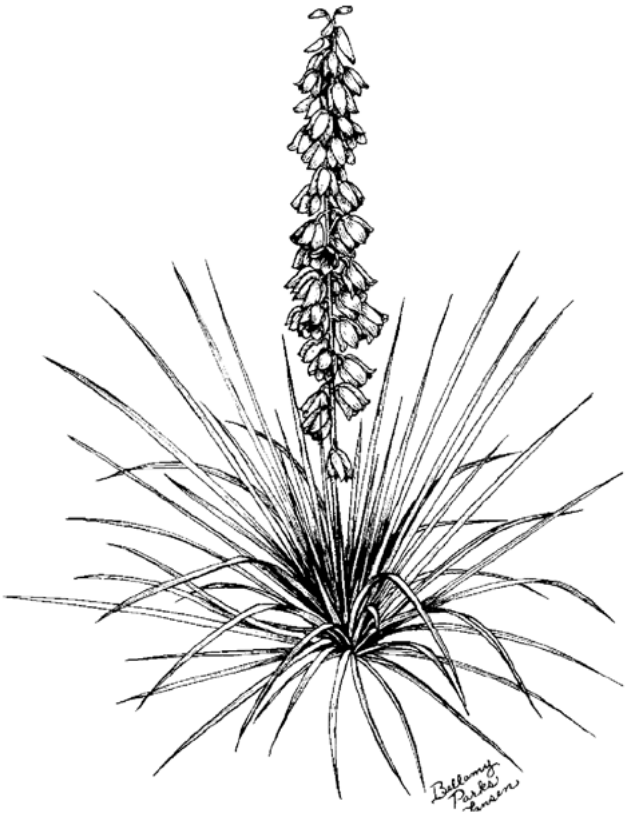
Skunkbrush

Western snowberry

Wild plum

Wild rose

Shrubs



Yucca

Getting to Know the Grouse

The rangelands of South Dakota are home to three species of prairie grouse: the sharptail, the ruffed grouse, and the prairie chicken. Prairie chickens can be found mixed with sharptail grouse both east of the Missouri River and west of the Missouri from Haakon and Stanley counties south to the Nebraska border. Ruffed grouse are found in the Black Hills in western South Dakota.

Scattered coveys of grouse can be found east of the Missouri. In extreme western South Dakota, sharptails are present, but they usually are not as abundant as in the west-central counties.

Grouse and prairie chickens are unlike other prairie gamebirds; it's only natural that a bird that's lived on the prairie for centuries would be adapted to it. Prairie grouse, like most other prairie wildlife, are dependent on their eyes for safety. You'll find them sitting in places where they can see, even if the cover is thinner. And because the wind is always present on the prairie, prairie grouse often take shelter from the wind by sitting on the downwind side of a ridge, especially if that downwind spot offers a good view. Only when the sun's heat is oppressive will they head for thick cover that offers shade.

While they'll often fly long distances to feed in row crop fields, these birds do their share of walking in search of a diet that includes large quantities of insects, berries, and green vegetation.

Wind makes them spooky, probably because they can't hear, and when cold weather prompts them to gather in large coveys, it is difficult to observe them undetected. They're unique, frustrating, and very, very special—kind of like the prairie that produces them.

Normally hard to see, the **sharp-tailed grouse** (prairie chicken) becomes unusually showy and noisy for a short period in the spring when birds group together at traditional dancing grounds (leks) at dawn. There, the males perform a strange courtship dance, with the goal of wooing as many females as possible. During the dance, males take a distinctive posture. They lower their heads and raise their tails while they make a low booming sound from air in inflated sacs on the sides of their neck.

The sharp-tailed grouse has mottled feathers rather than barred, and the male's sacs are purple. It lives in open woodlands and grasslands over much of North America and east to Michigan, and sometimes hybridizes with the greater prairie chicken.

The male **ruffed grouse** is about the size of a bantam chicken. The female is smaller, but both sexes are grey in color. The feathers of the ruffed grouse are barred and dappled to help them hide in the forests of the Black Hills where they live.

The Indians called the ruffed grouse the "carpenter bird" because they thought it drummed by beating its wings against a log. However, the sound actually is made by the male bird cupping his wings and rapidly beating them against the air. He does this while standing on a drumming post, usually an old log.

In South Dakota, ruffed grouse are found only in the Black Hills. That is because they prefer a forest habitat where buds, leaves, and twigs are available.

The male **greater prairie chicken** is about 18.5 inches long; the female is smaller. The upper parts are brown, the under parts buffy white, both heavily barred with dark brown. Both sexes have a tuft of stiff, elongated feathers at the sides of the neck. In the spring, groups of males meet at dawn and perform their courting ritual while the females watch. The sacs at the sides of the neck, which are orange in this species, are inflated and deflated, producing a booming sound; the stiffened feathers just above the sacs are erected; the wings droop; and the feet patter while the head and neck bob.

Grouse and prairie chickens have only one batch of babies each year. They usually lay between 5 and 17 eggs, and it takes 23 to 24 days for the chicks to hatch. In 7 to 10 days, the chicks have feathers. A growing chick will eat its body weight in seeds, fruits, and insects every day!

You can view the mating dance of grouse and prairie chickens, and hear the sounds that they make, if you visit the following websites:

http://encarta.msn.com/media_461517557_761561741_-1_1/Ruffed_Grouse.html
http://www.wdfw.wa.gov/wlm/research/grouse/grouse.htm
http://www.mbr-pwrc.usgs.gov/id/framlst/i3000id.html
http://www.lauraerickson.com/bird/Species/Gallinaceous/Sharp-tailedGrouse/STGRGallery.html

Photo credits

Sharp tailed grouse, page 35, Canadian Wildlife Service
Ruffed grouse, page 35, ©2000 Rick Baetsen, used by permission
Prairie chicken, page 36, University of Wisconsin, Stevens Point

Starting Your Own Plant Collection

Collecting and mounting plants will be more enjoyable if you have a plant press. Plant presses properly flatten specimens and make it easier to completely dry fleshy specimens. When dried and flattened in a press, the plants will retain their natural color and attractiveness, as well as fit into a display book. If this is your first year at Rangeland Days, you will receive your own plant press to take home with you.

You'll need some supplies to collect plants:

- ❑ a notebook for recording information
- ❑ a digging tool for collecting plant roots without damage
- ❑ plastic bags to prevent wilting of specimens
- ❑ a knife or pruning shears for cutting samples of shrubs and trimming specimens

Plants should be dug, not pulled, from the ground. Collect the entire plant: flowering parts, stems, leaves, and roots. For shrubs, cut six-to-eight-inch twigs, with flowers and fruit if possible. Collect two plants of each species—one for mounting and the other for study and identification. Be sure both plants are the same species.

As each plant is collected, give it a collection number in your notebook. Number the very first plant you collect "1." Record the following information (data):

- ❑ the plant name, if known
- ❑ the county and state where it was collected
- ❑ the date
- ❑ description of the site (ravine, wetland, hillside, etc.)
- ❑ additional information such as flower color, fragrance, and, in the case of shrubs, size

The collection data should also be written on a slip of paper and placed in the plastic bag with the plant. The slip should be moved from the bag to inside the newspaper when the plant is pressed. Below you will find guidelines for the different kinds of plants you may want to collect.

Grasses, Grass-like plants, and Forbs – You will need to collect the entire plant. This includes the root, stem, leaves, and flower or seed head, which are often all needed for identification. Some of these plants will have very thick leaves, flowers, or roots and will need special care during pressing and drying, or they will rot!

Shrubs and Trees – Many mature range plants are so large that it is not necessary or even possible to mount the entire plant. For these, collect either small specimens or key plant parts—including flowers (or fruits), stems, and leaves. Many of these plants have thick stems, flowers, and fruit. Take care to press them very tightly, and give them extra time to dry well.

Noxious Weeds – Noxious weed specimens should include the entire plant, but the specimens must be sealed to prevent spreading any seed that might be present. A good way to do this is to cover the entire page with clear contact paper.

Poisonous Plants – Specimens of poisonous plants should be carefully handled so that they can be kept away from young children or animals. Properly discard all waste material.

Most common grasses and range plant specimens are easily found. Most occur throughout the state. It is usually possible to collect from 20 to 25 species of grass within a 100-foot circle of where you are standing on the prairie. The kind you find will depend on the soil type, topography, and available moisture. Some range plants will be more difficult to find because they require special conditions for growth. Some are found along drainageways, others in sandy soil, still others on north-facing slopes.

The best time to collect is when the plants are in full bloom. For grasses the best time is when the seed heads are fully developed. A few plants bloom as early as April, others not until September. It is almost always

necessary to make more than one collecting trip. Most plants can be collected in late May/early June, in late July, and in late August. Knowing the season of growth of the plant will help you to know the best time to collect it. Coolseason plants start growth in early spring and reach peak growth about early June. They often resume growth in late summer when temperatures cool. Warm- season plants make their maximum growth in the heat of the summer, reaching peak growth in late July, in August, or in September.

Pressing Your Plants

To prevent wilting, plants should be pressed as soon as possible after collection. Before placing the plant in the press, remove all soil from its roots. An old toothbrush can be used to gently loosen soil particles. At this time, you must also remove excess plant material, so the specimen will press well and not mold. The important thing is to include a few representative samples of leaves, stems, flowers and other plant parts, so they can be seen and studied.

Place the plant in a newspaper sleeve, between double sheets of blotter materials (old targets from shooting sports work well). Carefully position plant parts so they will press neatly, with the flower at the top and the roots at the bottom. Arrange them exactly as you want them to appear on the mounting sheets. If the plant is too large for the mounting sheet, fold it into a V, N, or W shape to fit. If the plant is extremely large, press a sample of each plant part—stems, leaves, roots and flowering parts. To help your plants dry well, make a plant-press sandwich. Start with the bottom of the press, then layer cardboard, blotting paper, and the plant in a newspaper sleeve, blotting paper, and cardboard. For the next plant, start with blotting paper, the newspaper sleeve, blotting paper, and cardboard. Keep adding layers until all of the plants are in the press, then add the wooden top, and cinch tightly.

Put the press in a warm, dry place for a week to 10 days. Change the newspapers and cardboard between the plants and retighten the straps every two days until dry. After pressing, keep the dried plants in the folded newspapers until they are mounted.

Mounting Your Plants

The preferred mounting paper for plants is herbarium paper, which can be ordered through the local Extension office. Plants should be mounted with clear or white glue. First, decide which side of the pressed plant you want visible. Then, turn the other side up and apply a small amount of glue to the back surface. Place the plant on the mounting paper so that the roots are in the lower left corner. Leave the lower right corner free for the label. Don't let any of the plant extend beyond the paper. Weight the plant down with rocks, large washers, nails, or bolts while the glue is setting. Do not use rusty metal, as it may stain the mounting paper.

After the glue has set, protect your mounts by placing them in large file folders or by placing them in a display book. If you choose to cover your mounts, cellophane, clear plastic contact paper, and plastic food wrap work well, but wait to cover them until after you have completed your labels. If you store your mounts and displays in a box or other container, include a few mothballs to prevent insect damage. Another way to prevent insect damage is to place the mounted specimens in a freezer for about 48 hours; this will kill any insect eggs and larvae hidden in the plant.

After the plant is properly mounted, it is ready for a label. Place labels in the lower, right-hand corner. Fill out the label completely, and use your best handwriting, or type the labels on a computer. A sample of the required label accompanies the lot information for each age group.

Labeling Your Plants

The label contains information about where and when you found your plant, and its name. If you are not sure what a plant is, there are many resources to help you. All the plants listed on the Beginner and Advanced plant lists can be found in Grassland Plants of South Dakota and the Northern Great Plains, by Dr. Jim Johnson and Dr. Gary Larson (ISBN 978-0913062067) or Plants of the Black Hills and Bear Lodge Mountains, (ISBN 978-

0913062050) also by Drs. Larson and Johnson. These books are available in the SDSU Bookstore: jackrabbitcentral.com.

Exhibiting Your Plants in 4-H

Now that you have mounted and labeled your plant collection, you are ready to prepare your exhibit. Put your collection in a scrapbook, binder, or plant case. Make sure that your book or case cover includes your name and county. On the inside, include a title page that tells which collections you are exhibiting, and also include a table of contents with each plant name and the collection that the plant belongs to.

The exhibit classes are divided into age groups and interesting categories, to provide more flexibility as you explore the world of range plants. You will be able to use plants collected in previous years for your exhibit, as long as you use the appropriate label. Of course, as you gain experience pressing and mounting, you will want to collect better specimens, and, in some cases, replace old mounts with ones containing higher quality plants and presentation.

Beginners make an expandable collection to which additional plants are added at each level. All plants used must be from the Beginners plant list, and Beginner Plant Collection labels must be used. If you are eight years old and this is your first year in the range project, you will exhibit in Level 1. If you are nine years old and this is your first year in the range project, you may choose to exhibit in Level 1 or Level 2. If this is your second year in the range project, you will exhibit in Level 2. If you are 10 years old and in your first year of range project work, you may choose from Levels 1, 2, or 3. If you are a second year member, you may choose from Levels 2 or 3. If this is your third year in the range project, you will exhibit in Level 3.

- **(B) T045005 – Level 1** – A collection of 10 plants, which must include 2 grasses, 4 forbs, and 1 shrub
- **(B) T045006 – Level 2** – A collection of 18 plants, which must include 5 grasses, 8 forbs, and 3 shrubs. Add to your Level 1 collection, for a total of 18 plants in your exhibit.
- **(B) T045007 – Level 3** – A collection of 28 plants, which must include 6 grasses, 10 forbs, and 5 shrubs. Add to your Level 2 collection, for a total of 28 plants in your exhibit.

Each of your plant labels will have a common name for the plant. For Achievement Day exhibits, use the common name on the Beginner plant list. Most of the names on the list have two-word names (binomial). When listing or labeling, you generally have the choice of capitalizing or not capitalizing the first word. For the sake of appearance, most people prefer to capitalize common names when using them in a list or on labels. Names that contain proper nouns should always be capitalized. For example, the "M" in Missouri goldenrod must be capitalized, but capitalizing the "P" in prairie ragwort is your choice. However, if you are writing about prairie ragwort in a sentence, the "P" should only be capitalized if it appears at the beginning of the sentence.

South Dakota 4-H Range Project

Plant Name _____

Collected at _____

Date Collected _____ ❑ Grass ❑ Forb ❑ Shrub

My Name_____

Juniors and Seniors fill out this portion:

Circle all that qualify: Cool season Warm Season Native
Introduced Poisonous Noxious Edible

Information Source_____

Fun Activities to Help You Learn

Rangeland Match-up

Match the word with the correct definition. Place the letter of the definition on the right on the line next to the word on the left.

1. _____ annual
2. _____ biennial
3. _____ rumen
4. _____ forb
5. _____ grass
6. _____ grass like
7. _____ perennial
8. _____ rhizome
9. _____ shrub
10. _____ cover
11. _____ energy
12. _____ rangeland
13. _____ recreation

A. can include activities like fishing, hiking, camping, and hunting

B. shelter that wild animals need for protection from bad weather and predators

C. herbaceous plants with hollow jointed sterns and parallel veins on their leaves; leaves ore usually found in 3's

D. plants that live only 1 year, produce seed and die

E. a special kind of stomach that cattle, sheep, goats, deer, elk, and antelope have

F. land that is usually dominated by grass and other plants; useful as forage for livestock and wildlife

G. broadleaved herbaceous range plants with solid, round stems and net-like veins on the leaves

H. plants that live 2 years and die

I. a plant that can live for more than 3 years

J. woody perennial plants that have solid stems with growth rings; leaves have net-like veins

K. what we need and use to heat our homes

L. underground root-like stems that help to bind the soil

M. herbaceous plants that have solid round or triangular stems; leaves have parallel veins but are found in groups of 3

Forbs for Fun

C R S J V G S W W G Y U F Y A N I C S H
O E D A E E S W Q Y S R P Y J D C S P I
R W C M M P R R E H T A E F Y A G P U U
H O K D I A C B S E R Y Y M R J L I R Z
M L H Z E R C A E U T U J Y J B U D G B
C F Y I I E G H B N K C R A Z Y W E E D
U N J M P E W E T C A C L K Y C K R S P
H U H E W K L K O A A F N O C O Q W C E
P S Z O I K Z L L M E D N D V R M O U S
F O R S C P M O M I E D C R T E O R R A
I T V O R E E U S E M O R D T C R T F F
Z I C A H W D N W S N S S Y L M X N P L
P M R U D B J N S E P U C Y L R U C E A
S P D F I N O E F T V P R I U Q B W A F
J L K V R T G L O B E M A L L O W P K L
A S A M E O O Y K N F M Y K N K H B G A
Q G F L D W D N F V P C O Z J L M B K J
X R E A E E Q H I N I I Z N O H C C Q Q
H K F R T S A L S I F Y I X J P R H K W
S D N J N U Y B V F A Z R Y E T W Y Q N

ALFALFA
COCKLEBUR
CONEFLOWER
CRAZY WEED
CURLYCUP
DEATHCAMAS
GAYFEATHER
GLOBEMALLOW
HEMLOCK
MILKWEED
PENSTEMON
PHLOX
SAGE WORT
SALSIFY
SCURFPEA
SKELETON WEED
SPIDER WORT
SPURGE
SUNFLOWER
SWEETCLOVER
VERBENA

Crossword Puzzle

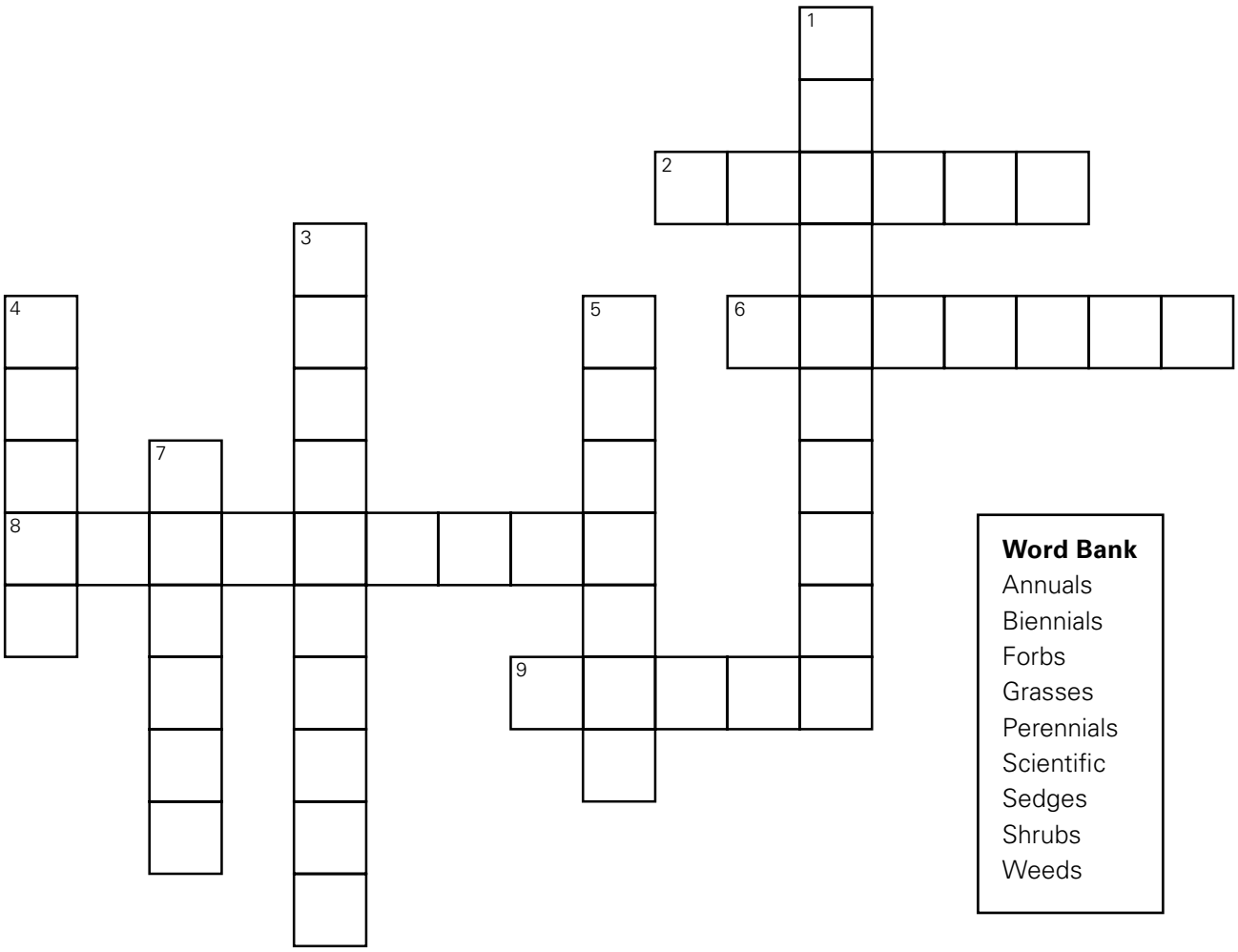
Use the word that completes each sentence to fill in the crossword puzzle.

Across

2. _____ have woody stems.
6. _____ live for less than one year.
8. _____ complete their life cycle in two years and then die.
9. _____ are undesirable plants.

Down

1. _____ live from a few years to many years.
3. Each plant can only have one _____ name, which is the same throughout the world.
4. Many _____ have showy flowers.
5. _____ have jointed stems.
7. _____ have triangular stems.



Word Bank

Annuals
Biennials
Forbs
Grasses
Perennials
Scientific
Sedges
Shrubs
Weeds

Hidden Message Word Search

Find the words in the list below. Use the letters left in the puzzle to solve the hidden message.

E	S	R	E	R	A	N	G	E	L	A	N	S	D	N
R	D	U	U	M	A	Y	S	I	S	S	C	Y	O	O
U	M	U	O	M	O	C	H	F	U	E	N	I	A	A
T	N	D	I	E	E	Z	C	A	N	N	T	T	W	H
S	A	I	T	F	C	N	I	E	O	A	R	N	E	X
A	T	Y	E	A	R	A	R	H	T	P	R	W	J	J
P	P	O	H	U	A	Y	B	E	R	J	W	H	Z	H
X	D	C	O	K	T	E	G	R	E	G	A	R	O	F
V	K	P	D	I	Z	E	D	F	E	M	L	U	F	Y
A	P	H	I	C	V	L	Z	R	V	H	A	K	C	P
Y	Z	U	U	T	O	M	L	K	F	K	A	U	D	U
T	C	U	J	T	F	V	J	B	M	U	U	T	S	M
S	D	R	U	R	X	J	E	O	V	K	K	H	M	B
Q	J	N	O	I	T	A	E	R	C	E	R	J	N	L
Q	O	U	C	J	K	S	N	B	X	P	W	B	Z	I

COVER
FORAGE
HAY
HERBACEOUS
PASTURE

RECREATION
RHIZOME
RUMEN
SCENERY
VEGETATION

___ ___

___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ' ___ ___ ___ ___ ___ ___ ___ ___

___ ___ ___ ___ ___ ___ ___ ___!

Rangeland Match-up II

Match the word with the correct definition. Place the letter of the definition on the right on the line next to the word on the left.

1. _____ scenery
2. _____ forage
3. _____ hay
4. _____ introduced
5. _____ legumes
6. _____ pasture
7. _____ grassland
8. _____ herbaceous
9. _____ prairie
10. _____ precipitation
11. _____ temperature
12. _____ vegetation

A. plants that do not have woody stems

B. regions where the climate favors the growth of grasses and other herbaceous plants

C. the moisture that falls to earth and helps plants to grow

D. a measure of how hot or cold it is

E. land that has been converted from a natural grassland to introduced grasses and legumes that are used as livestock forage

F. Plants that are valuable as food for livestock and wildlife

G. broodleaved plants that are members of the pea family and are very nutritious for animals

H. grasses and legumes that are cut from pasture and hayland and baled for later use as livestock forage

I. grasslands that occur when the wet season is in the late spring or early summer; the grass grows between 1 and 5 feet tall

J. plant life

K. what we like to look at when we are in the outdoors

L. plants that are not native to the region; are brought in to serve a purpose

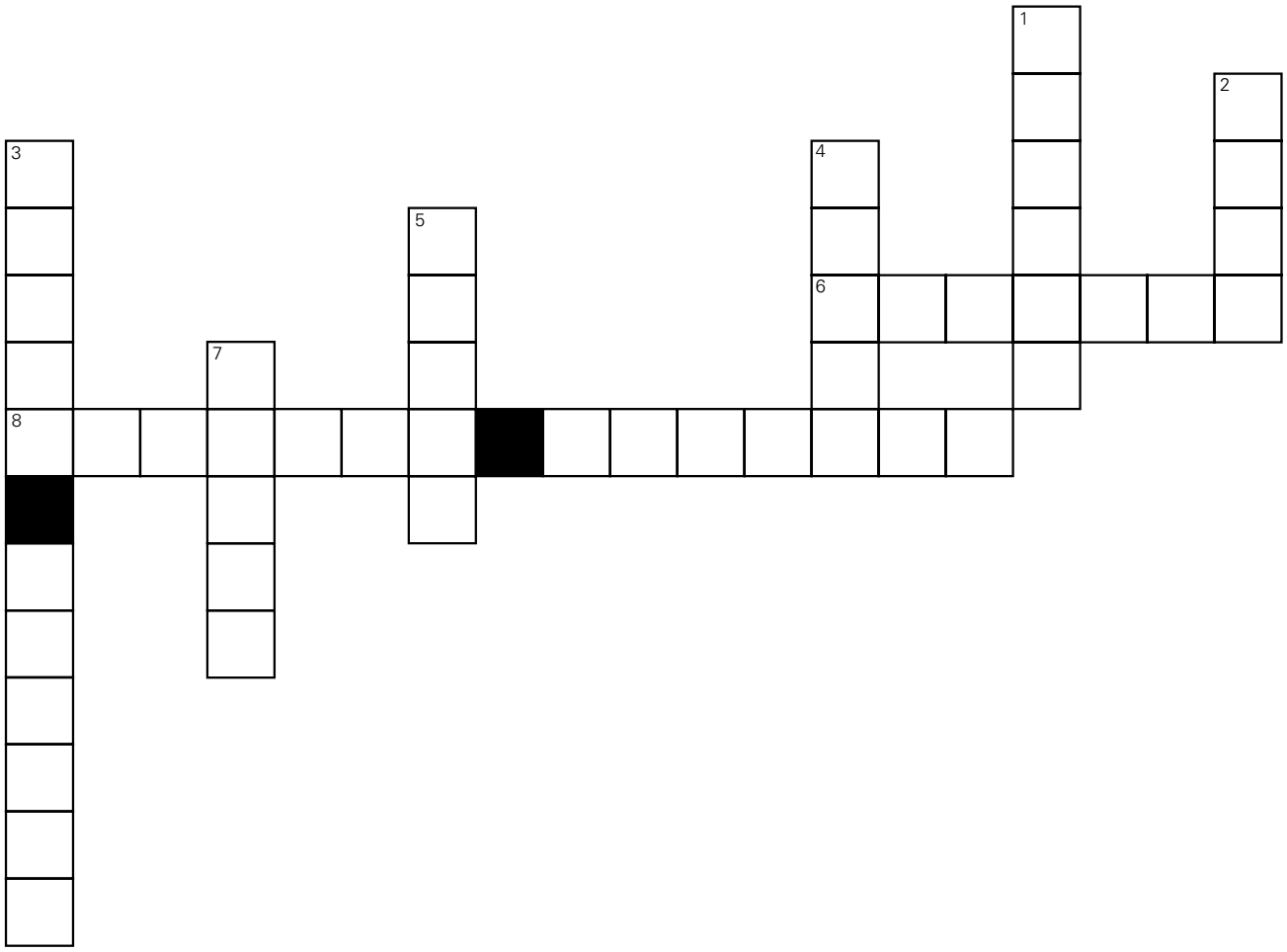
Grouse Galore!

Across

6. these make up a large portion of the grouse's diet, along with berries and green vegetation
8. male grouse that has orange sacs he can inflate during courtship

Down

1. also called the carpenter bird
2. the dancing grounds where courtship dances take place
3. the type of grouse that lives in open woodlands and grasslands
4. a baby grouse
5. a group of grouse
7. the most important sense for a grouse



Answers

Parts of Grass Plants

a. crown-12
b. leaf blade-1
c. node-6
d. rhizome-11
e. collar-2
f. internode-9
g. flower-7
h. auricle-5
i. stolon-10
j. leaf sheath-3
k. ligule-4
l. stem-8
m. roots-13

Rangeland Match-up

1. d
2. h
3. e
4. g
5. c
6. m
7. i
8. l
9. j
10. b
11. k
12. f
13. a

Word Scramble

1. spike, panicle, raceme
2. stem, leaves, roots, node, seedhead, flowers

Characteristics Crossword Puzzle

Across

2. shrubs
6. annuals
8. biennials
9. weeds

Down

1. perennials
3. scientific
4. forbs
5. grasses
7. sedges

Hidden Message Word Search

Rangeland Days is so much fun and I can't wait for next year!

Rangeland Match-up II

1. k
2. f
3. h
4. l
5. g
6. e
7. b
8. a
9. i
10. c
11. d
12. j

Grouse Galore!

Across

6. insects
8. prairie chicken

Down

1. ruffed
2. leks
3. sharp tailed
4. chick
5. covey
6. sight

Grass Plant Parts

Across

1. collar
4. photosynthesis
6. blade
8. crown
11. rhizomes

Down

2. auricles
3. stem
5. flower
7. internodes
9. nodes
10. roots

Materials for this publication have come from the following sources:

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