



University of Nevada  
Cooperative Extension

# **Rangeland Plants: A Curriculum for the Nevada Youth Range Camp**

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# RANGELAND PLANTS

## INTRODUCTION

A rangeland landscape is usually covered (vegetated) with many different plant species. Some are tall and others are short. Some are woody (trees and shrubs) and others are herbaceous (soft like grasses and forbs). Many are desired plants because they provide products that humans can use. Others are valuable because they provide habitat (food and shelter) for wildlife and fisheries or hold the soil in place (i.e., prevent erosion). Other plants are weeds (i.e., undesired species) that compete with desirable plant species, often taking over large areas.

To manage a rangeland the manager must have knowledge about which plants are present. The species that occur in an area, the locations where they grow (e.g., mountain slopes or valley bottoms) and how abundant they are provides land managers information about the soil in an area and the types of plant communities those soils can support. Knowledge about the plants and soils, and how they interact with each other, is absolutely necessary for making decisions about how to manage any rangeland.

During this week, you will have the opportunity to learn the common names of between 50 and 100 plant species. Also, you will learn that each species has locations it prefers to grow while at other locations, it may be absent or occur infrequently.

**Q<sub>1</sub>: Can you think of some reasons why it is important to know the plant species that occur in the vicinity of Range Camp?**

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## TYPES OF PLANTS – LIFEFORMS AND LIFE HISTORIES

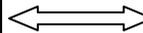
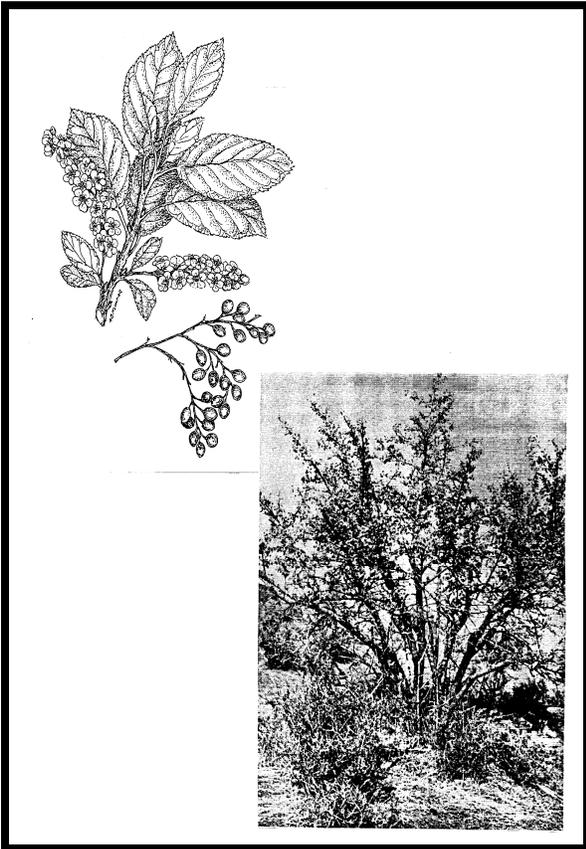
### Life forms

Rangeland plants have five basic life forms: trees, shrubs, grasses and grass-like plants, forbs and cryptobiotic crusts (mosses, fungi and algae that cover the ground). Most of your studies this week will focus on trees, shrubs, grasses and forbs. The wild and domestic animals that use a rangeland landscape do not use the trees, shrubs, grasses and forbs equally. Some animals eat mostly grasses, others eat mostly forbs, while others may rely heavily on twigs and buds of shrubs or fruits and nuts from trees.

Also, each life form has a different response to management actions and disturbances. It is important to be able to correctly identify which plants are trees, shrubs, grasses and forbs. The following are definitions and descriptive diagrams for trees, shrubs, grasses and grass-like plants.



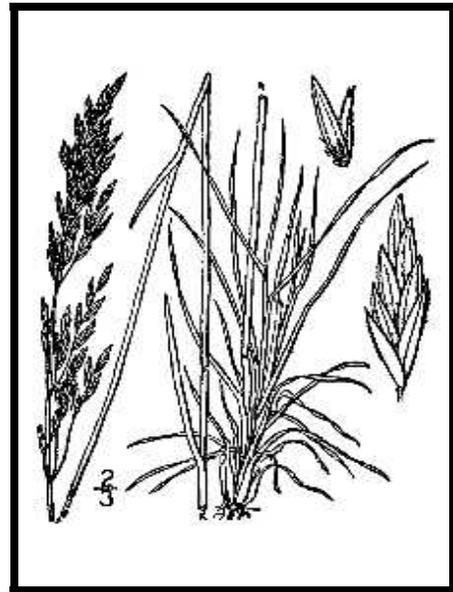
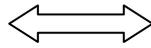
**Tree:** A woody plant that typically has one or two main stems (trunk) that emerge from the ground. Some species can have several trunks (e.g., mountain mahogany and chokecherry). Trees are often taller than they are wide and when mature, they are about 15 feet tall or more. Trees provide vertical structure on the landscape. They provide important nesting and resting habitat for many species of birds.



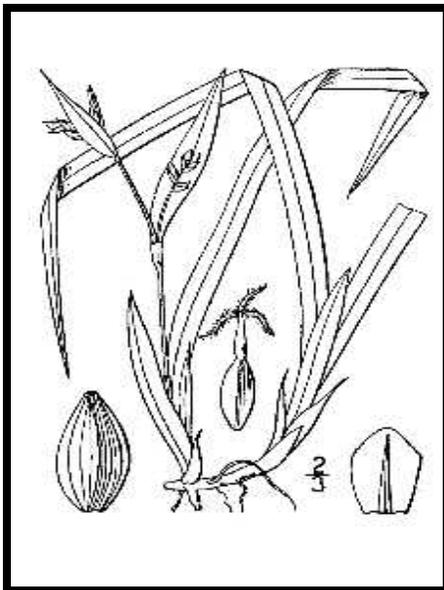
**Shrub:** A woody plant that often has several branches at or below where the plant emerges from the ground. There is no clear single trunk. Mature shrubs are often short (less than 5 to 8 feet tall) but some species can become 10 to 15 feet tall. They often are as wide as they are tall. The leaves are generally broad and have veins that go in different directions (that is, i.e., not parallel to each other). Leaves are usually attached directly to a woody stem.

Shrubs often have higher nutritional value than grasses and forbs in the late summer, fall and winter. They are critical to the survival of mule deer and other wildlife.

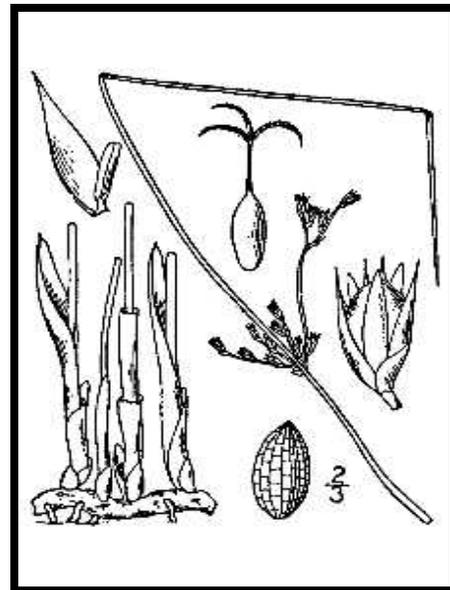
**Grass:** Grasses do not have any woody parts and are referred to as herbaceous plants. The leaves and stems originate from the base of the plant. The leaves are much longer than they are wide. The leaf blades have veins that are parallel to each other for the length of the leaf blade. The seeds are produced in a clump or panicle at the end of stems. These stems may range from several inches to several feet tall. Grasses do not have colorful flowers. Grasses have high nutrient levels in the early spring but their nutritional quality declines after they produce seed and go dormant.



**Grass-like:** Grass-like plants are non-woody plants with either long, narrow leaves like grasses (sedges) or round, hollow leaves (rushes and reeds). The seeds do not form in a distinct panicle like grasses. They are most common in wet or damp areas (meadows, along streams, etc.). They can be nutritious during early growth but after they produce flowers, nutritional value is less than grasses, forbs and shrubs.



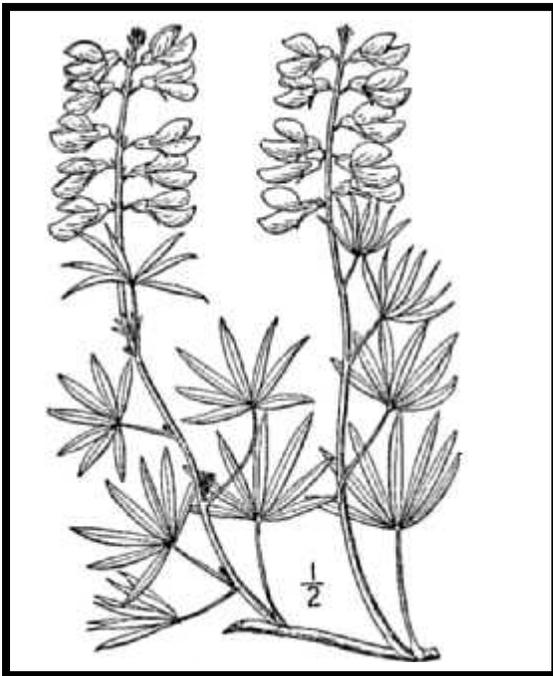
Sedge



Rush

**Forbs:** Forbs are plants that have broad leaves (like shrubs and trees) but do not have woody stems. The stems can get hard when they dry out (like a bamboo cane) but are not true wood. Forbs usually produce colorful flowers (red, blue, yellow, white, pink or purple) and are the wildflowers you see on the landscape. The leaves are attached to stems throughout the plant, not just at the base where it emerges from the ground. Leaf shape is variable and the veins are not parallel to one another, as in grasses.

Most forbs are highly nutritious in the spring before they dry up. Their high nutritional value is from their high protein content. Many, however, are also poisonous plants.



Lupine

Examples of Forbs

Larkspur



**Activity:**

Using the knowledge you just gained about different life-forms, collect an identifiable part of each life-form and return it to your instructor. Write the species name in the blanks below:

Tree: \_\_\_\_\_

Shrub: \_\_\_\_\_

Forb: \_\_\_\_\_

Grass: \_\_\_\_\_

Grass-like plant: \_\_\_\_\_

**PLANTS HAVE DIFFERENT LIFE HISTORIES**

How long a plant lives and how many times it produces flowers determine a plant's life history. That is, how it attempts to reproduce. There are three general life history strategies: annual, perennial and biennial. We will focus mostly on perennials and annuals. Each life history is defined below:

**Annual (A):** a plant that completes its life cycle in one growing season. The seed germinates, grows into a mature plant and produces new seeds in one growing season. Annual plants are always grasses or forbs. They are never woody. Annual plants have small root systems and their roots can be easily pulled out of the ground. Because they grow quickly, they usually provide food or cover for only a very short period (usually 1-3 months), and usually only in the spring.

**Biennial (B):** a plant that completes its life cycle in two growing seasons. During the first growing season, the seed germinates and leaves grow. During the second growing season, the plant flowers and produces seed. It flowers once but requires two growing seasons to reach this stage.

**Perennial (P):** a plant species that lives for many years and can flower and produce seeds two or more times during its lifetime. Trees and shrubs are always perennial plants. Grasses and forbs can be annual or perennial. Perennial plants have large root systems that are not easily pulled from the ground.

**Activity:**

1. Look around our vicinity and try and find an annual grass and a perennial grass. What species did you find?

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2. Look at both the annual grass and the perennial grass. Describe some differences you can observe. Think about such attributes as plant size, color, closeness to one another and other differences.

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3. Thinking about the differences between the annual grass and the perennial grass plants, how may these differences be important for managing rangelands? Think about such things as fire, value as food, ability to hold the soil in place, etc.

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## Range Camp Plant List

To manage rangelands properly, resource specialists must identify which plants are present. Not all plants, however, grow in all parts of the landscape. Some plant species prefer to grow on mountain side-slopes while others prefer valley bottoms or riparian (wet) areas. Others are common where the land has been disturbed while some grow only on undisturbed areas. Understanding how plant species composition and abundance change because of differences in the soil, landforms and whether or not the area has been disturbed is important. It allows managers to determine how rangelands and the resources they provide will respond to management actions (for example, livestock grazing, prescribed fire, brush or tree control, etc.), natural and human-caused disturbances (wildfire, floods, road building, etc.) and natural environmental fluctuation.

Throughout this week you will have the opportunity to learn the names of many plants. This exercise is designed to help you learn more about the types of locations they prefer to inhabit and how common or rare they are in these locations. The table below lists many species of trees, shrubs, grass-like plants, annual grasses, perennial grasses and forbs. Each time you identify a plant species you can determine both its abundance and its location on the landscape. This will help you develop an understanding for the types of locations you expect to find each plant species. Write the acronym for each abundance category in the box where the row with the species name intersects the column that describes the proper landform. Below are definitions to help you complete this task.

### **Definitions for Plant Abundance:**

**Very Common (VC):** Species that are observed everywhere you look. You do not have to search for them. Often, the one to three most frequent plant species in a community.

**Common (C):** Species that are present but widely scattered. They are easy to find but may not be observable from every place you stand.

**Uncommon (U):** The species is present in a community but usually requires walking around to find them.

**Rare (R):** Only one to very few plants is present. To find them requires a lot of time searching.

### **Definitions for Types of Landforms:**

**Riparian:** Wet areas along streams, ponds and lakes with plants that require regular water.

**Valley Bottom:** Broad flat areas between the mountain ranges.

**Valley Slopes – Gentle:** Slopes between the valley bottoms and the base of the mountains.

**Mountain Slopes – Steep:** Steep, difficult areas to climb that lie above the bottoms of the canyons.

**Mountain Slopes – Gentle:** Slopes that are generally easy to climb. They usually occur between the riparian areas (and canyon bottoms) and the steep mountain slopes.

**Disturbed – Fire:** An area where a fire recently burned and disturbed the vegetation.

**Disturbed – Human:** These are areas where man has removed the native plants and/or changed (moved) the soil. Nearby examples include the roads, the campground and mining areas.

*Letters after the scientific name on the following plant list provide information about life-history characteristics. Some forbs have many different species; some of which are annuals, some biennials and some perennials. When only the genus is shown, the subsequent letters may show multiple life forms that are present within the genus.*

- *N = Native*
- *I = Introduced*
- *A = Annual*
- *B = Biennial*
- *P = Perennial*

<b>TREES</b>	<b>Riparian</b>	<b>Valley Bottom</b>	<b>Valley Slopes : Gentle</b>	<b>Mountain Slopes: Steep</b>	<b>Mountain Slopes : Gentle</b>	<b>Disturbed: Fire</b>	<b>Disturbed : Human</b>
Chokecherry (also a shrub) <i>Prunus virginiana</i> – N							
Cottonwood <i>Populus fremontii</i> – N							
Mountain mahogany, curlleaf (young plants resemble a shrub) <i>Cercocarpus ledifolius</i> – N							
Quaking aspen <i>Populus tremuloides</i> – N							
Russian olive <i>Elaeagnus angustifolia</i> – I							
Single leaf pinion pine <i>Pinus monophylla</i> – N							
Utah juniper <i>Juniperus osteosperma</i> – N							
Water birch <i>Betula occidentalis</i> – N							

<b>SHRUBS</b>	<b>Riparian</b>	<b>Valley Bottom</b>	<b>Valley Slopes : Gentle</b>	<b>Mountain Slopes: Steep</b>	<b>Mountain Slopes : Gentle</b>	<b>Disturbed: Fire</b>	<b>Disturbed : Human</b>
Big sagebrush – Wyoming (leaves sticky and strong smell when crushed; shorter seed stalk) <i>Artemisia tridentata</i> ssp. <i>Wyomingensis</i> – N							
Big sagebrush – mountain (not sticky; smell fades quickly when crushed; flat top; long seed stalk, “candles on a birthday cake”) <i>Artemisia tridentata</i> ssp. <i>vaseyana</i> – N							
Big sagebrush – basin big <i>Artemisia tridentata</i> ssp. <i>tridentata</i> – N							
Broom snakeweed <i>Gutierrezia sarothrae</i> – N							
Chokecherry (also a small tree) <i>Prunus virginiana</i> – N							
Cliff rose, Mexican <i>Purshia stansburyana</i> – N							
Currant <i>Ribes cereum</i> – N							
Desert peach <i>Prunus andersonii</i> – N							
Dogwood, redosier <i>Cornus sericea</i> – N							
Elderberry, blue <i>Sambucus nigra</i> – N							
Gooseberry <i>Ribes velutinum</i> – N							

<b>SHRUBS</b>	<b>Riparian</b>	<b>Valley Bottom</b>	<b>Valley Slopes : Gentle</b>	<b>Mountain Slopes: Steep</b>	<b>Mountain Slopes : Gentle</b>	<b>Disturbed: Fire</b>	<b>Disturbed : Human</b>
Horsebrush, gray <i>Tetradymia canescens</i> – N							
Horsebrush, littleleaf <i>Tetradymia glabrata</i> – N							
Mormon tea, Nevada <i>Ephedra nevadensis</i> – N							
Mormon tea, green <i>Ephedra viridis</i> – N							
Ocean spray <i>Holodiscus</i> spp. – N							
Prickly gilia <i>Leptodactylon pungens</i> – N							
Prickly pear cactus <i>Opuntia</i> spp. – N							
Rabbitbrush – green or small <i>Chrysothamnus viscidiflorus</i> – N							
Rabbitbrush – gray or rubber <i>Chyrsothamnus nauseosus</i> – N							
Sagebrush – low <i>Artemisia arbuscula</i> – N							
Serviceberry <i>Amelanchier alnifolia</i> – N							
Shadscale <i>Atriplex confertifolia</i> – N							

<b>SHRUBS</b>	<b>Riparian</b>	<b>Valley Bottom</b>	<b>Valley Slopes : Gentle</b>	<b>Mountain Slopes: Steep</b>	<b>Mountain Slopes : Gentle</b>	<b>Disturbed: Fire</b>	<b>Disturbed : Human</b>
Snowberry <i>Symphoricarpos oreophilus</i> – N							
Snowbush Ceanothus <i>Ceanothus velutinus</i> – N							
Spiny hopsage <i>Grayia spinosa</i> – N							
Wild rose, Wood's rose <i>Rosa woodsii</i> – N							
Willow spp. <i>Salix</i> spp. – N							
Willow, sandbar (coyote) <i>Salix exigua</i> – N							
Winterfat <i>Krascheninnikovia lanata</i> – N							

<b>GRASSLIKE PLANTS</b>	<b>Riparian</b>	<b>Valley Bottom</b>	<b>Valley Slopes : Gentle</b>	<b>Mountain Slopes: Steep</b>	<b>Mountain Slopes : Gentle</b>	<b>Disturbed: Fire</b>	<b>Disturbed : Human</b>
Baltic rush or wiregrass <i>Juncus balticus</i> – N							
Horsetail <i>Equisetum hyemale</i> – N							
Sedge, Nebraska <i>Carex nebrascensis</i> – N							
Sedge <i>Carex</i> spp. – N							

<b>GRASSES – ANNUAL</b>	<b>Riparian</b>	<b>Valley Bottom</b>	<b>Valley Slopes : Gentle</b>	<b>Mountain Slopes: Steep</b>	<b>Mountain Slopes : Gentle</b>	<b>Disturbed: Fire</b>	<b>Disturbed : Human</b>
Annual bluegrass <i>Poa annua – I</i>							
Cheatgrass <i>Bromus tectorum – I</i>							
Foxtail <i>Hordeum spp. – I</i>							
Six-week fescue <i>Vulpia octoflora – N</i>							

<b>GRASSES – PERENNIAL</b>	<b>Riparian</b>	<b>Valley Bottom</b>	<b>Valley Slopes : Gentle</b>	<b>Mountain Slopes: Steep</b>	<b>Mountain Slopes : Gentle</b>	<b>Disturbed: Fire</b>	<b>Disturbed : Human</b>
Basin wildrye <i>Leymus cinereus – N</i>							
Bluegrass, bulbous <i>Poa bulbosa – I</i>							
Bluegrass, Kentucky <i>Poa pratensis – I</i>							
Bluegrass, Sandburg <i>Poa secunda – N</i>							
Bottlebrush squirreltail <i>Elymus elymoides – N</i>							
Brome grass, mountain <i>Bromus marginatus – N</i>							
Brome grass, smooth <i>Bromus inermis – I</i>							
Idaho fescue <i>Festuca idahoensis – N</i>							
Indian ricegrass <i>Achnatherum hymenoides – N</i>							
Meadow barley <i>Hordeum brachyantherum – N</i>							
Muttongrass <i>Poa fendleriana – N</i>							
Needlegrass, Thurber's <i>Achnatherum thurberianum – N</i>							

<b>GRASSES – PERENNIAL</b>	<b>Riparian</b>	<b>Valley Bottom</b>	<b>Valley Slopes : Gentle</b>	<b>Mountain Slopes: Steep</b>	<b>Mountain Slopes : Gentle</b>	<b>Disturbed: Fire</b>	<b>Disturbed : Human</b>
Needlegrass, needle and thread <i>Hesperostipa comata – N</i>							
Needlegrass, Columbia <i>Achnatherum nelsonii – N</i>							
Needlegrass, Letterman's <i>Achnatherum lettermanii – N</i>							
Oniongrass bulbous <i>Melica bulbosa – N</i>							
Timothy <i>Phleum pratense – I</i>							
Wheatgrass, bluebunch <i>Pseudoroegneria spicata – N</i>							
Wheatgrass, crested <i>Agropyron cristatum – I</i>							
Wheatgrass, rhizomatous (in camp) <i>Elytrigia spp. – I</i>							

<b>FORBS</b>	<b>Riparian</b>	<b>Valley Bottom</b>	<b>Valley Slopes : Gentle</b>	<b>Mountain Slopes: Steep</b>	<b>Mountain Slopes : Gentle</b>	<b>Disturbed: Fire</b>	<b>Disturbed : Human</b>
Annual mustard <i>Brassica</i> spp. – IA							
Arrowleaf balsamroot <i>Balsamorhiza sagittata</i> – NP							
Bedstraw <i>Galium</i> spp. – NP							
Biscuitroot (Lomatium) <i>Lomatium</i> spp. – NP							
Blazing star <i>Mentzelia</i> spp. – NA							
Blue bells <i>Mertensia longiflora</i> – NP							
Blue-eyed Mary <i>Collinsia parviflora</i> – NA							
Broomrape <i>Orobanche</i> spp. – NA							
Buckwheat, Big <i>Eriogonum</i> – NP							
Buckwheat, mat <i>Eriogonum caespitosum</i> – NP							
Buckwheat, oval-leaf <i>Eriogonum ovalifolium</i> – NP							
Buckwheat, sulfur <i>Eriogonum umbellatum</i> – NP							

<b>FORBS</b>	<b>Riparian</b>	<b>Valley Bottom</b>	<b>Valley Slopes : Gentle</b>	<b>Mountain Slopes: Steep</b>	<b>Mountain Slopes : Gentle</b>	<b>Disturbed: Fire</b>	<b>Disturbed : Human</b>
Bur buttercup <i>Ranunulus testiculatus</i> – IA							
Cinquefoil <i>Potentilla</i> spp. – NP							
Columbine <i>Aquilegia formosa</i> . – NP							
Cryptantha <i>Cryptantha</i> spp. – NABP							
Curly dock <i>Rumex crispus</i> – IP							
Daisy <i>Erigeron</i> spp. – NABP							
Daisy, rayless <i>Erigeron inornatus</i> – NP							
Daisy, linear leaf <i>Erigeron linearis</i> – NP							
Dandelion <i>Taraxacum officinale</i> – IP							
Death camas <i>Zigadenus</i> spp. – NP							
Evening primrose <i>Oenothera</i> spp. – NABP							
False dandelion <i>Agoseris glauca</i> – NP							

<b>FORBS</b>	<b>Riparian</b>	<b>Valley Bottom</b>	<b>Valley Slopes : Gentle</b>	<b>Mountain Slopes: Steep</b>	<b>Mountain Slopes : Gentle</b>	<b>Disturbed: Fire</b>	<b>Disturbed : Human</b>
Fiddleneck (Amsinckia) <i>Amsinckia</i> spp. – NA							
Globemallow, desert <i>Sphaeralcea ambigua</i> – NP							
Groundsel <i>Senecio</i> spp. – NP							
Groundsmoke <i>Gayophytum</i> – NA							
Halogeton <i>Halogeton glomeratus</i> – IA							
Hemlock, poison <i>Conium maculatum</i> – IB							
Hemlock, water <i>Cicuta maculata</i> – NP							
Iris, wild <i>Iris missouriensis</i> – NP							
Larkspur <i>Delphinium</i> spp. – NP							
Low white top (hoary cress) <i>Cardaria</i> spp. – IP <i>Noxious Weed</i>							
Lupine <i>Lupinus</i> spp. – NAP							
Milkvetch <i>Astragalus</i> spp. – NPA							

<b>FORBS</b>	<b>Riparian</b>	<b>Valley Bottom</b>	<b>Valley Slopes : Gentle</b>	<b>Mountain Slopes: Steep</b>	<b>Mountain Slopes : Gentle</b>	<b>Disturbed: Fire</b>	<b>Disturbed : Human</b>
Monkey flower <i>Mimulus primuloides</i> – NAP							
Monkshood <i>Aconitum columbianum</i> – N							
Mules ear, wooly <i>Wyethia mollis</i> – NP							
Mullein / miners candle <i>Verbascum</i> – IB							
Orchid, bog <i>Platanthera</i> spp. – NP							
Paintbrush, Indian <i>Castilleja</i> spp. – NP							
Penstemon or beard tongue <i>Penstemon</i> spp. – NP							
Phlox, longleaf <i>Phlox longifolia</i> – NP							
Phlox, prickly <i>Phlox hoodii</i> – NP							
Pincushion, Douglas' <i>Chaenactis douglasii</i> – NBP							
Poverty weed <i>Iva nevadensis</i> – NA							
Prickly lettuce <i>Lactuca serriola</i> – IA							

<b>FORBS</b>	<b>Riparian</b>	<b>Valley Bottom</b>	<b>Valley Slopes : Gentle</b>	<b>Mountain Slopes: Steep</b>	<b>Mountain Slopes : Gentle</b>	<b>Disturbed: Fire</b>	<b>Disturbed : Human</b>
Prickly poppy <i>Argemone platyceras.</i> – NAB							
Prince's plume <i>Stanleya pinnata</i> – NP							
Prostrate knotweed <i>Polygonum arenastrum</i> – IAB							
Rockcress <i>Arabis</i> spp. – NP							
Rosy everlasting <i>Antennaria rosea</i> – NP							
Russian knapweed <i>Centaurea repens</i> – IP <i>Noxious Weed</i>							
Scarlet gilia <i>Gilia aggregate</i> – NP							
Salsify <i>Tragopogon dubius.</i> – IB							
Sandwort <i>Arenaria</i> spp. – NP							
Sego lily <i>Calochortus nuttallii</i> – NP							
Shooting star <i>Dodecatheon</i> spp. – NP							
Skeleton weed <i>Stephanomeria spinosa</i> – NP							

<b>FORBS</b>	<b>Riparian</b>	<b>Valley Bottom</b>	<b>Valley Slopes : Gentle</b>	<b>Mountain Slopes: Steep</b>	<b>Mountain Slopes : Gentle</b>	<b>Disturbed: Fire</b>	<b>Disturbed : Human</b>
Skunk cabbage <i>Lysichiton americanus</i> – NP							
Stickseed <i>Hackelia micrantha.</i> – NAP							
Sticky geranium <i>Geranium viscosissimum</i> – NP							
Stinging nettle <i>Urtica dioica</i> – NP							
Stone seed <i>Lithospermum</i> spp. – NP							
Storksbill <i>Erodium cicutarium</i> – IA							
Tapertip hawksbeard <i>Crepis acuminata</i> – NP							
Thistle, Russian <i>Salsola kali</i> – IA							
Watercress <i>Rorippa nasturtium-aquaticum</i> – IP							
Waterleaf <i>Phacelia</i> spp. – NP							
Wild onion <i>Allium</i> spp. – NP							
Yarrow <i>Achillea</i> spp. – NP							
Yellow sweet clover <i>Melilotus officinalis</i> – IB							



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