

Vegetation Survey Report

National Renewable Energy Laboratory
South Table Mountain Site

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EXECUTIVE SUMMARY

A vegetation survey was performed at the National Renewable Energy Laboratory's (NREL) South Table Mountain (STM) site over the period of June, 2001 through May, 2002. The survey was performed with five primary objectives:

- 1) identify general habitats and plant communities,
- 2) survey and map noxious weeds on the site,
- 3) survey the site for sensitive plant communities, species, or species of concern,
- 4) make management recommendations for the site based the survey results, emphasizing revegetation methods and techniques and weed control, and
- 5) create a Geographic Information System (GIS) database and maps of the collected vegetation data.

Five general habitats were described on the STM site, comprising seven plant communities. No rare /or imperiled plant species were found in suitable habitat on the site. An area of mixed foothills shrublands (defined as tall shrublands in this study) is located along the top of the mesa within the conservation easement area on the STM site. This natural community is listed as rare and imperiled by the Colorado Natural Heritage program. This listing implies no legal designation or regulatory enforcement. It is made primarily for management planning purposes. This area of the STM site is minimally impacted by existing research facilities or other disturbances.

Eleven noxious weed species were located on the STM site. Three of these are on the Colorado Noxious Weed Act list of prioritized-for-control weed species. Vegetation management recommendations made for the site specifically address the control of these species using Integrated Weed Management (IWM) techniques. Revegetation methods, techniques, and a site-specific seed mix are also included in the vegetation management recommendations.

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1.0 INTRODUCTION

This document presents the results of a vegetation survey at the National Renewable Energy Laboratory's (NREL) South Table Mountain Site (STM). The survey was conducted over most of an entire growing season in order to capture the maximum plant species diversity of the 300-acre STM site. Surveys activities began in the summer of 2001 and continued throughout the fall of 2001 and into the spring and early summer of 2002.

This survey was performed with five primary objectives:

- Identify and characterize of all major plant communities on the site. This included compilation of a list of plant species located in each community over the course of the seasonal surveys.
- Survey site for sensitive plant communities, or potential habitat for sensitive plant species or species of special concern.
- Survey and map noxious weeds, using Global Positioning System (GPS) technology, and assess the location, distribution, and condition of any weed populations and the concurrent effects of weed management activities.
- Provide recommendations for land management practices designed to preserve native plant communities and promote revegetation using native plants.
- Create Geographic Information System (GIS) database and maps of the above vegetation data.

Section 2.0 of this document presents a description of field methods used in the survey. Section 3.0 discusses the survey results. References are listed in Section 4.0. Appendix A contains plant species lists, by community. Plant community photographs are located in Appendix B. Appendix C contains a Colorado Natural Heritage Program database review of the site vicinity. Vegetation management recommendations for the site are located in Appendix D. A letter of qualifications to perform Ute ladies'-tresses (*Spiranthes diluvialis*) surveys is in Appendix E.

2.0 METHODS

2.1 Ground Survey Methods

Five major plant habitats were defined on the STM site using recent aerial photos and topographic maps, site orientation by the technical monitor, and site reconnaissance. Each habitat type comprises one or more plant communities, defined by dominant floristic and physiognomic characteristics.

The STM site was visited on several occasions from June to October, 2001. Spring and early summer surveys were also performed in March, April and May, 2002. Parallel transects were walked through each defined habitat during site visits. Plant species encountered in each transect were recorded on running lists maintained for each habitat. These lists include the

appropriate Latin binomial (and any synonymies), common name, family, origin (native/introduced), seasonality (for grasses), and life form for each plant species.

Plants were field-identified to the lowest taxon possible. When necessary, specimens were sampled for further lab identification. Some specimens were taken to the University of Colorado herbarium for identification confirmation. Taxonomic authority for this study is Weber and Whittmann (1992 and 2001). Binomial synonymies are also listed following the Great Plains Flora Association (1986).

Representative photographs of all site plant communities were collected during throughout the summer and fall surveys. Photos were taken from the same locations during the spring and early summer surveys.

2.1.1 Noxious Weeds

Noxious weeds encountered in each plant community are included in the appropriate species lists. The locations of noxious weed populations were recorded using Global Positioning System (GPS) technology. These data included an estimate of weed population size.

2.1.2 Sensitive Species Survey

A search of the Colorado Natural Heritage Program (CNHP) Biological and Conservation Datasystem (BCD) for natural resources was requested for the immediate area (within a two-mile buffer) of the STM site (T3S R70W, Section 36). This database contains recorded occurrences of significant natural communities and rare or endangered plants and animals in the vicinity of the site. The resulting report describes the natural heritage resources known from the described area by location and date of the last observation. The report also summarizes the status of each resource with standardized Natural Heritage Program ranks, and status according to State of Colorado and federal statutes, including the U.S. Fish and Wildlife Service (Endangered Species Act), the Colorado Division of Wildlife, as well as species considered sensitive by the U.S. Forest Service, and the Bureau of Land Management.

The results of this report were used to focus the survey for potential sensitive plant species on the STM site. Appropriate habitat for likely candidates was surveyed carefully when they are most likely to be visible. Ute ladies'-tresses (*Spiranthes diluvialis*) is the only federal listed plant species potentially to occur on the STM site. A specific survey for this orchid was conducted in appropriate potential habitat at the STM site during the specified late-summer period in 2001.

2.2 Management Recommendations

The currently used revegetation guidelines, seed mixture, and planting specifications for the STM site were reviewed in terms of the revegetation objectives for the site. Revisions to these guidelines were included in management recommendations for the native plant communities and noxious weeds on the STM site. These recommendations have been made in the context of information acquired during this plant survey including plant community composition and dynamics and previous weed control efforts.

2.3 GIS Database

GIS datasets were developed for the vegetation community delineations and noxious weed populations. Vegetation data were drawn on mylar overlays using true color aerial photography (scale, 1" = 500") as a map base. Ground-truthing was conducted as necessary. Polygons were digitized from the mylar overlays, projected, cleaned, and built using ArcInfo. The true color aerial photograph has been rectified (assigned a coordinate system), providing a suitable base map for both datasets.

Weed data collected with a Trimble GeoExplorer III were differentially corrected, projected and exported to ArcView shapefiles. Final coverages were cleaned and built using ArcInfo 8.1.

Both datasets have been converted to AutoCAD dxf files for use with existing NREL datasets. The projected ArcInfo coverages and aerial photograph are provided for use at a later date or as a basis for additional analyses. An AutoCAD compatible GIS shapefile database has been generated from these data. Maps included in this document were created with these data layers over the geo-referenced aerial photo.

3.0 SURVEY RESULTS

3.1 Ground Survey

Five major vegetation habitats occur on the STM site. A sixth, non-vegetated developed category was also defined that includes parking lots, buildings and roads (Table 1). Grassland and shrubland habitats are by far the most extensive native vegetation types. Both are subdivided into two distinct plant communities, based on their relative topographical position and dominant species. The disturbed habitat type and other developed areas represent the third-most extensive types. Wetland vegetation comprises, by far, the smallest portion of the STM site. Each habitat and associated communities are described below. Figure 1 presents a map of all the habitats on the STM site.

Species lists for these habitats are located in Appendix A. Unfortunately, full expression of the expected spring and early summer species diversity was not captured during this survey due to the extreme drought conditions during the 2001/2002 winter/ spring seasons.

Appendix B contains photographs of each community. Due to the drought, the spring/ summer photographs of each community do not reflect the typical appearance of the plant communities during these seasons. Much of the grassland was still not greening, even by May, 2002 and many of the shrubs had very reduced canopies.

3.1.1 Grasslands

Grasslands are the predominant habitat on the STM site, comprising 70 percent of the total area. In general, the grassland areas throughout the site have the same species composition. However, these areas are considered two distinct communities based on their location and the relative dominance by different grass species in each.

**Figure 1: National Renewable Energy Laboratory South Table Mountain Site
Vegetation Communities (not available)**

Short-grass grassland

The short-grass community is found on the flat top of the mesa. The dominant grass species are blue grama (*Chondrosium gracile*, formerly *Boutelous gracilis*), a native prairie species, and cheatgrass (*Anisantha tectorum*, formerly *Bromus tectorum*), a noxious weed. Alyssum (*Alyssum parviflorum*), an introduced species is the dominant forb. Several species of prickly pear cactus (*Opuntia fragilis*, *O. macrorhiza*, *O. phaeacantha*, and *O. polyacantha*) occur throughout the shortgrass mesa top as well as hen-and-chicks (*Echinocereus viridiflorus*) and pincushion cacti (*Coryphantha missouriensis* and *C. vivipara* var. *vivipara*). Well-draining hillocks often support thick stands of needle-and-thread grass (*Hesperostipa comata*, formerly *Stipa comata*) and yucca (*Yucca glauca*). Some short shrubs such as rubber rabbitbrush (*Chrysothamnus nauseosus* subsp. *graveolens*) chokecherry (*Padus virginiana*), and skunkbrush (*Rhus aromatica* subsp. *trilobata*) occur infrequently in the shortgrass area and concentrate along the rimrock areas as do a number of large hackberry trees (*Celtis reticulata*) at the very edge of the mesa top.

A few anomalous vegetation assemblages occur within the short-grass grassland. A small, shallow swale occurs in the flat mesa grassland, at the very top of the “amphitheatre” ravine. This area supports a dense stand of mat muhly (*Muhlenbergia richardsonis*) with some small snowberry bushes (*Symphoricarpos occidentalis*) and wild rose (*Rosa arkansana*). A couple of other small, distinctive basins occur just east of the approximate middle of the west side of the racetrack. These areas appear to hold surface water for some periods of time during wet years. This is probably due to a soil or geologic feature that causes this water to perch for periods of time. These basins are rimmed with a number of small plains cottonwood (*Populus deltoides*) saplings. A large amount of bare soil is visible in these areas, along with a distinctive plant species assemblage dominated by curly dock (*Rumex crispus*) and cocklebur (*Xanthium strumarium*).

Historically, this short-grass grassland was probably dominated by blue grama grass and other short-grass species such as buffalo grass (*Buchloe dactyloides*), intermixed with the other species associations described above. However, this entire mesa-top area has become dominated by cheatgrass, an aggressive noxious weed. This is changing the appearance and general species composition of the area by out-competing native plants with an ever-increasing density of cheatgrass.

Mixed-grass grassland

The mesa slopes and toe areas on the STM site also support blue grama and cheatgrass but are dominated by a mixed-grass species association of needle-and-thread grass and western wheatgrass (*Pascopyrum smithii*), with smaller amounts of big bluestem (*Andropogon gerardii*), side-oats grama (*Bouteloua curtipendula*), three-awn (*Aristida purpurea*), and green needle grass (*Nassella viridula*). As in the short-grass areas, a large number of forbs also occur in the mixed-grass grassland.

A few patches of anomalous vegetation occur within the mixed-grassland, where subsurface water appears to be closer to the surface than in most of the area. These areas support wide swaths of mat muhly. One is located on a south-facing slope, near the east property boundary. The other is located on a southwest-facing slope of the ravine north of the Visitor Center. This

area is notable for a large population of poison ivy (*Toxicodendron rydbergii*), which grows in thicket of tall (one meter and larger) plants that have a woody shrublike growth form. A small number of plains cottonwood saplings, skunkbrush, chokecherry, and snowberry occur in this patch as well.

The mixed-grass areas grade into both the upland and ravine shrublands and contribute the majority of understory in these areas. Some mixed-grass areas also blend into disturbed areas, where reclamation species such as crested wheatgrass (*Agropyron cristatum*) and smooth brome (*Bromopsis inermis*) have been planted and have moved into the mixed-grass community.

The rectangle of land on the south side of the main road (Camp George West) was classified as mixed grassland. Several places within this area are actually dominated by non-native reclamation and pasture grasses such as smooth brome and crested wheatgrass. However, a large portion of this area supports native mixed-grass species. This area is bisected by two shallow ephemeral drainages that occasionally conduct surface water flow from the mesa ravines off of the site. These drainages support primarily grassland species as well as a fair amount of Canada thistle (*Breca arvensis* formerly *Cirsium arvense*). A list of the plant species found in the STM grassland habitat is located in Appendix A.

3.1.2 Upland Shrublands

Shrubland habitat occurs along bottoms and sides of the ravines, and on the steeper mesa slopes, becoming more prominent as elevation increases up to the top of the mesa (Figure 1). The upland shrubland habitat, which excludes the shrublands in the ravine bottoms, comprises two communities, very similar in overall composition but distinguished by the dominant species. The tall shrubland areas are defined by stands of mountain-mahogany (*Cercocarpus montanus*) that occur along the rim of the mesa, usually where volcanic cap rock is exposed and on the upper mesa slopes below the rimrock areas. The understory is notably sparse throughout this community, with a large amount of bare soil. Cheatgrass is the most common herbaceous species in these areas, intermixed with needle-and-thread grass, yucca and many cacti.

The short shrublands occur on elevated flat areas amidst the surrounding grasslands, some of which appear to have experienced surficial disturbance in the past. These areas are distinctive because of their dominance by rubber rabbitbrush (*Chrysothamnus nauseosus*). The other common location for short shrublands is on the outer slopes of the ravines. Skunkbrush defines these and other short shrublands along the upper portions of the steepest slopes of the mesa. These communities usually grade into the ravine shrublands along the drainage bottoms and the tall shrublands near the top of the mesa slopes. The short shrubland community also has a sparse understory of the same grasses and forbs as the tall shrub community. A list of the plant species found in the STM shrublands habitat is located in Appendix A.

3.1.3 Ravine Shrublands

Ravine shrublands are limited to the lower sides and bottoms of the drainages that cut down through the mesa slopes. These communities support a variety of shrubs such as skunkbrush, and chokecherry, and wild plum (*Prunus americana*), often growing in dense, impassible

thickets. A few plains cottonwoods and peach-leaf willow (*Salix amygdaloides*) trees occur at the top of the channels and in other portions of the channel where the subsurface water table appears to be relatively high. A diverse herbaceous component is found in these drainages as well. The ravine shrublands grade into ephemeral drainages at the toe of the mesa. These drainages are vegetated with grassland species and conduct only occasional surface water runoff. A list of the plant species found in this habitat is located in Appendix A.

Table 1. Major vegetation habitat types and associated plant communities at the NREL South Table Mountain site.

Habitat Type	Plant Communities	Area (acres)	Percent of Site
Grassland	Short grass grassland	140.46	39.0
	Mixed grass grassland	113.08	31.4
Upland Shrub	Tall shrublands	23.43	6.5
	Short shrublands	17.53	4.9
Ravine shrub	Ravine shrublands	5.97	1.7
Wetland	Wetland	0.42	0.1
Disturbed/ reclaimed	Disturbed/ reclaimed	32.07	8.9
Developed		27.37	7.6
TOTAL		360.33	100

3.1.4 Wetlands

Four very small communities on the STM site were found to support wetland vegetation. These communities were not examined for the soils and hydrology that would classify them as functioning wetlands, rather they are noted only for their domination by wetland vegetation. These are limited to very small areas (less than a half acre in total) within ravines where surface water and/ or subsurface drainage has created pockets of saturated soils.

The two largest and easternmost of these (Figure 1) occur in the drainage north of the Visitor Center. The topographically lower of these is a linear feature that follows the narrow bottom of the small channel for a short way and is bounded to the outside by riparian shrubland vegetation. This area supports cottonwood and willow trees as well as sedges (*Carex* spp.), rushes (*Juncus* spp.), and a variety of grasses and forbs. The soils in this area were wet through September of 2001 and the channel showed signs of flow during that year. In 2002, the soils were barely moist and no flow had clearly occurred since the previous year. A smaller wetland community is located up-gradient in the same ravine. This area has an overstory of peach-leaf willow with a small area of sedges and grasses beneath.

The two smallest wetland communities are simply patches of cattails (*Typha* spp.) located in a ravines to the west. These areas may no longer experience the hydrology that originally

allowed these plants to establish there. The soils were dry and no new cattail growth was observed in 2001, nor in 2002.

3.1.5 Disturbed/reclaimed

This habitat type comprises all of the areas at the site that have experienced surface disturbance to vegetation caused by human activities. These mostly occur on the perimeter of buildings, roads, and parking lots, underground construction sites, and soil dumping areas. Most of these areas appear to have been revegetated and so support a combination of native grassland plants, planted revegetation species, and native and introduced weeds. The former Forest Service tree farm in the southwest corner of the site was included in this area the surface has been disturbed in the past and a number of non-native trees still persist in this area.

3.1.6 Developed

Developed areas comprise the human-constructed, not vegetated portions of the site. These include parking lots, buildings, and roads.

3.2 Noxious Weeds

Eleven plant species listed on the State of Colorado Noxious Weed List were located and mapped on the STM site (Figure 2). These plants are listed in Table 2. Four of these are recognized as belonging to the top ten prioritized-for-control weed species in Colorado due to being the most widespread and causing the greatest economic impact. The presence, and potential spread, of these species represents the largest threat to the community stability and native plant species diversity on the site. These weed species, their locations, and suggested control methods are discussed in the Vegetation Management Recommendations, located in Appendix D.

Table 2. Noxious weed species identified on the NREL South Table Mountain site, listed alphabetically by common name. Species in bold font are on the ten prioritized-for-control weed species for Colorado. Species denoted by an asterisk were found in extremely small populations of one to a few individual plants. Double asterisks denotes weed species that were not mapped.

Common Name	Scientific Binomial	Estimated Area (acres)
Canada thistle	<i>Breea arvensis</i>	15.2
Cheatgrass	<i>Anisantha tectorum</i>	**
Common burdock	<i>Xanthium strumarium</i>	0.1
Common teasel*	<i>Dipsacus fullonum</i> *	0.1
Dalmatian toadflax	<i>Linaria dalmatica</i>	17.1
<i>Diffuse knapweed</i>	<i>Centaurea diffusa</i>	19.2
Field bindweed	<i>Convolvulus arvensis</i>	**
Houndstongue	<i>Cynoglossum officinale</i>	**
Musk thistle	<i>Carduus nutans</i>	2.2
Myrtle spurge	<i>Euphorbia myrsinites</i>	0.1
Ox-eye daisy	<i>Leucanthemum vulgare</i>	0.1
	Total	>54.2

Almost half of the noxious weeds species on the STM occur in few, or even single, populations. These include musk thistle common burdock, common teasel, myrtle spurge, and ox-eye daisy. Musk thistle was found in very small, dense patches in a handful of locations. The rest are found in single populations.

Canada thistle and diffuse knapweed are found in a large number of locations. In some of these the populations are quite dense and extensive. Dalmatian toadflax is widespread across the site, usually occurring in a diffuse pattern of individual plants or very small populations. Houndstongue is so predictably prevalent at the bottom of the ravines that it wasn't mapped. Neither was field bindweed, which occurs in all of the disturbed/ reclaimed areas as well as along all the roads and trails. Cheatgrass is by far the most extensive noxious weed on the site. It occurs as a dense and extensive population where it dominates the mesa top. This species was also not mapped.

Regardless of the population sizes or distributions, the presence of these weeds indicates favorable conditions for weed invasion throughout the site. As all of the weed species identified are listed, in part, due to their ability to rapidly establish large populations, it is not reasonable to expect that even the small patches will remain static in terms of their size for any length of time.

3.3 Sensitive Communities/ Species Survey

The CNHP database search resulted in the listed occurrences of two rare/imperiled natural communities and five rare/or imperiled plant species within the vicinity of the STM site (Table 2.2). A copy of this report is located in Appendix C. Two of the plant species on this list were eliminated from consideration for this study because they are limited to general habitat that does not occur on the STM site (e.g. subalpine meadows).

Only one species, Rocky Mountain sedge (*Carex saximontana*) has known occurrences in Section 36 of the same township/range as the STM site. Although it has not been definitively identified at the site, there may be appropriate habitat for this species. Specific surveys for this plant were conducted in the spring, 2002. No plants were found. However, the very unusual drought conditions in this spring season may have prevented expression of this species, if it does occur within the moister locations in the ravine shrubland community on the STM site.

Torrey sedge (*Carex torreyi*) is a very rare sedge found in dry woodlands and gulches in the foothills near Boulder. The STM shrublands may be potential habitat for this species. This community was a focus of surveys for the Torrey sedge during the early summer 2002 survey. No plants were found. Again, drought conditions may influence this result. However, it does not appear that there is completely appropriate habitat for this species on the STM site.

American current (*Ribes americanum*) is considered an endemic species to an area south of the STM site. It is found in rock outcrops along the edge of riparian corridors. Although the site may be out of the range of this species, and it does not appear that there is completely appropriate habitat for this species on the STM site, the more mesic ravine shrub and wetland communities were the focus on surveys for this shrub during the early summer 2002 surveys. No plants were found

The official survey period for the Ute ladies'-tresses orchid in Colorado is July 20 through August 31. This is the normal bloom time for this species and so is when it is most easily seen in the field. Known populations of the orchid in Boulder County were visited and photographed the day before surveys for this plant were conducted at the STM site to guarantee local populations were blooming. All of the wetland communities and ravine bottoms were surveyed, as well as all of the ephemeral drainages. No Ute ladies'-tresses orchid plants were located during this period. Although the STM site falls within the geographical range of Ute ladies'-tresses, no appropriate habitat for this species was noted on the site. A report of these findings has been filed with the US Fish and Wildlife Service. A letter of qualification for Maureen O'Shea-Stone to conduct these surveys is located in Appendix E.

Prairie violet (*Viola pedatifida*) occurs in habitat similar to the shortgrass grassland community on the STM site. This community was the focus of surveys for the prairie violet during its spring blooming period. No plants were found. However, as the appropriate habitat for this species does appear to occur in some portions of the rockier places in the mesa top shortgrass community, the very unusual drought conditions in the spring of may have prevented expression of this species.

One of the two communities listed in the CNHP database review appears to occur on the STM site. The species composition of the tall upland shrub community corresponds to the rare or imperiled mixed foothills shrublands (*Cercocarpus montanus/ Stipa comata*) listed by the CNHP. However, as in most of the examples of this community along the Colorado Front Range, this shrub community exists in a degraded state on the STM site due to its infestation by cheatgrass.

The CNHP assigns individual species, or natural communities, a rank that indicates its relative degree of imperilment on a five point scale (from 1 = critically imperiled to 5 = relatively secure). The primary ranking criterion is the number of known locations within the State of Colorado (S-rank) and over the species or community's entire range (G or Global rank). The CNHP assigns the mixed foothills shrubland community a state rank of S2. This means the community is considered rare in the state (6 to 20 occurrences) or because other factors make it very vulnerable to extirpation from the state. The CNHP assigns this community a global rarity rank of G2. This means the community is considered to be imperiled globally because of rarity (6 to 20 occurrences) or because other factors make it very vulnerable to extinction throughout its range (CNHP, 1996).

These rankings, and consequent listing as rare or imperiled, impose no legal designation or regulatory controls. They have been designated primarily for conservation and management planning purposes. The presence of this plant community on the STM site implies good land conditions and high quality stewardship. To continue managing the site for maintenance of plant species and community diversity, it is highly recommended that these areas of be avoided during future construction projects.

The mixed grass grassland community on the lower areas of the STM site supports many of the dominant species that distinguish the rare needle-and-thread grass prairie community

(*Stipa comata* – east), as defined by the CNHP. However, the total species composition and general description of this prairie type do not completely over-lap with the mixed-grass prairie community on the STM site. It was concluded that this community does not occur on the STM site.

Table 3 Potential Rare and/or Imperiled Plant Species and Natural Communities at the NREL South Table Mountain site. Natural Heritage ranks are standardized across the Heritage Program network and are assigned for global (G) and state (S) levels of rarity. They range from a “1” classification for critically imperiled or extremely rare elements, to 5 for those that are demonstrably secure (CNHP, 1996).

Common Name	Binomial	Status	Description	Potential Habitat	Potential STM Community
Rocky Mountain Sedge	<i>Carex saximontana</i>	G5 S1	Sedge Family	Pine forests and shrub thickets	Ravine shrublands
Torrey sedge	<i>Carex torreyi</i>	G4 S1	Sedge Family	Dry woodlands and gulches	Upland and ravine shrublands
American current	<i>Ribes americanum</i>	G5 S2	Gooseberry Family Shrub with large, strongly 3-lobed leaves. Cream white flowers, black fruits, lower leaf surfaces with resinous dots.	Moist shrublands	Ravine shrub and wetlands
Ute ladies'-tresses	<i>Spiranthes diluvialis</i>	US:LT G2 S2	Orchid Family. Many small, white flowers spiral along top few inches of foot-tall flowering stalks from a rosette of linear basal leaves.	Requires wet conditions, often in areas with subsurface water, usually over gravel soils, in lush, grassy meadows little overstory	Wetland
Prairie violet	<i>Viola pedatifida</i>	G5 S2	Violet family Low plant with leaves dissected in narrow lobes. Blue-violet flowers. Flowers in early spring to June.	Prairies and open woodlands on rocky soils	Shortgrass grassland

Table 3 (continued). Potential Rare and/or Imperiled Plant Species and Natural Communities at the NREL South Table Mountain site. Natural Heritage ranks are standardized across the Heritage Program network and are assigned for global (G) and state (S) levels of rarity. They range from a “1” classification for critically imperiled or extremely rare elements, to 5 for those that are demonstrably secure (CNHP, 1996).

Common Name	Binomial	Status	Potential STM Community
Mixed foothills shrublands	Mountain mahogany/ needle-and-thread grass shrubland (<i>Cercocarpus montanus/ Stipa comata</i>)	G2 S2	Tall shrublands
Great Plains mixed grass prairies	Needle-and-thread grass prairie (<i>Stipa comata – east</i>)	G2 S2	Mixed grass grassland

4.0 REFERENCES

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APPENDIX A

NREL South Table Mountain Site

Plant Community Species Lists

Legend to classification codes:

Origin:

Refers to origin of species

N Native to the Front Range area

I Introduced or exotic species

Season

Refers to blooming/production season for grass species

C cold season (spring/early summer)

W warm season (mid to late summer)

Life form

Refers to life form/strategy of species

AF annual forb

BF/PF biennial/ perennial forb

BF biennial forb

PF perennial forb

AG annual grass/graminoid

PG perennial grass/graminoid

SU succulent

SS subshrub

S shrub

T tree

V vine

**Mountain Site
Grassland Plant Communities Species List**

Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life Form
<i>Adenolinum lewisii</i>	<i>Linum lewisii</i>	Wild flax	Linaceae - Flax Family	N	NA	PF
<i>Aegilops cylindrica</i>		Jointed goatgrass	Poaceae - Grass Family	I	C	AG
<i>Agaloma marginata</i>		Snow-on-the-mountain	Euphorbiaceae - Spurge Family	N	NA	PF
<i>Agoseris glauca</i>		False dandelion	Asteraceae - Sunflower Family	N	NA	PF
<i>Agropyron cristatum</i>		Crested wheatgrass	Poaceae - Grass Family	I	C	PG
<i>Alyssum parviflorum</i>	<i>Alyssum minus</i>	Alyssum	Brassicaceae - Mustard Family	I	NA	AF
<i>Ambrosia psilostachya</i>		Western ragweed	Asteraceae - Sunflower Family	N	NA	PF
<i>Andropogon gerardii</i>		Big bluestem	Poaceae - Grass Family	N	W	PG
<i>Anisantha tectorum</i>	<i>Bromus tectorum</i>	Cheatgrass	Poaceae - Grass Family	I	C	AG
<i>Apocynum cannabinum</i>		Indian hemp	Apocynaceae - Dogbane Family	N	NA	PF
<i>Argemone hispida</i>		Hairy poppy	Papaveraceae - Poppy Family	N	NA	PF
<i>Aristida purpurea</i>		Three-awn	Poaceae - Grass Family	N	W	PG
<i>Artemisia biennis</i>		Sagewort	Asteraceae - Sunflower Family	I	NA	PF
<i>Artemisia frigida</i>		Fringed sagebrush	Asteraceae - Sunflower Family	N	NA	SS
<i>Artemisia ludoviciana</i>		Prairie sagewort	Asteraceae - Sunflower Family	N	NA	PF
<i>Asclepias pumila</i>		Plains milkweed	Aclepiadaceae - Milkweed Family	N	NA	PF
<i>Asclepias speciosa</i>		Showy milkweed	Asclepiadaceae - Milkweed Family	N	NA	PF
<i>Aster porteri</i>		White aster	Asteraceae - Sunflower Family	N	NA	PF
<i>Astragalus drummondii</i>		Drummonds milk vetch	Fabaceae - Pea Family	N	NA	PF
<i>Astragalus shortianus</i>		Milk vetch	Fabaceae - Pea Family	N	NA	PF
<i>Bassia sieversiana</i>	<i>Kochia scoparia</i>	Kochia	Chenopodiaceae - Goosefoot Family	I	NA	AF
<i>Bouteloua curtipendula</i>		Side-oats grama	Poaceae - Grass Family	N	W	PG
<i>Brickellia rosmarinifolia</i> subsp. <i>chlorolepis</i>	<i>Kuhnia chlorolepis</i>	Brickellia	Asteraceae - Sunflower Family	N	NA	PF
<i>Bromopsis inermis</i>	<i>Bromus inermis</i>	Smooth brome	Poaceae - Grass Family	I	C	PG
<i>Bromus japonicus</i>		Japanese brome	Poaceae - Grass Family	I	C	AG
<i>Carduus nutans</i>		Musk thistle	Asteraceae - Sunflower Family	I	NA	BF
<i>Carex brevior</i>		Sedge	Cyperaceae - Sedge Family	N	NA	PG
<i>Carex pensylvanica</i> subsp. <i>heliophila</i>		Sun sedge	Cyperaceae - Sedge Family	N	NA	PG
<i>Castilleja integra</i>		Indian paintbrush	Scrophulariaceae - Figwort Family	N	NA	PF
<i>Celtis reticulata</i>		Netleaf hackberry	Ulmaceae - Elm Family	N	NA	T
<i>Centaurea diffusa</i>		Diffuse knapweed	Asteraceae - Sunflower Family	I	NA	BF/PF
<i>Chamaesyce glyptosperma</i>	<i>Euphorbia glyptosperma</i>	Ridgeseed spurge	Euphorbiaceae - Spurge Family	N	NA	AF

Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life Form
<i>Chenopodium berlandieri</i>		Goosefoot	Chenopodiaceae - Goosefoot Family	N	NA	AF
<i>Chondrosium gracile</i>	<i>Bouteloua gracilis</i>	Blue grama	Poaceae - Grass Family	N	W	PG
<i>Chrysothamnus nauseosus</i> subsp. <i>graveolens</i>		Rubber rabbitbrush	Asteraceae - Sunflower Family	N	NA	S
<i>Cirsium arvense</i>		Canada thistle	Asteraceae - Sunflower Family	I	NA	PF
<i>Cirsium canescens</i>		Hairy thistle	Asteraceae - Sunflower Family	N	NA	PF
<i>Cirsium undulatum</i>		Wavyleaf thistle	Asteraceae - Sunflower Family	N	NA	BF
<i>Commandra umbellata</i>		Bastard-toadflax	Santalaceae - Sandelwood Family	N	NA	PF
			Convolvulaceae - Morning Glory Family			
<i>Convolvulus arvensis</i>		Field bindweed	Family	I	NA	PF
<i>Coreopsis tinctoria</i>		Plains coreopsis	Asteraceae - Sunflower Family	N	NA	PF
<i>Coryphantha missouriensis</i>		Yellow pincushion	Cactaceae - Cactus Family	N	NA	SU
<i>Coryphantha vivipara</i> var. <i>vivipara</i>		Nipple cactus	Cactaceae - Cactus Family	N	NA	SU
<i>Critesion jubatum</i>	<i>Hordeum jubatum</i>	Foxtail barley	Poaceae - Grass Family	N	C	PG
<i>Dalea candida</i>	<i>Petalostemon candida</i>	White prairie clover	Fabaceae - Pea Family	N	NA	PF
<i>Dalea purpurea</i>	<i>Petalostemon purpurea</i>	Purple prairie clover	Fabaceae - Pea Family	N	NA	PF
<i>Delphinium carolinianum</i> subsp. <i>virescens</i>	<i>Delphinium virescens</i>	Prairie larkspur	Helleboraceae - Hellebore Family	N	NA	PF
<i>Dyssodia papposa</i>		Fetid marigold	Asteraceae - Sunflower Family	N	NA	PF
<i>Echinocereus viridiflorus</i>		Hen-and-chicks	Cactaceae - Cactus Family	N	NA	SU
<i>Echinocerus triglochidialis</i>		Claret cup	Cactaceae - Cactus Family	N	NA	SU
<i>Elaeagnus angustifolia</i>		Russian-olive	Elaeagnaceae - Oleaster Family	I	NA	T
<i>Eleocharis elliptica</i> var. <i>compressa</i>		Spikerush	Cyperaceae - Sedge Family	N	NA	PG
<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>	<i>Agropyron caninum</i> subsp. <i>majus</i>	Slender wheatgrass	Poaceae - Grass Family	N	C	PG
<i>Erigeron colo-mexicanus</i>		Fleabane	Asteraceae - Sunflower Family	N	NA	PF
<i>Erigeron flagellaris</i>		Daisy fleabane	Asteraceae - Sunflower Family	N	NA	BF
<i>Eriogonum annuum</i>		Annual eriogonun Spreading wild buckwheat	Polygonaceae - Buckwheat Family	N	NA	AF
<i>Eriogonum effusum</i>		buckwheat	Polygonaceae - Buckwheat Family	N	NA	PF
<i>Eriogonum flavum</i>		Yellow wild buckwheat	Polygonaceae - Buckwheat Family	N	NA	PF
<i>Eriogonum umbellatum</i>		Wild buckwheat	Polygonaceae - Buckwheat Family	N	NA	PF
<i>Erodium cicutarium</i>		Filaree	Geraniaceae - Geranium Family	I	NA	AF
<i>Erysimum capitatum</i>		Western wallflower	Brassicaceae - Mustard Family	N	NA	BF

Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life Form
<i>Fraxinus pensylvanica</i> var. <i>lanceolata</i>		Green ash	Oleaceae - Olive Family	I	NA	T
<i>Gaillardia aristata</i>		Blanketflower	Asteraceae - Sunflower Family	N	NA	PF
<i>Gaura mollis</i>	<i>Gaura parviflora</i>	Gaura	Onagraceae - Evening-primrose Family	N	NA	PF
<i>Gaura parviflora</i>		Smallflower gaura	Onagraceae - Evening-primrose Family	N	NA	AF
<i>Geranium caespitosum</i> subsp. <i>caespitosum</i>		Wild geranium	Geraniaceae - Geranium Family	N	NA	PF
<i>Grindelia inornata</i>		Rayless gumweed	Asteraceae - Sunflower Family	N	NA	PF
<i>Grindelia squarrosa</i>		Curlycup gumweed	Asteraceae - Sunflower Family	N	NA	BF
<i>Helianthus annuus</i>		Common sunflower	Asteraceae - Sunflower Family	N	NA	AF
<i>Helianthus pumilus</i>		Sunflower	Asteraceae - Sunflower Family	N	NA	PF
<i>Hesperostipa comata</i>	<i>Stipa comata</i>	Needle-and-thread	Poaceae - Grass Family	N	C	PG
<i>Hesperostipa comata</i>	<i>Stipa comata</i>	Needle-and-thread	Poaceae - Grass Family	N	C	PG
<i>Heterotheca villosa</i>	<i>Chrysopsis villosa</i>	Hairy golden aster	Asteraceae - Sunflower Family	N	NA	SS
<i>Lactuca serriola</i>		Prickly lettuce	Asteraceae - Sunflower Family	I	NA	BF
<i>Lesquerella ludoviciana</i>		Bladderpod	Brassicaceae - Mustard Family	N	NA	PF
<i>Liatris punctata</i>		Dotted gayfeather	Asteraceae - Sunflower Family	N	NA	PF
<i>Linaria genistifolia</i> subsp. <i>dalmatica</i>	<i>Linaria dalmatica</i>	Dalmatian toadflax	Scrophulariaceae - Figwort Family	I	NA	PF
<i>Lithospermum incisum</i>		Narrowleaf gromwell	Boraginaceae - Borage Family	N	NA	PF
<i>Lupinus argenteus</i>		Silver lupine	Fabaceae - Pea Family	N	NA	PF
<i>Lygodesmia juncea</i>		Rush skeletonplant	Asteraceae - Sunflower Family	N	NA	PF
<i>Melilotus officinalis</i>		Yellow sweetclover	Fabaceae - Pea Family	I	NA	BF
<i>Mertensia lanceolata</i>		Bluebells	Boraginaceae - Borage Family	N	NA	PF
<i>Muhlenbergia richardsonis</i>		Mat muhly	Poaceae - Grass Family	N	W	PG
<i>Nuttalia nuda</i>		Blazingstar	Loasaceae - Loasa Family	N	NA	PF
<i>Oligosporus pacificus</i>	<i>Artemisia campestris</i>	Field sagewort	Asteraceae - Sunflower Family	N	NA	PF
<i>Onopordum acanthium</i>		Scotch thistle	Asteraceae - Sunflower Family	I	NA	BF
<i>Opuntia fragilis</i>		Brittle cactus	Cactaceae - Cactus Family	N	NA	SU
<i>Opuntia macrorhiza</i>		Plains prickly pear	Cactaceae - Cactus Family	N	NA	SU
<i>Opuntia phaeacantha</i>		New Mexican prickly pear	Cactaceae - Cactus Family	N	NA	SU
<i>Opuntia polyacantha</i>		Plains prickly pear	Cactaceae - Cactus Family	N	NA	SU
<i>Oxytropis lambertii</i>		Lambert locoweed	Fabaceae - Pea Family	N	NA	PF
Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life

						Form
<i>Padus virginiana</i> subsp. <i>melanocarpa</i>	<i>Prunus virginiana</i>	Chokecherry	Rosaceae - Rose Family	N	NA	S
<i>Panicum virgatum</i>		Switchgrass	Poaceae - Grass Family	N	W	PG
<i>Paronychia jamesii</i>		James' nailwort	Alsiniaceae - Chickweed Family	N	NA	PF
<i>Pascopyrum smithii</i>	<i>Agropyron smithii</i>	Western wheatgrass	Poaceae - Grass Family	N	C	PG
<i>Penstemon virgatus</i>		Penstemon	Scrophulariaceae - Figwort Family	N	NA	PF
<i>Penstemon angustifolius</i>		Narrow beardtongue	Scrophulariaceae - Figwort Family	N	NA	PF
	<i>Phacelia hastata</i> var. <i>leucophylla</i>	Scorpionweed	Hydrophyllaceae - Waterleaf Family	N	NA	PF
<i>Phacelia heterophylla</i>		Fiddle bladderpod	Brassicaceae - Mustard Family	N	NA	PF
<i>Physaria vitulifera</i>		Fiddle bladderpod	Brassicaceae - Mustard Family	N	NA	PF
<i>Plantago patagonica</i>		Woolly plantain	Plantaginaceae - Plantain Family	N	NA	AF
<i>Poa compressa</i>		Canada bluegrass	Poaceae - Grass Family	I	C	PG
<i>Poa pratensis</i>		Kentucky bluegrass	Poaceae - Grass Family	I	C	PG
<i>Poa secunda</i>	<i>Poa canbyi</i>	Canby bluegrass	Poaceae - Grass Family	N	C	PG
<i>Podospermum laciniatum</i>	<i>Scorzonera laciniata</i>	False salsify	Asteraceae - Sunflower Family	I	NA	AF
Populus deltoides		Plains cottonwood	Salicaceae - Willow Family	N	NA	T
<i>Psoraleidum tenuiflora</i>		Slimflower scurfpea	Fabaceae - Pea Family	N	NA	PF
<i>Pterogonum alatum</i>	<i>Erigeron alatum</i>	Winged buckwheat	Polygonaceae - Buckwheat Family	N	NA	PF
<i>Ratibida columnifera</i>		Prairie coneflower	Asteraceae - Sunflower Family	N	NA	PF
<i>Ratibida tagetes</i>		Coneflower	Asteraceae - Sunflower Family	N	NA	PF
<i>Rhus aromatica</i> var. <i>trilobata</i>		Skunkbrush	Anacardiaceae - Sumac Family	N	NA	S
<i>Rosa arkansana</i>		Prairie rose	Rosaceae - Rose Family	N	NA	S
<i>Rumex crispus</i>		Curly dock	Polygonaceae - Buckwheat Family	N	NA	PF
<i>Salsola iberica</i>		Russian-thistle	Chenopodiaceae - Goosefoot Family	I	NA	AF
<i>Schedonnardus paniculatus</i>		Tumblegrass	Poaceae - Grass Family	N	C	PG
<i>Schizachyrium scoparium</i>	<i>Andropogon scoparius</i>	Little bluestem	Poaceae - Grass Family	N	W	PG
<i>Scrophularia lanceolata</i>		Figwort	Scrophulariaceae - Figwort Family	N	NA	PF
<i>Scutellaria brittonii</i>		Britton's skullcap	Lamiaceae - Mint Family	N	NA	PF
<i>Senecio integerrimus</i>		Grounsel	Asteraceae - Sunflower Family	N	NA	BF/PF
<i>Sisymbrium altissimum</i>		Tumbling mustard	Brassicaceae - Mustard Family	I	NA	AF
<i>Solidago missouriensis</i>		Prairie goldenrod	Asteraceae - Sunflower Family	N	NA	PF
<i>Solidago mollis</i>		Soft goldenrod	Asteraceae - Sunflower Family	N	NA	PF
<i>Sorghastrum nutans</i>		Indian-grass	Poaceae - Grass Family	N	W	PG
<i>Sphaeralcea coccinea</i>		Scarlet globemallow	Malvaceae - Mallow Family	N	NA	PF
<i>Sphaeralcea coccinea</i>		Scarlet globemallow	Malvaceae - Mallow Family	N	NA	PF
Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life Form

<i>Sporobolus cryptandrus</i>	Sand dropseed	Poaceae - Grass Family	N	W	PG
<i>Sporobolus</i> sp.	Dropseed	Poaceae - Grass Family	N	W	PG
<i>Symphoricarpos</i>					
<i>occidentalis</i>	Western snowberry	Caprifoliaceae - Honeysuckle Family	N	NA	S
<i>Taraxacum officinale</i>	Common dandelion	Asteraceae - Sunflower Family	I	NA	PF
<i>Thermopsis divaricarpa</i>	Prairie goldenpea	Fabaceae - Pea Family	N	NA	PF
<i>Tithymalus brachyceras</i>	Spurge	Euphorbiaceae - Spurge Family	N	NA	PF
<i>Tithymalus montanus</i>	Spurge	Euphorbiaceae - Spurge Family	N	NA	PF
<i>Toxicodendron rydbergii</i>	Poison ivy	Anacardiaceae - Sumac Family	N	NA	S
<i>Tradescantia occidentalis</i>	Spiderwort	Commelinaceae	N	NA	PF
<i>Tragia ramosa</i>	Noseburn	Euphorbiaceae - Spurge Family	N	NA	PF
<i>Tragopogon dubius</i>	Goatsbeard	Asteraceae - Sunflower Family	I	NA	BF
<i>Ulmus pumila</i>	Chinese elm	Ulmaceae - Elm Family	I	NA	T
<i>Verbascum thapsus</i>	Common mullein	Scrophulariaceae - Figwort Family	I	NA	BF
<i>Verbena bracteata</i>	Prostrate verbena	Verbeceae - Verbena Family	N	NA	PF
<i>Vicia americana</i>	American vetch	Fabaceae - Pea Family	N	NA	PF
<i>Yucca glauca</i>	Yucca	Agavaceae - Agave Family	N	NA	SU
<i>Xanthium strumarium</i>	Cocklebur	Asteraceae - Sunflower Family	I	NA	AF

**Mountain Site
Upland Shrub Plant Community Species List**

Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life Form
<i>Adenolinum lewisii</i>	<i>Linum lewisii</i>	Wild flax	Linaceae - Flax Family	N	NA	PF
<i>Allium textile</i>		Wild onion	Alliaceae - Onion Family	N	NA	PF
<i>Alyssum alyssoides</i>		Pale alyssum	Brassicaceae - Mustard Family	I	NA	AF
<i>Alyssum parviflorum</i>	<i>Alyssum minus</i>	Alyssum	Brassicaceae - Mustard Family	I	NA	AF
<i>Amerosedum lanceolatum</i>		Yellow stonecrop	Crassulaceae - Stonecrop Family	N	NA	PF
<i>Anisantha tectorum</i>	<i>Bromus tectorum</i>	Cheatgrass	Poaceae - Grass Family	I	C	AG
<i>Apocynum cannabinum</i>		Indian hemp	Apocynaceae - Dogbane Family	N	NA	PF
<i>Aristida purpurea</i>		Three-awn	Poaceae - Grass Family	N	W	PG
<i>Artemisia frigida</i>		Fringed sagebrush	Asteraceae - Sunflower Family	N	NA	SS
<i>Artemisia ludoviciana</i>		Prairie sagewort	Asteraceae - Sunflower Family	N	NA	PF
<i>Artemisia tridentata</i>		Big sagebrush	Asteraceae - Sunflower Family	N	NA	S
		Green flowered				
<i>Asclepias viridiflora</i>		milkweed	Asclepiadaceae - Milkweed Family	N	NA	PF
<i>Astragalus drummondii</i>		Drummonds milk vetch	Fabaceae - Pea Family	N	NA	PF
<i>Atriplex canescens</i>		Fourwing saltbush	Chenopodiaceae - Goosefoot Family	N	NA	S
<i>Buchloë dactyloides</i>		Buffalograss	Poaceae - Grass Family	N	W	PG
<i>Campanula rotundifolia</i>		Common harebell	Campanulaceae - Bellflower Family	N	NA	PF
<i>Ceanothus fendleri</i>		Buckbrush	Rhamnaceae - Buckthorn Family	N	NA	S
<i>Celtis reticulata</i>		Netleaf hackberry	Ulmaceae - Elm Family	N	NA	T
<i>Cerastrium strictum</i>		Mouse-ear	Alsiniaceae - Chickweed Family	N	NA	PF
<i>Cercocarpus montanus</i>		Mountain-mahogany	Rosaceae - Rose Family	N	NA	S
<i>Chondrosium gracile</i>	<i>Bouteloua gracilis</i>	Blue grama	Poaceae - Grass Family	N	W	PG
<i>Chrysothamnus nauseosus</i>						
subsp. <i>graveolens</i>		Rubber rabbitbrush	Asteraceae - Sunflower Family	N	NA	S
<i>Commandra umbellata</i>		Bastard-toadflax	Santalaceae - Sandelwood Family	N	NA	PF
<i>Critesion jubatum</i>	<i>Hordeum jubatum</i>	Foxtail barley	Poaceae - Grass Family	N	C	PG
<i>Drymocallis fissa</i>	<i>Potentilla fissa</i>	Cinquefoil	Rosaceae - Rose Family	N	NA	PF
<i>Erigeron colo-mexicanus</i>		Fleabane	Asteraceae - Sunflower Family	N	NA	PF
		Spreading wild				
<i>Eriogonum effusum</i>		buckwheat	Polygonaceae - Buckwheat Family	N	NA	PF
<i>Eriogonum umbellatum</i>		Wild buckwheat	Polygonaceae - Buckwheat Family	N	NA	PF
<i>Erodium cicutarium</i>		Filaree	Geraniaceae - Geranium Family	I	NA	AF
<i>Gutierrezia sarothrae</i>		Broom snakeweed	Asteraceae - Sunflower Family	N	NA	SS
<i>Helianthus pumilus</i>		Sunflower	Asteraceae - Sunflower Family	N	NA	PF

Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life Form
<i>Hesperostipa comata</i>	<i>Stipa comata</i>	Needle-and-thread	Poaceae - Grass Family	N	C	PG
<i>Heterotheca villosa</i>	<i>Chrysopsis villosa</i>	Hairy golden aster	Asteraceae - Sunflower Family	N	NA	SS
<i>Ipomopsis aggregata</i> subsp. <i>candida</i>		Gilia	Polemoniaceae - Phlox Family	N	NA	PF
<i>Lathyrus eucosmus</i>		Elegant peavine	Fabaceae - Pea Family	N	NA	PF
<i>Liatris punctata</i>		Dotted gayfeather	Asteraceae - Sunflower Family	N	NA	PF
<i>Linaria genistifolia</i> subsp. <i>dalmatica</i>	<i>Linaria dalmatica</i>	Dalmatian toadflax	Scrophulariaceae - Figwort Family	I	NA	PF
<i>Muhlenbergia richardsonis</i>		Mat muhly	Poaceae - Grass Family	N	W	PG
<i>Onosmodium molle</i> subsp. <i>occidentale</i>		Marbleseed	Boraginaceae - Borage Family	N	NA	PF
<i>Opuntia macrorhiza</i>		Plains prickly pear	Cactaceae - Cactus Family	N	NA	SU
<i>Opuntia polyacantha</i>		Plains prickly pear	Cactaceae - Cactus Family	N	NA	SU
<i>Oreobatus deliciosus</i>	<i>Rubus deliciosus</i>	Boulder raspberry	Rosaceae - Rose Family	N	NA	S
<i>Oxytropis lambertii</i>		Lambert locoweed	Fabaceae - Pea Family	N	NA	PF
<i>Padus virginiana</i> subsp. <i>melanocarpa</i>	<i>Prunus virginiana</i>	Chokecherry	Rosaceae - Rose Family	N	NA	S
<i>Penstemon virgatus</i>		Penstemon	Scrophulariaceae - Figwort Family	N	NA	PF
<i>Phacelia hastata</i>		Whiteleaf phacelia	Hydrophyllaceae - Water-leaf Family	N	NA	PF
<i>Physaria vitulifera</i>		Fiddle bladderpod	Brassicaceae - Mustard Family	N	NA	PF
<i>Psoralidium tenuiflora</i>		Slimflower scurfpea	Fabaceae - Pea Family	N	NA	PF
<i>Rhus aromatica</i> var. <i>trilobata</i>		Skunkbrush	Anacardiaceae - Sumac Family	N	NA	S
<i>Ribes cereum</i>		Wax current	Grossulariaceae - Current Family	N	NA	S
<i>Rosa woodsii</i>		Woods rose	Rosaceae - Rose Family	N	NA	S
<i>Scutellaria brittonii</i>		Britton's skullcap	Lamiaceae - Mint Family	N	NA	PF
<i>Selaginella densa</i>		Little club moss	Selaginellaceae - Little Club-moss Family	N	NA	PF
<i>Sisymbrium altissimum</i>		Tumbling mustard	Brassicaceae - Mustard Family	I	NA	AF
<i>Sphaeralcea coccinea</i>		Scarlet globemallow	Malvaceae - Mallow Family	N	NA	PF
<i>Symphoricarpos occidentalis</i>		Western snowberry	Caprifoliaceae - Honeysuckle Family	N	NA	S
<i>Taraxacum officinale</i>		Common dandelion	Asteraceae - Sunflower Family	I	NA	PF
<i>Thlaspi arvense</i>		Fanweed	Brassicaceae - Mustard Family	I	NA	AF
<i>Toxicodendron rydbergii</i>		Poison ivy	Anacardiaceae - Sumac Family	N	NA	S
<i>Tragopogon dubius</i>		Goatsbeard	Asteraceae - Sunflower Family	I	NA	BF
<i>Vulpia octoflora</i>		Six-weeks fescue	Poaceae - Grass Family	N	C	AG
<i>Yucca glauca</i>		Yucca	Agavaceae - Agave Family	N	NA	SU

**NREL South Table Mountain Site
Ravine Shrublands Plant Community Species List**

Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life form
<i>Adenolinum lewisii</i>	<i>Linum lewisii</i>	Wild flax	Linaceae - Flax Family	N	NA	PF
<i>Aegilops cylindrica</i>		Jointed goatgrass	Poaceae - Grass Family	I	C	AG
<i>Agropyron cristatum</i>		Crested wheatgrass	Poaceae - Grass Family	I	C	PG
<i>Agrostis stolonifera</i>		Redtop	Poaceae - Grass Family	I	C	PG
<i>Alyssum parviflorum</i>	<i>Alyssum minus</i>	Alyssum	Brassicaceae - Mustard Family	I	NA	AF
<i>Ambrosia psilostachya</i>		Western ragweed	Asteraceae - Sunflower Family	N	NA	PF
<i>Anisantha tectorum</i>	<i>Bromus tectorum</i>	Cheatgrass	Poaceae - Grass Family	I	C	AG
<i>Apocynum cannabinum</i>		Indian hemp	Apocynaceae - Dogbane Family	N	NA	PF
<i>Arctium minus</i>		Common burdock	Asteraceae - Sunflower Family	I	NA	BF
<i>Aristida purpurea</i>		Three-awn	Poaceae - Grass Family	N	W	PG
<i>Artemisia dracuncululus</i>		Dragon sagewort	Asteraceae - Sunflower Family	N	NA	PF
<i>Artemisia frigida</i>		Fringed sagebrush	Asteraceae - Sunflower Family	N	NA	SS
<i>Artemisia ludoviciana</i>		Prairie sagewort	Asteraceae - Sunflower Family	N	NA	PF
<i>Asclepias incarnata</i>		Swamp milkweed	Asclepiadaceae - Milkweed Family	N	NA	PF
<i>Asclepias pumila</i>		Plains milkweed	Aclepiadaceae - Milkweed Family	N	NA	PF
<i>Asclepias speciosa</i>		Showy milkweed	Asclepiadaceae - Milkweed Family	N	NA	PF
<i>Asparagus officinalis</i>		Asparagus	Asparagaceae - Asparagus Family	N	NA	PF
<i>Aster porteri</i>		White aster	Asteraceae - Sunflower Family	N	NA	PF
<i>Aster sp.</i>		Aster	Asteraceae - Sunflower Family	N	NA	PF
<i>Astragalus drummondii</i>		Drummonds milk vetch	Fabaceae - Pea Family	N	NA	PF
<i>Bassia sieversiana</i>	<i>Kochia scoparia</i>	Kochia	Chenopodiaceae - Goosefoot Family	I	NA	AF
<i>Bromopsis inermis</i>	<i>Bromus inermis</i>	Smooth brome grass	Poaceae - Grass Family	I	C	PG
<i>Camelina microcarpa</i>		Small-seeded false flax	Brassicaceae - Mustard Family	I	NA	AF
<i>Carduus nutans</i>		Musk thistle	Asteraceae - Sunflower Family	I	NA	BF
<i>Carex praegracilis</i>		Slender sedge	Cyperaceae - Sedge Family	N	NA	PG
<i>Carex sp.</i>		Sedge	Cyperaceae - Sedge Family	N	NA	PG
<i>Celtis reticulata</i>		Netleaf hackberry	Ulmaceae - Elm Family	N	NA	T
<i>Centaurea diffusa</i>		Diffuse knapweed	Asteraceae - Sunflower Family	I	NA	BF/PF
<i>Chamaesyce glyptosperma</i>	<i>Euphorbia glyptosperma</i>	Ridgeseed spurge	Euphorbiaceae - Spurge Family	N	NA	AF
<i>Chrysothamnus nauseosus</i> subsp. <i>graveolens</i>		Rubber rabbitbrush	Asteraceae - Sunflower Family	N	NA	S
<i>Cirsium arvense</i>		Canada thistle	Asteraceae - Sunflower Family	I	NA	PF
<i>Clematis ligusticifolia</i>		Virgin's bower	Ranunculaceae - Buttercup Family	N	NA	V

Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life form
<i>Comiun maculatum</i>		Poison hemlock	Apiaceae - Parsley Family	I	NA	BF
<i>Convolvulus arvensis</i>		Field bindweed	Convolvulaceae - Morning Glory Family	I	NA	PF
<i>Crataegus macracantha</i> var. <i>occidentalis</i>	<i>Crataegus succulenta</i>	Western hawthorn	Rosaceae - Rose Family	N	NA	S
<i>Cynoglossum officinale</i>		Houndstongue	Boraginaceae - Borage Family	I	NA	BF
<i>Dactylis glomerata</i>		Orchard grass	Poaceae - Grass Family	I	C	PG
<i>Dalea candida</i>	<i>Petalostemon candida</i>	White prairie clover	Fabaceae - Pea Family	N	NA	PF
<i>Descurainia pinnata</i>		Tansy mustard	Brassicaceae - Mustard Family	N	NA	AF
<i>Descurainia sophia</i>		Tansy mustard	Brassicaceae - Mustard Family	I	NA	AF/BF
<i>Dipsacus sylvestris</i>		Teasel	Dipsacaceae - Teasel Family	I	NA	BF
<i>Echinochloa crusgalli</i>		Barnyard grass	Poaceae - Grass Family	I	W	AG
<i>Elaeagnus angustifolia</i>		Russian-olive	Elaeagnaceae - Oleaster Family	I	NA	T
<i>Eleocharis palustris</i>		Spike-rush	Cyperaceae - Sedge Family	N	NA	PG
<i>Elymus canadensis</i>		Canada wild rye	Poaceae - Grass Family	N	C	PG
<i>Elymus lanceolatus</i> subsp. <i>psammophilus</i>	<i>Agropyron riparium</i>	Streambank wheatgrass	Poaceae - Grass Family	n	C	PG
<i>Fraxinus pensylvanica</i> var. <i>lanceolata</i>		Green ash	Oleaceae - Olive Family	I	NA	T
<i>Galium spurium</i>		Cleavers	Rubiaceae - Madder Family	I	NA	PF
<i>Gaura mollis</i>	<i>Gaura parviflora</i>	Gaura	Onagraceae - Evening-primrose Family	N	NA	PF
<i>Gaura parviflora</i>		Smallflower gaura	Onagraceae - Evening-primrose Family	N	NA	AF
<i>Glycyrrhiza lepidota</i>		American licorice	Fabaceae - Pea Family	N	NA	PF
<i>Grindelia squarrosa</i>		Curlycup gumweed	Asteraceae - Sunflower Family	N	NA	BF
<i>Helianthus pumilus</i>		Sunflower	Asteraceae - Sunflower Family	N	NA	PF
<i>Heterotheca villosa</i>	<i>Chrysopsis villosa</i>	Hairy golden aster	Asteraceae - Sunflower Family	N	NA	SS
<i>Juncus arcticus</i>		Rush	Juncaceae - Rush Family	N	NA	PG
<i>Juncus interior</i>		Rush	Juncaceae - Rush Family	N	NA	PG
<i>Juncus sp.</i>		Rush	Juncaceae - Rush Family	N	NA	PG
<i>Lactuca serriola</i>		Prickly lettuce	Asteraceae - Sunflower Family	I	NA	BF
<i>Lactuca tatarica</i> subsp. <i>pulchella</i>		Siberian lettuce	Asteraceae - Sunflower Family	N	NA	PF
<i>Lathyrus eucosmus</i>		Elegant peavine	Fabaceae - Pea Family	N	NA	PF
<i>Liatriis punctata</i>		Dotted gayfeather	Asteraceae - Sunflower Family	N	NA	PF
<i>Linaria genistifolia</i> subsp. <i>dalmatica</i>	<i>Linaria dalmatica</i>	Dalmatian toadflax	Scrophulariaceae - Figwort Family	I	NA	PF
<i>Medicago sativa</i>		Alfalfa	Fabaceae - Pea Family	I	NA	PF
<i>Melilotus officinalis</i>		Yellow sweetclover	Fabaceae - Pea Family	I	NA	BF

Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life form
<i>Melilotus</i> sp.		Sweetclover	Fabaceae - Pea Family	I	NA	BF
<i>Monarda fistulosa</i>		Bee balm	Lamiaceae - Mint Family	N	NA	PF
<i>Muhlenbergia richardsonis</i>		Mat muhly	Poaceae - Grass Family	N	W	PG
<i>Negundo aceroides</i>	<i>Acer negundo</i>	Box elder	Aceraceae - Maple Family	N	NA	T
<i>Nepeta cataria</i>		Catnip	Lamiaceae - Mint Family	I	NA	PF
<i>Opuntia polyacantha</i>		Plains prickly pear	Cactaceae - Cactus Family	N	NA	SU
<i>Oxybaphus nyctagineus</i>	<i>Mirabilis nyctaginea</i>	Wild four-o'clocks	Nyctaginaceae - Four-o'clock Family	N	NA	PF
<i>Padus virginiana</i> subsp. <i>melanocarpa</i>	<i>Prunus virginiana</i>	Chokecherry	Rosaceae - Rose Family	N	NA	S
<i>Panicum capillare</i>		Witchgrass	Poaceae - Grass Family	N	W	AG
<i>Panicum virgatum</i>		Switchgrass	Poaceae - Grass Family	N	W	PG
<i>Pascopyrum smithii</i>	<i>Agropyron smithii</i>	Western wheatgrass	Poaceae - Grass Family	N	C	PG
<i>Persicaria maculata</i>	<i>Polygonum persicaria</i>	Lady's thumb	Polygonaceae - Buckwheat Family	I	NA	AF
<i>Phacelia heterophylla</i>	<i>Phacelia hastata</i> var. <i>leucophylla</i>	Scorpionweed	Hydrophyllaceae - Waterleaf Family	N	NA	PF
<i>Phleum pratense</i>		Common Timothy	Poaceae - Grass Family	I	C	PG
<i>Physalis virginiana</i>		Virginia ground-cherry	Solanaceae - Nightshade Family	I	NA	PF
<i>Plantago major</i>		Common plantain	Plantaginaceae - Plantain Family	I	NA	PF
<i>Poa compressa</i>		Canada bluegrass	Poaceae - Grass Family	I	C	PG
<i>Poa pratensis</i>		Kentucky bluegrass	Poaceae - Grass Family	I	C	PG
<i>Populus deltoides</i>		Plains cottonwood	Salicaceae - Willow Family	N	NA	T
<i>Populus x acuminata</i>			Salicaceae - Willow Family	N	NA	T
<i>Prunus americana</i>		Wild plum	Rosaceae - Rose Family	N	NA	S
<i>Psoralidium tenuiflora</i>		Slimflower scurfpea	Fabaceae - Pea Family	N	NA	PF
<i>Pyrus malus</i>	<i>Malus pumila</i>	Apple	Rosaceae - Rose Family	I	NA	T
<i>Ranunculus abortivus</i> subsp. <i>acrolasius</i>		Buttercup	Ranunculaceae - Buttercup Family	N	NA	PF
<i>Ratibida columnifera</i>		Prairie coneflower	Asteraceae - Sunflower Family	N	NA	PF
<i>Rhus aromatica</i> var. <i>trilobata</i>		Skunkbrush	Anacardiaceae - Sumac Family	N	NA	S
<i>Ribes aureum</i>		Golden current	Grossulariaceae - Current Family	N	NA	S
<i>Ribes cereum</i>		Wax current	Grossulariaceae - Current Family	N	NA	S
<i>Rosa arkansana</i>		Prairie rose	Rosaceae - Rose Family	N	NA	S
<i>Rosa woodsii</i>		Woods rose	Rosaceae - Rose Family	N	NA	S
<i>Rumex crispus</i>		Curly dock	Polygonaceae - Buckwheat Family	N	NA	PF
<i>Salix amygdaloides</i>		Peach-leaf willow	Salicaceae - Willow Family	N	NA	T
<i>Salix exigua</i>		Sandbar willow	Salicaceae - Willow Family	N	NA	S
<i>Salix fragilis</i>		Crack willow	Salicaceae - Willow Family	I	NA	T

Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life form
<i>Salix lutea</i>		Yellow willow	Salicaceae - Willow Family	N	NA	S
<i>Shepherdia argentea</i>		Silverberry	Elaeagnaceae - Oleaster Family	N	NA	S
<i>Sisymbrium altissimum</i>		Tumbling mustard	Brassicaceae - Mustard Family	I	NA	AF
<i>Solidago mollis</i>		Soft goldenrod	Asteraceae - Sunflower Family	N	NA	PF
<i>Sphaeralcea coccinea</i>		Scarlet globemallow	Malvaceae - Mallow Family	N	NA	PF
<i>Stipa viridula</i>		Green needlegrass	Poaceae - Grass Family	N	C	PG
<i>Symphoricarpos occidentalis</i>		Western snowberry	Caprifoliaceae - Honeysuckle Family	N	NA	S
<i>Taraxacum officinale</i>		Common dandelion	Asteraceae - Sunflower Family	I	NA	PF
<i>Thlaspi arvense</i>		Fanweed	Brassicaceae - Mustard Family	I	NA	AF
<i>Toxicodendron rydbergii</i>		Poison ivy	Anacardiaceae - Sumac Family	N	NA	S
<i>Tragia ramosa</i>		Noseburn	Euphorbiaceae - Spurge Family	N	NA	PF
<i>Tragopogon dubius</i>		Goatsbeard	Asteraceae - Sunflower Family	I	NA	BF
<i>Typha angustifolia</i>		Narrow-leaved cattail	Typhaceae - Cattail Family	N	NA	PF
<i>Typha latifolia</i>		Common cattail	Typhaceae - Cattail Family	N	NA	PF
<i>Ulmus pumila</i>		Chinese elm	Ulmaceae - Elm Family	I	NA	T
<i>Verbascum thapsus</i>		Common mullein	Scrophulariaceae - Figwort Family	I	NA	BF
<i>Veronica catenata</i>		Speedwell	Scrophulariaceae - Figwort Family	N	NA	PF
<i>Vicia americana</i>		American vetch	Fabaceae - Pea Family	N	NA	PF
<i>Yucca glauca</i>		Yucca	Agavaceae - Agave Family	N	NA	SU

**Mountain Site
Wetland Plant Community Species List**

Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life Form
<i>Asclepias incarnata</i>		Swamp milkweed	Asclepiadaceae - Milkweed Family	N	NA	PF
<i>Asclepias speciosa</i>		Showy milkweed	Asclepiadaceae - Milkweed Family	N	NA	PF
<i>Carex praegracilis</i>		Slender sedge	Cyperaceae - Sedge Family	N	NA	PG
<i>Carex sp.</i>		Sedge	Cyperaceae - Sedge Family	N	NA	PG
<i>Carex utriculata</i>	<i>Carex rostrata</i>	Sedge	Cyperaceae - Sedge Family	N	NA	PG
<i>Celtis reticulata</i>		Netleaf hackberry	Ulmaceae - Elm Family	N	NA	T
<i>Clematis ligusticifolia</i>		Virgin's bower	Ranunculaceae - Buttercup Family	N	NA	V
<i>Comiun maculatum</i>		Poison hemlock	Apiaceae - Parsley Family	I	NA	BF
<i>Cynoglossum officinale</i>		Houndstongue	Boraginaceae - Borage Family	I	NA	BF
<i>Eleocharis elliptica</i> var. compressa		Spikerush	Cyperaceae - Sedge Family	N	NA	PG
<i>Dipsacus sylvestris</i>		Teasel	Dipsacaceae - Teasel Family	I	NA	BF
<i>Eleocharis palustris</i>		Spike-rush	Cyperaceae - Sedge Family	N	NA	PG
<i>Elymus lanceolatus</i> subsp. <i>psammophilus</i>	<i>Agropyron riparium</i>	Streambank wheatgrass	Poaceae - Grass Family	N	C	PG
<i>Fraxinus pensylvanica</i> var. <i>lanceolata</i>		Green ash	Oleaceae - Olive Family	I	NA	T
<i>Glycyrrhiza lepidota</i>		American licorice	Fabaceae - Pea Family	N	NA	PF
<i>Juncus arcticus</i>		Rush	Juncaceae - Rush Family	N	NA	PG
<i>Juncus interior</i>		Rush	Juncaceae - Rush Family	N	NA	PG
<i>Juncus sp.</i>		Rush	Juncaceae - Rush Family	N	NA	PG
<i>Lithospermum incisum</i>		Narrowleaf gromwell	Boraginaceae - Borage Family	N	NA	PF
<i>Mentha arvensis</i>		Fieldmint	Lamiaceae - Mint Family	N	NA	PF
<i>Mertensia lanceolata</i>		Bluebells	Boraginaceae - Borage Family	N	NA	PF
<i>Monarda fistulosa</i>		Bee balm	Lamiaceae - Mint Family	N	NA	PF
<i>Muhlenbergia richardsonis</i>		Mat muhly	Poaceae - Grass Family	N	W	PG
<i>Nepeta cataria</i>		Catnip	Lamiaceae - Mint Family	I	NA	PF
<i>Padus virginiana</i> subsp. <i>melanocarpa</i>	<i>Prunus virginiana</i>	Chokecherry	Rosaceae - Rose Family	N	NA	S
<i>Panicum virgatum</i>		Switchgrass	Poaceae - Grass Family	N	W	PG
<i>Poa compressa</i>		Canada bluegrass	Poaceae - Grass Family	I	C	PG
<i>Poa pratensis</i>		Kentucky bluegrass	Poaceae - Grass Family	I	C	PG
<i>Populus deltoides</i>		Plains cottonwood	Salicaceae - Willow Family	N	NA	T
Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life

					Form
<i>Populus x acuminata</i>		Salicaceae - Willow Family	N	NA	T
<i>Prunus americana</i>	Wild plum	Rosaceae - Rose Family	N	NA	S
<i>Ribes aureum</i>	Golden current	Grossulariaceae - Current Family	N	NA	S
<i>Ribes cereum</i>	Wax current	Grossulariaceae - Current Family	N	NA	S
<i>Rosa woodsii</i>	Woods rose	Rosaceae - Rose Family	N	NA	S
<i>Salix amygdaloides</i>	Peach-leaf willow	Salicaceae - Willow Family	N	NA	T
<i>Salix exigua</i>	Sandbar willow	Salicaceae - Willow Family	N	NA	S
<i>Salix fragilis</i>	Crack willow	Salicaceae - Willow Family	I	NA	T
<i>Salix lutea</i>	Yellow willow	Salicaceae - Willow Family	N	NA	S
<i>Scirpus</i> sp.	Bulrush	Cyperaceae - Sedge Family	N	NA	PG
<i>Shepherdia argentea</i>	Silverberry	Elaeagnaceae - Oleaster Family	N	NA	S
		Caprifoliaceae - Honeysuckle			
<i>Symphoricarpos occidentalis</i>	Western snowberry	Family	N	NA	S
<i>Taraxacum officinale</i>	Common dandelion	Asteraceae - Sunflower Family	I	NA	PF
<i>Typha angustifolia</i>	Narrow-leaved cattail	Typhaceae - Cattail Family	N	NA	PF
<i>Typha latifolia</i>	Common cattail	Typhaceae - Cattail Family	N	NA	PF
<i>Ulmus pumila</i>	Chinese elm	Ulmaceae - Elm Family	I	NA	T
<i>Veronica catenata</i>	Speedwell	Scrophulariaceae - Figwort Family	N	NA	PF
<i>Viburnum lantana</i>	Wayfaring tree	Caryophyllaceae - Pink Family	I	NA	S

**NREL South Table Mountain Site
Disturbed Plant Community Species List**

Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life form
<i>Agropyron cristatum</i>		Crested wheatgrass	Poaceae - Grass Family	I	C	PG
<i>Agropyron intermedium</i>		Intermediate wheatgrass	Poaceae - Grass Family	I	C	PG
<i>Alyssum parviflorum</i>	<i>Alyssum minus</i>	Alyssum	Brassicaceae - Mustard Family	I	NA	AF
<i>Ambrosia psilostachya</i>		Western ragweed	Asteraceae - Sunflower Family	N	NA	PF
<i>Ambrosia trifida</i>		Giant ragweed	Asteraceae - Sunflower Family	I	NA	AF
<i>Andropogon gerardii</i>		Big bluestem	Poaceae - Grass Family	N	W	PG
<i>Anisantha tectorum</i>	<i>Bromus tectorum</i>	Cheatgrass	Poaceae - Grass Family	I	C	AG
<i>Arctium minus</i>		Common burdock	Asteraceae - Sunflower Family	I	NA	BF
<i>Aristida purpurea</i>		Three-awn	Poaceae - Grass Family	N	W	PG
<i>Artemisia frigida</i>		Fringed sagebrush	Asteraceae - Sunflower Family	N	NA	SS
<i>Artemisia ludoviciana</i>		Prairie sagewort	Asteraceae - Sunflower Family	N	NA	PF
<i>Aster porteri</i>		White aster	Asteraceae - Sunflower Family	N	NA	PF
<i>Atriplex canescens</i>		Fourwing saltbush	Chenopodiaceae - Goosefoot Family	N	NA	S
<i>Bassia sieversiana</i>	<i>Kochia scoparia</i>	Kochia	Chenopodiaceae - Goosefoot Family	I	NA	AF
<i>Bouteloua curtipendula</i>		Side-oats grama	Poaceae - Grass Family	N	W	PG
<i>Brickellia eupatorioides</i>		Brickellia	Asteraceae - Sunflower Family	N	NA	PF
<i>Bromopsis inermis</i>	<i>Bromus inermis</i>	Smooth brome	Poaceae - Grass Family	I	C	PG
<i>Bromus japonicus</i>		Japanese brome	Poaceae - Grass Family	I	C	AG
<i>Buchloë dactyloides</i>		Buffalograss	Poaceae - Grass Family	N	W	PG
<i>Centaurea diffusa</i>		Diffuse knapweed	Asteraceae - Sunflower Family	I	NA	BF/PF
<i>Chamaesyce glyptosperma</i>	<i>Euphorbia glyptosperma</i>	Ridgeseed spurge	Euphorbiaceae - Spurge Family	N	NA	AF
<i>Chenopodium album</i>		Common lambsquarters	Chenopodiaceae - Goosefoot Family	I	NA	AF
<i>Chondrosium gracile</i>	<i>Bouteloua gracilis</i>	Blue grama	Poaceae - Grass Family	N	W	PG
<i>Chrysothamnus nauseosus</i> subsp. <i>graveolens</i>		Rubber rabbitbrush	Asteraceae - Sunflower Family	N	NA	S
<i>Comiun maculatum</i>		Poison hemlock	Apiaceae - Parsley Family	I	NA	BF
<i>Convolvulus arvensis</i>		Field bindweed	Convolvulaceae - Morning Glory Family	I	NA	PF
<i>Critesion jubatum</i>	<i>Hordeum jubatum</i>	Foxtail barley	Poaceae - Grass Family	N	C	PG
<i>Dyssodia papposa</i>		Fetid marigold	Asteraceae - Sunflower Family	N	NA	PF
<i>Echinochloa crusgalli</i>		Barnyard grass	Poaceae - Grass Family	I	W	AG
<i>Elaeagnus angustifolia</i>		Russian-olive	Elaeagnaceae - Oleaster Family	I	NA	T
<i>Epilobium brachycarpum</i>	<i>Epilobium paniculatum</i>	Willowherb	Onagraceae - Evening-primrose Family	N	NA	AF
<i>Erodium cicutarium</i>		Filaree	Geraniaceae - Geranium Family	I	NA	AF
<i>Festuca</i> sp.		Fescue	Poaceae - Grass Family	N	C	PG

Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life form
<i>Glycyrrhiza lepidota</i>		American licorice	Fabaceae - Pea Family	N	NA	PF
<i>Gutierrezia sarothrae</i>		Broom snakeweed	Asteraceae - Sunflower Family	N	NA	SS
<i>Helianthus annuus</i>		Common sunflower	Asteraceae - Sunflower Family	N	NA	AF
<i>Hesperostipa comata</i>	<i>Stipa comata</i>	Needle-and-thread	Poaceae - Grass Family	N	C	PG
<i>Lactuca serriola</i>		Prickly lettuce	Asteraceae - Sunflower Family	I	NA	BF
<i>Linaria genistifolia</i> subsp. <i>dalmatica</i>	<i>Linaria dalmatica</i>	Dalmatian toadflax	Scrophulariaceae - Figwort Family	I	NA	PF
<i>Lophopyrum elongatum</i>	<i>Agropyron elongatum</i>	Tall wheatgrass	Poaceae - Grass Family	I	C	PG
<i>Malva neglecta</i>		Common mallow	Malvaceae - Mallow Family	I	NA	PF
<i>Muhlenbergia richardsonis</i>		Mat muhly	Poaceae - Grass Family	N	W	PG
<i>Negundo aceroides</i>	<i>Acer negundo</i>	Box elder	Aceraceae - Maple Family	N	NA	T
<i>Nepeta cataria</i>		Catnip	Lamiaceae - Mint Family	I	NA	PF
<i>Onopordum acanthium</i>		Scotch thistle	Asteraceae - Sunflower Family	I	NA	BF
<i>Oxybaphus linearis</i>	<i>Mirabilis linearis</i>	Narrowleaf umbrellawort	Nyctaginaceae - Four-o'clock Family	N	NA	PF
<i>Panicum capillare</i>		Witchgrass	Poaceae - Grass Family	N	W	AG
<i>Panicum virgatum</i>		Switchgrass	Poaceae - Grass Family	N	W	PG
<i>Pascopyrum smithii</i>	<i>Agropyron smithii</i>	Western wheatgrass	Poaceae - Grass Family	N	C	PG
<i>Phleum pratense</i>		Common Timothy	Poaceae - Grass Family	I	C	PG
<i>Physalis virginiana</i>		Virginia ground-cherry	Solanaceae - Nightshade Family	I	NA	PF
<i>Pinus edulis</i>		Pinon pine	Pinaceae - Pine Family	N	NA	T
<i>Pinus ponderosa</i>		Ponderosa pine	Pinaceae - Pine Family	N	NA	T
<i>Poa pratensis</i>		Kentucky bluegrass	Poaceae - Grass Family	I	C	PG
<i>Poinsettia dentata</i>	<i>Euphorbia dentata</i>	Toothed spurge	Euphorbiaceae - Spurge Family	I	NA	AF
<i>Populus deltoides</i>		Plains cottonwood	Salicaceae - Willow Family	N	NA	T
<i>Psoralidium tenuiflora</i>		Slimflower scurfpea	Fabaceae - Pea Family	N	NA	PF
<i>Sabina scopulorum</i>		Rocky mountain juniper	Cupressaceae - Cypress Family	N	NA	T
<i>Salix amygdaloides</i>		Peach-leaf willow	Salicaceae - Willow Family	N	NA	T
<i>Salsola iberica</i>		Russian-thistle	Chenopodiaceae - Goosefoot Family	I	NA	AF
<i>Schizachyrium scoparium</i>	<i>Andropogon scoparius</i>	Little bluestem	Poaceae - Grass Family	N	W	PG
<i>Setaria viridis</i>		Green foxtail	Poaceae - Grass Family	I	W	AG
<i>Seteria glauca</i>		Yellow foxtail	Poaceae - Grass Family	I	NA	AG
<i>Solidago missouriensis</i>		Prairie goldenrod	Asteraceae - Sunflower Family	N	NA	PF
<i>Sorghastrum nutans</i>		Indian-grass	Poaceae - Grass Family	N	W	PG
<i>Sphaeralcea coccinea</i>		Scarlet globemallow	Malvaceae - Mallow Family	N	NA	PF
<i>Stipa viridula</i>		Green needlegrass	Poaceae - Grass Family	N	C	PG
<i>Tragopogon dubius</i>		Goatsbeard	Asteraceae - Sunflower Family	I	NA	BF
<i>Tribulus terrestris</i>		Puncturevine	Zygophyllaceae - Caltrop Family	I	NA	AF

Scientific Binomial	Synonymy	Common Name	Family	Origin	Season	Life form
<i>Ulmus pumila</i>		Chinese elm	Ulmaceae - Elm Family	I	NA	T
<i>Verbascum thapsus</i>		Common mullein	Scrophulariaceae - Figwort Family	I	NA	BF
<i>Vicia americana</i>		American vetch	Fabaceae - Pea Family	N	NA	PF

APPENDIX B

NREL South Table Mountain Site

Plant Community Photographs



Photo 13. Ravine shrubland habitat. Photo looking north up ravine north of Visitor Center. Note short shrublands on hillsides above both sides of ravine. September, 2001.



Photo 14. Same location as Photo 13. May, 2002.



Photo 15. Further downgradient of same ravine as in Photos 13 and 14, where ravine shrublands grade into ephemeral drainages vegetated with grassland plants. September, 2001.



Photo 16. Same location as Photo 15. May 2002. Note new fence that was installed in spring of 2002.



Photo 17. Ravine shrubland with a small wetland cattail community in center of frame. The ravine shrublands grade into short shrubland lower in drainage. Note tall shrubland on crest of mesa, both sides of ravine. September, 2001.



Photo 18. Same location as Photo 18. May, 2002.

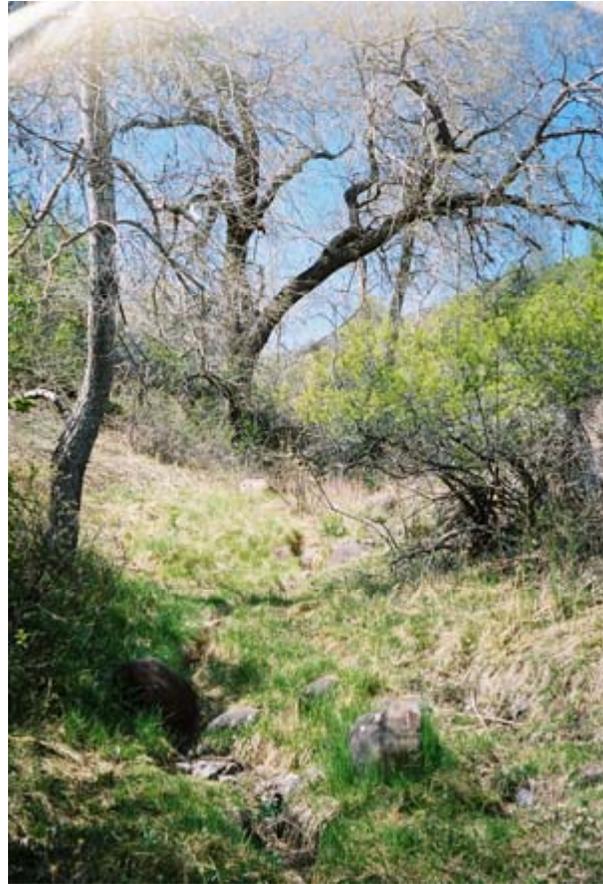
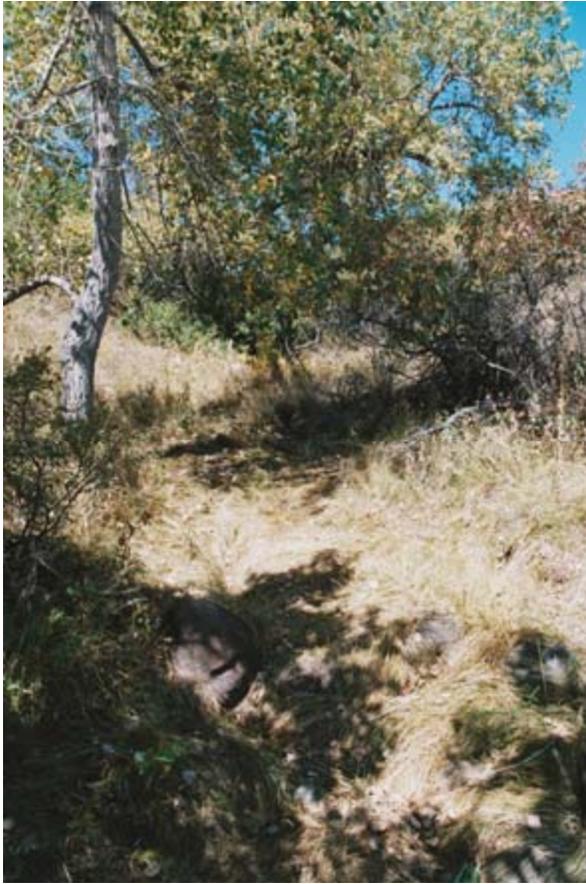


Photo 19 (left – September, 2001) and Photo 20 (right – May, 2002). Largest and easternmost wetland community in ravine north of Visitor Center. Cottonwood overstory with small drainage lined in sedges and rushes. Ravine shrublands on both sides, as well as up- and down-gradient, of wetland community.



Photo 21. Small wetland plant community, up-gradient from area depicted in Photos 19 and 20. Overstory of cottonwoods and peach-leaf willow with grass and sedge understory. May, 2002.



Photo 22. Very small area of cattails in central wetland community. Note old stock tank was supplied with a pipe emerging from the hillside. No water, nor annual growth of cattails, was observed in 2001 or 2002. Photo taken May, 2002.



Photo 23. Very small area of cattails in westernmost wetland plant community. No water, nor annual growth of cattails, was observed in 2001 or 2002. Photo taken September, 2001.



Photo 24. Same location as Photo 23. Photo taken May, 2001.

APPENDIX C

NREL South Table Mountain Site

Colorado Natural Heritage Program Environmental Review of Natural Heritage
Resources

Legend to status codes (CNHP, 1996)

Natural Heritage ranks are standardized across the Heritage Program network and are assigned for global and state levels of rarity. They range from a “1” classification for critically imperiled or extremely rare elements, to 5 for those that are demonstrably secure. These are not legal designations.

Federal status may fall under the U.S. Fish and Wildlife Service (Endangered Species Act), U.S. Forest Service, or Bureau of Land Management.

Natural Heritage Global Rarity Ranks:

- G1 Critically imperiled globally because of extreme rarity (<5), or especial vulnerability to extinction. Critically endangered throughout its range.
- G2 Imperiled globally because of rarity (6-20), or vulnerability to extinction throughout its range. Endangered throughout its range.
- G3 Very rare or local throughout its range, or found locally in restricted range (21-100). Threatened throughout its range.
- G4 Apparently secure globally.
- G5 Demonstrably secure globally.

Natural Heritage State Rarity Ranks:

- S1 Critically imperiled in state because of extreme rarity (5 or less), or especial vulnerability to extirpation from the state. Critically endangered in state.
- S2 Imperiled in state because of rarity (6 to 20), or vulnerability to extirpation from the state. Endangered or threatened in state.
- S3 Rare in state (21-100).
- S3S4 Watchlisted.

U.S. Fish and Wildlife Service:

- LE Formally listed as endangered
- LT Formally listed as threatened
- C Candidate for listing