

**DRAFT
ECOLOGICAL EVALUATION
for the**

CERISE GULCH POTENTIAL RESEARCH NATURAL AREA

**WHITE RIVER NATIONAL FOREST
PITKIN AND EAGLE COUNTIES, COLORADO**

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INTRODUCTION

The Cerise Gulch potential Research Natural Area is located approximately sixteen miles southeast of Carbondale, Colorado. It includes about 2,390 acres (967 ha.), consisting of steep mountain slopes of Douglas fir and aspen forest, pinyon-juniper woodlands, and shrublands with Gambel oak, snowberry, serviceberry, and sagebrush.

LAND MANAGEMENT PLANNING

This document has been prepared by the Colorado Natural Heritage Program through a Challenge Cost-Share Agreement with the White River National Forest to produce Ecological Evaluations of potential Research Natural Areas. These evaluations are intended to aid the National Forest in environmental analysis during revision of their Forest Management Plan. The specific areas and boundaries for evaluation were chosen by the White River National Forest.

OBJECTIVES

One of the primary objectives of RNAs as listed in the Forest Service Manual (4063.02, USDA Forest Service 1990) is to "preserve a wide spectrum of pristine representative areas that typify important forest, shrubland, grassland, alpine, aquatic, geologic and similar natural situations..." The Cerise Gulch potential RNA would meet this objective by representing a number of plant associations within the Douglas fir, pinyon-juniper and mountain shrub alliances. The area is of particular interest as an example of mountain shrub communities in the *Quercus gambelii* series. A Cerise Gulch RNA would meet further objectives of the RNA system by (1) protecting elements of biodiversity, (2) serving as a reference area for the study of succession and long-term ecological changes, (3) providing a site for non-manipulative scientific research, and (4) serving as a control area for comparing results of manipulative research and resource management in other areas with similar ecosystem types. In order to accomplish these objectives, a Cerise Gulch RNA should be managed to maintain, as much as possible, the natural composition, structure, and function of the area's ecosystems (Andrews 1993).

PRINCIPAL DISTINGUISHING FEATURES

The Cerise Gulch potential RNA is located sixteen miles southeast of Carbondale, CO. Elevations in the area range from approximately 7200 ft. to 9,470 ft. (2195 m. to 2886 m.). Most of the area is between 8,000 and 9,000 ft. (2,438 and 2,743 m.), sloping from northeast to southwest, and consisting of several parallel drainages separated by ridges.

Ecoregion: The area occurs within the North Central Highlands and Rocky Mountain Section (M311H) of Bailey's (1994) map of the ecoregions of the United States.

Physiography and Geology: The Cerise Gulch potential RNA is within the Southern Rocky Mountain Province (Fenneman 1931). It is on the northern end of the Sawatch Range, and the western edge of Red Table Mountain. Exposed rocks are sedimentary redbeds of the Triassic and Permian State Bridge formation (Bryant 1988). It has been classified by the USDA as "High Relief Mixed Sedimentary Mountainous Lands" (USDA 1993). Soils are shallow to moderately deep, well drained, reddish brown sandy and gravelly loam (USDA 1993).

Vegetation: The potential RNA is comprised of Douglas fir forest on north and west slopes, patches of aspen forest in the draws, pinyon and juniper woodlands on the south and east slopes, and mixed mountain shrubs, grass and forbs dominated by Gambel oak and snowberry on the mesa tops and more gentle slopes. Along the more mesic bottoms of the drainages are some large blue spruce (*Picea pungens*), with aspen, Douglas fir and mixed shrubs. Sagebrush may have been a more important component of the vegetation prior to prescribed burning in 1992, which has temporarily removed most of this cover type. The most common shrub species are oak and snowberry, followed by serviceberry and mountain mahogany (*Cercocarpus montanus*). The most common graminoid species are Thurber fescue (*Festuca thurberi*) elk sedge (*Carex geyeri*), Kentucky bluegrass (*Poa pratensis*) and muttongrass (*Poa fendleriana*). No forbs can be considered dominant, but some common species are aspen peavine (*Lathyrus lanszwertii* var. *leucanthus*), mat vetch (*Vicia americana* ssp. *minor*) Porter's licoriceroot (*Ligusticum porteri*), and meadowrue (*Thalictrum fendleri*).

Areas of Douglas fir which were investigated as potential old growth were found to be lacking in large and old trees, although there is an abundance of dead and down trees and standing dead trees. Most trees were in the 12 - 16 inch diameter range. Larger isolated Douglas firs are found in the bottoms of the drainages and at the tops of ridges. The largest measured was 41.4 inches dbh., located at the head of Cerise Gulch, and had a plate which read "RP177". The largest blue spruce measured was 27 inches dbh.

Human use:

Although the area gets little recreational use, considering its proximity to the Roaring Fork corridor, the effects of past human use are evident. There are several hunting camps along the pack trail just outside the proposed RNA. One of these, containing a cache of food and supplies, has been raided by bears, and items are scattered throughout the campsite. There are chairs, dishes, stove parts, food and trash. The wall tent location is evident, with completely different vegetation from the surrounding area. This probably should be cleaned up, even though it is not in the defined area of the RNA.

The only trail inside the area is a little used trail up Wheatley Gulch. Several exotic grasses can be found along the trails (see "grazing", page 7.). Exotic species are also present near the southern boundary. Effects of the pack trail on vegetation appear to be limited to within 25 feet of the trail. Most of the exotic species are located on the disturbed area of the trail itself. Others, such as *Bromus tectorum* and *Poa pratensis* occur throughout the RNA, and cannot be ascribed to the trail. They are abundant on the private land on the south of the area as well.

The access road to the pack trail has been closed at the BLM boundary, and no sign of recent motorized vehicle use was observed.

Although the area has not been grazed since 1981, the impacts of previous cattle grazing can be seen in the deeply entrenched cattle paths along the streams, which may be maintained by wildlife use, and remaining stockponds.

LOCATION

National Forest, County, and Legal Description. The potential RNA is located on the Aspen and Sopris Districts of the White River National Forest, in Pitkin and Eagle Counties. It occupies all or part of Township 8 South, Range 85 West, Section 18 and 19; and T8S R86W S11, 13, 14, 23 and 24.

Maps.

USDA Forest Service 1:126,720 map of White River National forest, 1991.

U. S. Geological Survey 1: 24,000 topographic map: Woody Creek, CO 3910638

Total Acreage and Elevation. The area comprises approximately 2,390 acres (967 ha.), ranging in elevation from 7200 ft. to 9470 ft. (2,195 m. to 2,886 m.)

Boundary Description: The southern and western boundaries of the potential RNA follow the boundary of the White River National Forest. Beginning at the northwest corner, the boundary runs east, parallel to, but 100 ft. south of a pack trail, which it follows to the center of T8S R85W S18. It then follows the ridge on the west side of Arbaney Gulch southwest, crossing peaks at 9470 ft. and 9,291 ft., where it turns south-southeast, and intercepts the section line between T8S R85 W S19 and T8S R86W S24. From there it goes directly south along the section line to intercept the forest boundary.

Based on the presence of exotic grasses along the pack trail, it is recommended that the north and east boundary remain at least 100 ft. away from the trail. At present, exotics are confined to within about 25 feet of the trail. A 100 ft. buffer should probably be adequate to protect the RNA from their future spreading.

Access and Travel Routes. Although the southern boundary is close to Colorado Highway 82, the land between the highway and the potential RNA is privately owned, and there is no public access. The pack trail which follows the north boundary can be reached from a four wheel drive road about one mile southeast of Basalt, at the point shown as Wingo on the White River National Forest map. The road crosses BLM land, and is closed to motorized vehicles. This trail is suitable for horses. It continues eastward for two miles past the potential RNA boundary, to connect with the Red Rim jeep road and pack trail by Sloane Peak.

AREA BY COVER TYPES

The cover type map of the site with acreages of each cover type is attached. Aerial photo interpretation and field observation indicate that the vegetation consists of Pinyon-juniper woodland (31%), Douglas fir forest (20%), aspen groves (15%), and shrublands with Gambel oak, serviceberry, snowberry and sagebrush (34%). Riparian vegetation along streams was too limited to map.

Vegetation was mapped based on interpretation of aerial photographs (USDA Color infra-red, 1:58,000, and USGS Ortho photographs, 1:24,000); topographic maps; and field observation. Not all areas have been field checked. In cases where a mixture of cover types was impossible to separate, polygons were mapped as mixtures. Acreage for each major cover type was determined by using a planimeter to measure areas of polygons on the attached map. Mixed polygons were arbitrarily assumed to contain equal amounts of each cover type, to arrive at the estimated acreages below.

Table 1.

Society of American Foresters Cover Types (Eyre 1980)

<u>Type (SAF no.)</u>	<u>Estimated Acres</u>	<u>Estimated Hectares</u>
Interior Douglas fir (210)	485	196
Aspen (217)	369	149
Pinyon-juniper (239)	731	296
Non-forested	805	326
Total	2,390	967

Table 2.

Kuchler Cover Types (Potential Natural Vegetation) (Kuchler 1985)

<u>Type (No.)</u>	<u>Estimated Acres</u>	<u>Estimated Hectares</u>
Pine-Douglas fir forest (17) (includes aspen)	854	345
Juniper-pinyon woodland (21)	731	296
Mountain mahogany-oak scrub (31)	805	326
Total	2,390	967

Table 3.
Plant Series / Plant Associations

If the series or plant association is well represented in the area it is given an M for major representation. If the series or plant association covers only a small area, it is given an m for minor representation. Plant association names which are from Johnston (1987) are given using his nomenclature. For updated plant association names using SCS nomenclature see Appendix 1. For common names and plant name synonyms, see Appendix 2.

Series / Plant Association (see plot data for cross references with CNHP names)	Representation	Acres	Hectares
<i>Pseudotsuga menziesii</i>	M	485	196
<i>Pseudotsuga menziesii</i> / <i>Carex geyeri</i>	M		
<i>Pseudotsuga menziesii</i> / <i>Amelanchier alnifolia</i>	M		
<i>Populus tremuloides</i>	M	369	149
<i>Populus tremuloides</i> / <i>Symphoricarpos oreophilus</i>	M		
<i>Pinus edulis</i>	M	731	296
<i>Pinus edulis</i> - <i>Juniperus osteosperma</i> / <i>Cercocarpus montanus</i>	M		
<i>Pinus edulis</i> / <i>Quercus gambelii</i>	M		
Mosaic of the following series and plant associations:	M	805	326
<i>Quercus gambelii</i>		M	
<i>Quercus gambelii</i> / <i>Symphoricarpos oreophilus</i>	M		
<i>Quercus gambelii</i> / <i>Amelanchier utahensis</i>	M		
<i>Amelanchier alnifolia</i> / <i>Symphoricarpos oreophilus</i> - <i>Artemisia tridentata</i>		M	
<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	m		
<i>Artemisia tridentata</i> / <i>Symphoricarpos oreophilus</i>	m		
<i>Artemisia tridentata</i> / <i>Carex geyeri</i>	m		
<i>Artemisia tridentata</i> / <i>Festuca thurberi</i>	m		
<i>Purshia tridentata</i>	m		
<i>Purshia tridentata</i> / <i>Arenaria congesta</i>	m		
<i>Symphoricarpos oreophilus</i>	m		
<i>Symphoricarpos oreophilus</i> / <i>Festuca thurberi</i>	m		
Total		2,390	967

Description of Values

Flora:

Threatened and Endangered species. No Forest Service threatened or sensitive species or Colorado Natural Heritage Program Species of Special Concern were observed. There is a possibility of the presence of *Penstemon harringtonii*, based on habitat, and the existence of known populations, within about three air miles (Colorado Natural Heritage Program, Biodiversity Conservation Database records, 1995).

Exotic species. See "Grazing", page 7.

Vegetation: The Cerise Gulch potential RNA contains representation of Douglas fir and aspen as well as pinyon pine-juniper and mountain shrub communities. It has the second largest (after Assignment Ridge) area of pinyon-juniper woodland of the areas investigated so far.

Plant associations: None of the plant associations seen are listed as rare or threatened.

Fauna: Wildlife or their sign observed include mule deer, elk, blue grouse, coyote and black bear. Undoubtedly, the area serves as suitable habitat for a wide variety of vertebrates and invertebrates which were not documented during this brief survey.

Threatened and endangered species: None were observed.

Exotic species: None were observed.

Lands: The potential RNA is entirely within National Forest System lands on the White River National Forest. It borders BLM land on the west and southeast, and private land on the southwest.

Management concerns: The greatest concern that Forest Service district personnel foresee is the use of unauthorized motor vehicles, especially motorcycles, in the area.

Impacts and Possible Conflicts:

Mineral resources: There is no evidence of historic mining activity. Oil and gas exploration and extraction are restricted by timing limitations to certain months of the year, in order to protect wildlife. (Oil and Gas Environmental Impact Statement 1993).

Grazing: Although this area has not been grazed for about 15 years, the effects of former grazing are evident. Exotic plants can be found not only along the pack trail, but in the interior of the area, e.g., in Wheatley Gulch. These include *Bromus tectorum*, *Poa pratensis*, *Taraxacum officinale*, and *Cynoglossum officinalis*. *Poa pratensis* occurred in eight plots, in amounts up to 25 to 50% cover. *Bromus tectorum* occurred in four plots, with up to 5 to 25 % cover. Along the pack trail, additional introduced species include *Chorispora tenella*, *Capsella bursa-pastoris* and *Dactylis glomerata*. Western wheat grass (*Elymus trachycaulis*) along the pack trail appears to be an attempt at revegetation. The highway and irrigated pastures on the southern boundary may be the source of some of the introduced species, since *Bromus tectorum* and *Poa pratensis* are abundant there.

Cattle trails along the creek beds are entrenched and compacted, unlike the deer and elk trails on the hillsides. Areas of bare compacted ground which can be seen along the pack trail appear to be the sites of former salt licks. Other "unnatural" features are two stock ponds, one with shallow muddy water, the other dry. These are located just below the pack trail, one at the upper end of Wheatley Gulch, in the northeast corner of section 14, and one in the southwest quarter of section 18, at the point marked "spring" on the topographic map.

Timber: There has been some very small scale timber harvest of Douglas fir inside the northern boundary of the RNA. These few cut trees do not significantly impact the value of the area. The current forest plan designates the area as 4B in the northern part and 5A in the southeastern part, with the dividing line roughly equivalent to the boundary between the Sopris and Aspen ranger districts. Both of these categories emphasize wildlife habitat needs over other uses. The 4B designation favors particular “indicator species”, while the 5A designation specifies deer, elk, pronghorns, bighorn sheep and mountain goat. For category 4B, “a full range of tree harvest methods and rangeland vegetation treatment methods are available” The forest plan does not address timber management for the 5A category. In both cases, “management activities may dominate in foreground and middleground, but harmonize and blend with the natural setting.” (White River National Forest 1990)

Watershed: The creek in Wheatley Gulch, which is mapped on the USGS topographic map (Woody Creek) as perennial, as well as the intermittent streams, were dry in mid-June 1995, at a time when water levels and snowpack were at record high levels generally. There are a few springs where underground water resurfaces in the creek bottoms. Creek beds are deeply entrenched, some as much as 15 feet, but this may be a natural situation, given the soft, easily eroded sandstone in the area.

Evaluation

Criteria of quality, condition, viability and defensibility were developed by the Rocky Mountain Region to assess how well a potential RNA meets RNA qualification (Andrews 1993). These criteria are based on those developed by the Colorado Natural Heritage Program to evaluate occurrences of individual elements and communities.

Quality is based on how well a site represents the targeted ecosystem type or protected biodiversity elements.

Condition refers to the naturalness of the site and the degree to which it has been degraded or altered from presettlement conditions.

Viability is the prospect for long-term survival of the ecosystem and its protected elements.

Defensibility is the extent to which the site can be protected from extrinsic anthropogenic factors.

The Cerise Gulch potential RNA has been evaluated according to these criteria as follows:

Quality: The area provides representation of Douglas fir, mountain shrub and pinyon-juniper communities. However, the area is small, at 2390 acres.

Condition: Factors which lower this rating are effects of previous grazing and presence of exotic species, especially the significant amounts of *Poa pratensis* and *Bromus tectorum*. Fire has been suppressed in the past, and controlled burns have been initiated to return the vegetation to a more natural state.

Viability: This is the second smallest of the potential RNAs investigated this year. Its proximity to the highway (Colo. 82), adjacent hay meadows, and the pack trail on its upper boundary make it susceptible to further invasion of exotic species.

Defensibility: The area is entirely within National Forest System lands on the White River National Forest, and under National Forest management. The fact that access is limited, and the BLM road leading to the pack trail on the upper side of the potential RNA is closed, increases the area’s defensibility.

Literature Cited

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APPENDIX 1
PLOT DATA FOR PLANT ASSOCIATIONS SAMPLED

Plant Association names are from Johnston (1987) or Hess and Wasser (1982) whenever a reasonably good fit can be found in those publications. Plant association names, edited to include the more recent plant species names from USDA Soil Conservation Service (1994), are given in parentheses where there are differences. Plant Association names are cross referenced with the names used by the Colorado Natural Heritage Program wherever possible. CNHP names are listed in bold type, followed by their global and state ranks.

Plant species coverage within plots was estimated into cover classes, and species are listed alphabetically within each class. Because of time limitations, not all species within the plots were always identified or collected. Plant species names are from USDA Soil Conservation Service (1994). Where these species names differ from Weber (1987), the Weber names are shown in parentheses. For instances in which the Weber and SCS names differ from Johnston (1987), the plant species names used by Johnston are given in parentheses and followed by *. See Appendix 2 for common names.

Symphoricarpos oreophilus / Festuca thurberi p.a. (Johnston 1987)

(Symphoricarpos rotundifolius / Festuca thurberi)

or, possibly Artemisia tridentata ssp. vaseyana / Festuca thurberi h.t. (Hess and Wasser 1982)

Festuca thurberi / Lathyrus leucanthus p. a. G4S4 (Colorado Natural Heritage Program 1995 b)

(not a very satisfactory fit, since the above association occurs in parks and valley bottoms, and this site is on a ridge. At least *Carex geyeri* is mentioned in Feth/Lale, but no other species occur in common.)

Plot 1 (50 X 50 ft.) (Photo 2-24)

This plot is on top of the ridge to the west of Wheatley Gulch, in a relatively flat area. It is a site where a prescribed burn was done for wildlife habitat enhancement in 1992. It appears that it was previously dominated by *Artemisia*, and therefore would fit the Artemisia tridentata ssp. vaseyana / Festuca thurberi h.t.. However, the *Artemisia* has not regenerated since it was burned. Also in the burned area, but not occurring in the plot, are *Amelanchier alnifolia* and *Balsamorhiza sagittata*.

UTM's: 331,100 E/ 4,358,100 N

USGS Quadrangle: Woody Creek 3910638

Elevation: 8760 feet (2670 m)

Slope: 5 degrees

Aspect: 282 degrees

Bare ground	< 1	
Rock	< 1	
Symphoricarpos rotundifolius (S. oreophilus)		5 - 25
Festuca thurberi	25 - 50	
Carex geyeri	25 - 50	
Poa fendleriana	5 - 25	
Poa sp.	5 - 25	
Achillea lanulosa	< 1	
Chrysothamnus viscidiflorus	< 1	
Delphinium nuttallianum	< 1	
Frasera speciosa	< 1	
Geranium richardsonii	< 1	
Mertensia fusiformis	< 1	
Thlaspi montanum (Noccaea)	< 1	
Pseudostellaria jamesii	< 1	
Viola praemorsa	< 1	

Quercus gambelii / Symphoricarpos oreophilus p. a. (Johnston 1987)
(Quercus gambelii / Symphoricarpos rotundifolius)

Quercus gambelii / Symphoricarpos oreophilus p. a GU S3S34 (Colorado Natural Heritage Program 1995 b)

Plot 2 (100 X 100 ft.)

Located on the east facing slope at the upper end of Wheatley Gulch below stock pond. (photo 2-26)

UTM's: 331,400 E / 4,358,650 N

USGS Quadrangle: Woody Creek 3910638

Elevation: 8900 feet (2712 m)

Slope: 40 degrees

Aspect: 102 degrees

Bare ground	5 - 25
Rock	1 - 5
Amelanchier alnifolia	5 - 25
Chrysothamnus viscidiflorus	5 - 25
Quercus gambelii	5 - 25
Symphoricarpos rotundifolius (S.oreophilus*)	5 - 25
Artemisia tridentata ssp. vaseyana (Seriphidium)	1 - 5
Poa fendleriana	1 - 5
Agoseris glauca	< 1
Arenaria rosea	< 1
Balsamorhiza sagittata	< 1
Carex geeyeri	< 1
Collomia linearis	< 1
Delphinium nuttallianum	< 1
Poa pratensis	< 1

Quercus gambelii / Symphoricarpos oreophilus p.a. (Johnston 1987)
(Quercus gambelii / Symphoricarpos rotundifolius)

Quercus gambelii / Symphoricarpos oreophilus p. a GU S3S34 (Colorado Natural Heritage Program)

Plot 3 (100 X 100 ft) (photo 27)

This plot is located on the west facing slope above the upper end of Wheatley Gulch. The area has been burned, with the larger dead oaks standing, and most of the cover from new sprouts.

UTM's: 331,600 E / 4,358,650
USGS Quadrangle: Woody Creek 3910638
Elevation: 8920 feet (2719 m)
Slope: 40 degrees
Aspect: 260 degrees

Bare ground	1 - 5
Rock	< 1
Quercus gambelii	75 - 95
Symphoricarpos rotundifolius (S.oreophilus)	5 - 25
Amelanchier alnifolia	1 - 5
Carex geyeri	1 - 5
Chrysothamnus viscidiflorus	1 - 5
Lupinus sp.	1 - 5
Prunus virginiana (Padus)	1 - 5
Poa pratensis	1 - 5
Collomia linearis	< 1
Delphinium nuttallianum	< 1
Festuca thurberi	< 1
Hydrophyllum capitatum	< 1

Artemisia tridentata -Symphoricarpos oreophilus/Leymus cinereus p.a. (Johnston 1987)
(Artemisia tridentata -Symphoricarpos rotundifolius/Leymus cinereus)

**Artemisia tridentata ssp. vaseyana / Symphoricarpos oreophilus / Agropyron trachycaulum p. a.
G3G4 S3S4 (Bourgeron and Engelking, 1994)**

(Although there is no *Agropyron trachycaulum* in the plot, it is at least present elsewhere in the potential RNA, and is the best choice available in Bourgeron and Engelking.)

Plot 4 (50 X 50 ft.) (photos 2-28 and 3 - 5)

Located on the flat floodplain in Wheatley Gulch. This plot shows the effects of past grazing in the presence of *Poa pratensis* and *Bromus tectorum*.

UTM's: 330,400 E / 4,357,150 N
USGS Quadrangle: Woody Creek 3910638
Elevation: 7720 feet (2353 m)
Slope: 2 degrees
Aspect: 230 degrees

Bare ground	< 1
Rock	< 1
Artemisia tridentata ssp. vaseyana (Seriphidium)	5 - 25
Symphoricarpos rotundifolius (S.oreophilus*)	5 - 25
Poa pratensis	5 - 25
Bromus tectorum	5 - 25
Lappula redowskii	1 - 5
Chrysothamnus viscidiflorus	1 - 5
Cirsium sp.	< 1
Cynoglossum officinalis	< 1
Descurainia richardsonii	< 1
Leymus cinereus	< 1
Poa fendleriana	< 1
Poa interior	< 1
Taraxacum officinale	< 1

Quercus gambelii / Symphoricarpos oreophilus p. a. (Johnston 1987)
(Quercus gambelii / Symphoricarpos rotundifolius)

Quercus gambelii / Symphoricarpos oreophilus p. a. GU S3S4 (Colorado Natural Heritage Program 1995 b)

Plot 5 (100 X 100 ft.)
Sampled in Wheatley Gulch, on flood plain.

UTM's: 331,000 / 4,357,450
USGS Quadrangle: Woody Creek 3910638
Elevation: 7880 feet (2400 m)
Slope: 5 degrees
Aspect: 200 degrees

Bare ground	< 1
Rock	< 1
Quercus gambelii	50 - 75
Pseudotsuga menziesii	5 - 25
Symphoricarpos rotundifolius (S.oreophilus*)	5 - 25
Poa pratensis	5 - 25
Carex geyeri	5 - 25
Amelanchier alnifolia	1 - 5
Penstemon watsonii	1 - 5
Lathyrus leucanthus	1 - 5
Cynoglossum officinale	< 1
Juniperus scopulorum	< 1
Antennaria rosea	< 1
Taraxacum officinale	< 1
Prunus virginiana (Padus)	< 1

Populus tremuloides / Symphoricarpos oreophilus p.a. (Johnston 1987)
(Populus tremuloides / Symphoricarpos rotundifolius)

Populus tremuloides / Symphoricarpos oreophilus / Carex geyeri p. a. G5S5 (Colorado Natural Heritage Program 1995 b)

Plot 6 (50 X 50 ft.) (photo 30)

Sampled in Wheatley Gulch, under rock outcrops. Aspens are small.

UTM's: 331,150 E / 4,357,500 N

USGS Quadrangle: Woody Creek 3910638

Elevation: 8000 feet (2438 m)

Slope: 3 degrees

Aspect: 182 degrees

Bare ground	< 1
Rock	< 1
Populus tremuloides	50 - 75
Symphoricarpos rotundifolius (S.oreophilus*)	50 - 75
Amelanchier alnifolia	1 - 5
Carex geyeri	1 - 5
Lathyrus lanszwertii var. leucanthus (L.leucanthus)	1 - 5
Maianthemum stellatum (Smilacina*)	1 - 5
Penstemon watsonii	1 - 5
Poa pratensis	1 - 5
Pseudotsuga menziesii (seedlings)	1 - 5
Vicia americana	1 - 5
Arabis sp.	< 1
Cynoglossum officinale	< 1
Geranium richardsonii	< 1
Mahonia repens	< 1
Picea pungens (seedlings)	< 1
Taraxacum officinale	< 1

Populus tremuloides / Symphoricarpos oreophilus p.a. (Johnston 1987)

Populus tremuloides / Symphoricarpos rotundifolius

Also similar to Populus tremuloides / Carex geyeri p.a. (Johnston 1987)

Less closely related to Populus tremuloides / Juniperus communis p.a. (Johnston 1987)

Populus tremuloides / Symphoricarpos oreophilus / Carex geyeri p. a. G5S5 (Colorado Natural Heritage Program 1995 b)

Plot 7 (100 X 100 ft.)

Sampled south of pack trail, just west of head of Wheatley Gulch. (photo 2-33)

UTM's: 331,500 E / 4,359,200 N

USGS Quadrangle: Woody Creek 3910638

Elevation: 8880 feet (2707 m)

Slope: 5degrees

Aspect: 210 degrees

Bare ground	< 1
Rock	< 1
Populus tremuloides	50 - 75
Symphoricarpos oreophilus	5 - 25
Carex geyeri	5 - 25
Juniperus communis	5 - 25
Poa pratensis	5 - 25
Achillea lanulosa	1 - 5
Erigeron sp.	1 - 5
Juniperus scopulorum	1 - 5
Pseudotsuga menziesii	1 - 5
Viola praemorsa	1 - 5
Arabis drummondii	< 1
Delphinium ramosum	< 1
Festuca thurberi	< 1
Frasera speciosa	< 1
Geranium richardsonii	< 1
Hydrophyllum capitatum	< 1
Ligusticum porteri	< 1
Thlaspi montanum (Noccaea)	< 1
Taraxacum officinale	< 1

Symphoricarpos oreophilus / Festuca thurberi p.a. (Johnston 1987)
(Symphoricarpos rotundifolius / Festuca thurberi)
Artemisia tridentata / Festuca thurberi h. t. (Hess and Wasser 1982).

**Artemisia tridentata ssp. vaseyana / Symphoricarpos oreophilus / Agropyron trachycaulum p. a.
G3G4 S3S4 (Bourgeron and Engelking, 1994)**

(Although there is no *Agropyron trachycaulum* in the plot, it is at least present elsewhere in the potential RNA, and is the best choice available in Bourgeron and Engelking. See also plot 4)

Plot 8 (100 X 50 ft, running N - S)

Sampled south of pack trail in prescribed burn area. This was apparently dominated by *Artemisia* before being burned. Slope is quite gentle in the plot, but then drops off more steeply to the south.

UTM's: 330,800 E / 4,359,000 N
USGS Quadrangle: Woody Creek 3910638
Elevation: 8840 feet (2690 m)
Slope: 3 degrees
Aspect: 70 degrees

Bare ground	5 - 25
Rock	< 1
Symphoricarpos rotundifolius (S.oreophilus*)	25 - 50
Chrysothamnus viscidiflorus	5 - 25
Achillea lanulosa	1 - 5
Artemisia tridentata ssp. vaseyana (Seriphidium)	1 - 5
Eriogonum umbellatum	1 - 5
Festuca thurberi	1 - 5
Poa pratensis	1 - 5
Agoseris glauca	< 1
Comandra umbellata	< 1
Ligusticum porteri	< 1
Mertensia fusiformis	< 1
Thlaspi montanum (Noccaea)	< 1
Pseudostellaria jamesii	< 1

Pseudotsuga menziesii / Amelanchier alnifolia p. a. (Johnston 1987)

Also similar to Pseudotsuga menziesii / Carex geyeri p.a. (Johnston 1987)

Pseudotsuga menziesii / Amelanchier alnifolia p. a. G2SPS2 (Bourgeron and Engelking, 1994)

(The Bourgeron and Engelking reference is from Montana. The Psme / Cage description in Johnston does not mention *Amelanchier*, but is otherwise a good fit.)

Plot 9 (100 X 100 ft.)

This stand of Douglas fir was mature, but not old growth. The largest tree measured was 17 inches dbh. Average tree diameter was about 12 inches. There were many dead and down and standing dead trees, also of relatively small diameter. Saplings and seedlings were present.

UTM's: 332,250 E / 4,358,550 N

USGS Quadrangle: Woody Creek 3910638

Elevation: 8960 feet (2730 m)

Slope: 20 degrees

Aspect: 330 degrees

Bare ground (litter)	5 - 25
Rock	< 1
Pseudotsuga menziesii	50 - 75
Amelanchier alnifolia	25 - 50
Arnica cordifolia	5 - 25
Carex geyeri	5 - 25
Juniperus communis	1 - 5
Calypso bulbosa	< 1
Fragaria virginiana	< 1
Frasera speciosa	< 1
Lathyrus leucanthus	< 1
Mahonia repens	< 1
Maianthemum amplexicaule	< 1
Osmorhiza depauperata	< 1
Paxistima myrsinites	< 1
Rosa woodsii	< 1
Symphoricarpos rotundifolius	
(S. oreophilus)	< 1
Viola adunca	< 1

Quercus gambelii / Amelanchier utahensis p. a. (Johnston 1987)

Also similar to Amelanchier spp. / Symphoricarpos oreophilus-Artemisia tridentata p. a. (Johnston 1987)
(Amelanchier spp. / Symphoricarpos rotundifolius -Artemisia tridentata)

Quercus gambelii / Amelanchier utahensis p. a. G3G5 S3S5 (Bourgeron and Engelking, 1994)

Plot 10

Sampled at the top of the Wheatley Gulch drainage, on a convex slope between two forks of the drainage, below the pack trail.

UTM's: 332,600 E / 4,358,300 N

USGS Quadrangle: Woody Creek 3910638

Elevation: 9050 feet (2760 m)

Slope: 35 degrees

Aspect: 152 degrees

Bare ground	5 - 25
Rock	1 - 5
Amelanchier utahensis	25 - 50
Quercus gambelii	5 - 25
Balsamorhiza sagittata	5 - 25
Symphoricarpos rotundifolius (S.oreophilus*)	5 - 25
Achillea lanulosa	1 - 5
Artemisia tridentata ssp. vaseyana (Seriphidium)	1 - 5
Chrysothamnus viscidiflorus	1 - 5
Poa pratensis	1 - 5
Purshia tridentata	1 - 5
Agoseris glauca	< 1
Agropyron smithii (Pascopyrum)	< 1
Arenaria congesta (Eremogene)	< 1
Collomia linearis	< 1
Cymopterus planosus	< 1

Populus tremuloides / Symphoricarpos oreophilus p. a. (Johnston 1987)
(Populus tremuloides / Symphoricarpos rotundifolius)

Populus tremuloides / Symphoricarpos oreophilus / Carex geyeri p.a . G5S5 (Colorado Natural Heritage Program 1995 b)

Plot 11 (100 X 50 ft)

Located in draw below dry stock pond, tributary of Wheatley Gulch, below pack trail. (photo 2-36, downstream and 2-37 upstream).

UTM's: 333,250 E / 4,357,550 N
USGS Quadrangle: Woody creek 3910638
Elevation: 9000 feet (2743 m)
Slope: 2 degrees
Aspect: 227 degrees

Bare ground (gophers)	1 - 5	
Rock	> 1	
Populus tremuloides	5 - 25	
Viola praemorsa	25 - 50	
Symphoricarpos rotundifolius (S.oreophilus*)	5 - 25	
Valeriana capitata		1 - 5
Lathyrus lanszwertii var. leucanthus (L. leucanthus)	1 - 5	
Arnica cordifolia	1 - 5	
Urtica dioica ssp. holosericea (U.gracilis)	1 - 5	
Pseudotsuga menziesii (seedling)	1 - 5	
Thalictrum fendleri	< 1	
Heracleum lanatum (sphondylium)	< 1	
Mentha arvensis	< 1	
Thlaspi montanum (Noccaea)	< 1	
Claytonia lanceolata	< 1	

Pseudotsuga menziesii / Carex geyeri p. a. (Johnston 1987)

Pseudotsuga menziesii / Carex geyeri p.a. G5Q S3 (Colorado Natural Heritage Program 1995 b)

Plot 12 (100 X 100 ft.) (photo 1, roll 3)

This is a shady, northwest facing slope, probably wetter than the typical PSME/CAGE site. It appears that the Douglas fir is replacing an aspen stand, which accounts for a large number of dead and down aspen. The Douglas fir is mostly in the 12 - 14 inch dbh. class, and the stand is not old growth. There are seedlings and saplings of Douglas fir, as well as young mature trees. Two lodgepole pines were in the plot.

UTM's: 333,150 E / 4,357,520 N

USGS Quadrangle: Woody Creek 3910638

Elevation: 9000 feet (2743 m)

Slope: 20 degrees

Aspect: 288 degrees

Bare ground (litter)	5 - 25
Rock	< 1
Pseudotsuga menziesii	25 - 50
Populus tremuloides	25 - 50
Carex geyeri	25 - 50
Thalictrum fendleri	5 - 25
Arnica cordifolia	5 - 25
Pinus contorta	1 - 5
Calypso bulbosa	< 1
Lathyrus lanszwertii var. leucanthus (L. leucanthus)	< 1
Osmorhiza sp.	< 1
Rosa woodsii	< 1
Sambucus racemosa	< 1

Pinus edulis - Juniperus osteosperma / Cercocarpus montanus h.t. (Hess and Wasser 1982)

Pinus edulis / Cercocarpus montanus p. a. G5S4 (Colorado Natural Heritage Program 1995 b)

Plot 13 (100 X 100 ft.)

This plot is on a dry, southeast facing slope above Wheatley Gulch. It is sparsely vegetated, with more than half the area exposed red sandy soil and sandstone outcrops.

UTM's: 331,000 E / 4,357,575 N

USGS Quadrangle: Woody Creek 3910638

Elevation: 8060 feet (2457 m)

Slope: 55 degrees

Aspect: 160 degrees

Bare ground	50 - 75
Rock	5 - 25
Bromus tectorum	5 - 25
Pinus edulis	1 - 5
Juniperus osteosperma (Sabina)	1 - 5
Cercocarpus montanus	1 - 5
Amelanchier utahensis	1 - 5
Artemisia frigida	< 1
Penstemon osterhoutii	< 1
Chrysothamnus viscidiflorus	< 1
Lesquerella rectipes	< 1

Pinus edulis / Quercus gambelii p.a. (Johnston 1987)

Pinus edulis/Quercus gambelii/Carex geyeri h.t. (Hess and Wasser 1982).

Pinus edulis / Quercus gambelii p.a G5 S5 (Colorado Natural Heritage Program 1995 b)

Plot 14 (100 X 100 ft.)

Located above Cerise Gulch, in mature pinyon, with sparse understory. Largest tree measured 13.7 in. dbh.

UTM's: 331,000 E/ 4,356,450 N

USGS Quadrangle: Woody Creek 3910638

Elevation: 8,240 feet (2512 m)

Slope: 35 degrees

Aspect: 207 degrees

Bare ground	75 - 95
Rock	<1
Pinus edulis	50 - 75
Juniperus osteosperma (Sabina)	1 - 5
Quercus gambelii	1 - 5
Symphoricarpos rotundifolius (S. oreophilus*)	1 - 5
Amelanchier utahensis	< 1
Arabis sp.	< 1
Artemisia tridentata	< 1
Carex geyeri	< 1
Cercocarpus montanus	< 1
Collinsia parvifolia	< 1
Cryptantha sp.	< 1
Cymopterus planosus	< 1
Descurainia richardsonii	< 1
Poa fendleriana	< 1
Purshia tridentata	< 1

Quercus gambelii / Amelanchier utahensis p.a. (Johnston 1987)

Quercus gambelii / Amelanchier utahensis p. a. G3G5 S3S5 (Bourgeron and Engelking, 1994)

Plot 15

(50 X 50 ft.) (Photo 3 - 11)

Located on ridge, slightly downhill from summit shown on topo as 8585 ft.

UTM's: 331,000 E / 4,356,600 N

USGS Quadrangle: Woody Creek, 3910638

Elevation: 8560 feet (2609 m)

Slope: 5 degrees

Aspect: 360 degrees

Bare ground	< 1
Rock	< 1
Quercus gambelii	50 -75
Amelanchier utahensis	25 - 50
Poa pratensis	25 - 50
Carex geeyeri	5 - 25
Juniperus communis	5 - 25
Ligusticum porteri	5 - 25
Symphoricarpos rotundifolius (S. oreophilus*)	5 - 25
Lathyrus lanszwertii var. leucanthus (L. leucanthus)	1 - 5
Padus virginiana (Prunus)	1 - 5
Thalictrum fendleri	1 - 5
Vicia americana	1 - 5
Achillea lanulosa	< 1
Agoseris glauca	< 1
Anaphalis margaritacea	< 1
Artemisia tridentata ssp. vaseyana	< 1
Chrysothamnus viscidiflorus	< 1
Cirsium sp.	< 1
Delphinium nuttallii	< 1
Descurainia sp. (coll)	< 1
Galium septentrionale	< 1
Geranium richardsonii	< 1
Thlaspi montanum (Noccaea)	< 1
Pseudostellaria jamesii	< 1
Senecio integerrimus	< 1
Taraxacum officinale	< 1

Similar to Artemisia tridentata-Chrysothamnus viscidiflorus/Lupinus sp. p.a. (Johnston 1987) but without the *Lupinus*, and with *Carex geyeri*.
 See Bourgeron and Engelking (1994): V.B.2.f. Artemisia tridentata ssp. vaseyana/Carex geyeri p.a., ref. 1179, found on the Wallowa-Whitman National Forest in Oregon.

Artemisia tridentata ssp. vaseyana/Carex geyeri p.a. G3S3 (Bourgeron and Engelking, 1994)

Plot 16 (50 X 50 ft.) (photo 3 - 12)

This is one of the few remaining *Artemisia* dominated areas in the potential RNA. This minor plant association may have been more extensive prior to the prescribed burns. It is located at the head of the first (from the mouth) tributary of Wheatley Gulch.

UTM's: 331,150 E / 4,356,700 N
 USGS Quadrangle: Woody Creek 3910638
 Elevation: 8560 feet (2609 m)
 Slope: 3 degrees
 Aspect: 290 degrees

Bare ground	< 1
Rock	< 1
<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	25 - 50
<i>Carex geyeri</i>	25 - 50
<i>Poa pratensis</i>	5 - 25
<i>Chrysothamnus viscidiflorus</i>	5 - 25
<i>Symphoricarpos rotundifolius</i> (<i>S. oreophilus</i> *)	1 - 5
<i>Geranium richardsonii</i>	1 - 5
<i>Achillea lanulosa</i>	< 1
<i>Androsace septentrionalis</i>	< 1
<i>Arabis drummondii</i>	< 1
<i>Arenaria congesta</i>	< 1
<i>Castilleja linariifolia</i>	< 1
<i>Comandra umbellata</i>	< 1
<i>Delphinium nuttallii</i>	< 1
<i>Eriogonum umbellatum</i>	< 1
<i>Erysimum capitatum</i>	< 1
<i>Lathyrus lanszwertii</i> var. <i>leucanthus</i> (<i>L. leucanthus</i>)	< 1
<i>Ligusticum porteri</i>	< 1
<i>Linum lewisii</i>	< 1
<i>Pseudostellaria jamesii</i>	< 1
<i>Vicia americana</i>	< 1

Purshia tridentata / Arenaria congesta (unclassified)

None of the *Purshia tridentata* communities in Bourgeron and Engelking, 1994, seem to fit, but all are ranked G1 or G2.

Plot 17 (50 X 50 ft.) (Photo 3-14)

This is a minor, but interesting plant association, occurring in an open area on the ridge top, which otherwise dominated by Gambel oak. It is dryer, rockier and more level than the surrounding area. Several species occur here which were not encountered elsewhere in the RNA, including *Antennaria dimorpha* and *Opuntia fragilis*.

UTM's: 331,800 E / 4,357,100 N

USGS Quadrangle: Woody Creek 3910638

Elevation: 8680 feet (2647 m)

Slope: 0 degrees

Aspect: (of photo) 215 degrees

Bare ground	25 - 50
Rock	5 - 25
<i>Purshia tridentata</i>	5 - 25
<i>Arenaria congesta</i>	5 - 25
<i>Erigeron engelmannii</i>	1 - 5
<i>Linum lewisii</i>	1 - 5
<i>Amelanchier utahensis</i>	1 - 5
<i>Agoseris glauca</i> var. <i>laciniata</i>	< 1
<i>Allium</i> sp.	< 1
<i>Antennaria dimorpha</i>	< 1
<i>Artemisia tridentata</i>	< 1
<i>Balsamorhiza sagittata</i>	< 1
<i>Bromus tectorum</i> (<i>Anisantha</i>)	< 1
<i>Collinsia parvifolia</i>	< 1
<i>Collomia linearis</i>	< 1
<i>Cymopterus planosus</i>	< 1
<i>Delphinium nuttallianum</i>	< 1
<i>Elymus smithii</i> (<i>Pascopyrum</i>)	< 1
<i>Koeleria macrantha</i>	< 1
<i>Opuntia fragilis</i>	< 1
<i>Opuntia polyacantha</i>	< 1
<i>Poa interior</i>	< 1
<i>Sedum lanceolatum</i>	< 1
<i>Taraxacum officinale</i>	< 1

Pseudotsuga menziesii / Carex geyeri p.a. (Johnston 1987)

Pseudotsuga menziesii / Carex geyeri p.a. G5Q S3 (Colorado Natural Heritage Program 1995 b)

Plot 18 (100 X 100 ft.) (photo 3-16)

Possible old growth. Largest tree measured 26.4 in. dbh. Most trees were in the 12 in. dbh range. There were two large and 6 small standing snags, and over 30 dead and down trees. All size classes of Douglas fir were represented.

UTM's: 332,050 E / 4,357,400 N

USGS Quadrangle: Woody Creek 39110638

Elevation: 8720 feet (2860 m)

Slope: 30 degrees

Aspect: 332 degrees

Bare ground	25 - 50
Rock	< 1
Pseudotsuga menziesii	25 - 50
Carex geyeri	5 - 25
Mahonia repens	1 - 5
Symphoricarpos rotundifolius (S. oreophilus*)	1 - 5
Paxistima myrsinites	< 1
Disporum trachycarpum	< 1

Quercus gambelii / Amelanchier utahensis p. a. (Johnston 1987)

Similar to Amelanchier utahensis / Symphoricarpos oreophilus-Artemisia tridentata p.a. (Johnston 1987),
(Amelanchier utahensis / Symphoricarpos rotundifolius-Artemisia tridentata)

Quercus gambelii / Amelanchier utahensis p. a. G3G5 S3S5 (Bourgeron and Engelking, 1994)

The shrubs in this plot are fairly evenly divided between *Amelanchier utahensis*, *Cercocarpus montanus*, *Symphoricarpos rotundifolius* and *Quercus gambelii*, with *Amelanchier utahensis* most abundant, and *Cercocarpus montanus* second.

Plot 19 (50 X 50 ft.) Photo 18

UTM's: 332,400 E / 4,356,900 N

USGS Quadrangle: Woody Creek 3910638

Elevation: 8800 feet (2682 m)

Slope: 35 degrees

Aspect: 162 degrees

Bare ground	25 - 50
Rock	5 - 25
Amelanchier utahensis	5 - 25
Symphoricarpos oreophilus	5 - 25
Quercus gambelii	5 - 25
Cercocarpus montanus	5 - 25
Bromus tectorum	1 - 5
Elymus trachycaulis	1 - 5
Artemisia frigida	< 1
Balsamorhiza sagittata	< 1
Purshia tridentata	< 1
Galium sp.	< 1

APPENDIX 2

PLANT SPECIES OBSERVED AT CERISE GULCH POTENTIAL RNA SITE

Scientific names follow the USDA Soil Conservation Service (1994). Synonyms used by Weber (1987) are included in parentheses (small differences such as slight changes by Weber in spelling or the difference between ssp. and var. are not noted). If either of these names differs from those used in Johnston (1987), the name in Johnston is also included in parentheses with an *. Common names follow the U. S. D. A. Soil Conservation Service PLANTS list. Species listed by the Colorado Natural Heritage Program as Colorado Species of Special Concern are followed by CSSC. Adventive species are followed by ADV.

SCIENTIFIC NAME

COMMON NAME

TREES

<i>Juniperus osteosperma</i> (Sabina)	Utah juniper
<i>Juniperus scopulorum</i> (Sabina)	Rocky Mountain juniper
<i>Picea engelmannii</i>	Engelmann's spruce
<i>Picea pungens</i>	blue spruce
<i>Pinus contorta</i>	lodgepole pine
<i>Pinus edulis</i>	Pinyon pine
<i>Populus tremuloides</i>	quaking aspen
<i>Pseudotsuga menziesii</i>	Douglas fir

SHRUBS

<i>Acer glabrum</i>	Rocky Mountain maple
<i>Alnus incana</i> ssp. <i>tenuifolia</i>	thinleaf alder
<i>Amelanchier alnifolia</i>	Saskatoon serviceberry
<i>Amelanchier utahensis</i>	Utah serviceberry
<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	mountain big sagebrush
<i>Cercocarpus montanus</i>	true mountain mahogany
<i>Chrysothamnus viscidiflorus</i>	green rabbitbrush
<i>Juniperus communis</i> var. <i>montana</i> (ssp. <i>alpina</i>)	common juniper
<i>Paxistima myrsinites</i>	mountain lover
<i>Prunus virginiana</i> var. <i>melanocarpa</i> (Padus)	black chokecherry
<i>Purshia tridentata</i>	antelope bitterbrush
<i>Quercus gambelii</i>	Gambel's oak
<i>Ribes inerme</i>	whitestem gooseberry
<i>Rosa woodsii</i>	Woods' rose
<i>Symphoricarpos rotundifolius</i> (<i>S. oreophilus</i> *)	roundleaf snowberry

GRAMINOIDS

Bromus tectorum (Anisantha)	cheat grass	ADV
Carex geeyeri	elk sedge	
Dactylis glomerata	orchardgrass	ADV
Elymus smithii (Pascopyrum)	Western wheatgrass	
Elymus trachycaulus	slender wheatgrass	
Festuca thurberi	Thurber fescue	
Koeleria macrantha	prairie Junegrass	
Oryzopsis hymenoides	Indian rice grass	
Poa fendleriana	muttongrass	
Poa interior	inland bluegrass	
Poa pratensis	Kentucky bluegrass	ADV

FORBS (includes ferns)

Achillea millefolium var. occidentalis (A. lanulosa)	western yarrow	
Agoseris glauca var. glauca	pale agoseris	
Anaphalis margaritacea	western pearlyeverlasting	
Androsace septentrionalis	pygmyflower rockjasmine	
Antennaria dimorpha	low pussytoes	
Antennaria rosea	rosy pussytoes	
Arabis drummondii (Boechea)	Drummond's rockcress	
Arabis selbyi	Selby's rockcress	
Arenaria congesta (Eremogene)	* sandwort	
Arnica cordifolia	heartleaf arnica	
Artemisia frigida	fringed sagewort	
Balsamorhiza sagittata	arrowleaf balsamroot	
Calypso bulbosa	fairyslipper orchid	
Capsella bursa-pastoris	shepherd's purse	ADV
Castilleja linariifolia	Wyoming Indian paintbrush	
Castilleja miniata	scarlet Indian paintbrush	
Chaenactis douglassii	pincushion	
Chorispora tenella	purple mustard	ADV
Cirsium tioganum var. coloradense (C. coloradense)	Colorado thistle	
Claytonia lanceolata	lanceleaf springbeauty	
Collinsia parviflora	blue-eyed Mary	
Collomia linearis	narrowleaf mountaintrumpet	
Crepis acuminata ssp. acuminata (Psilochenia)	longleaf hawksbeard	
Crepis occidentalis ssp. costata (Psilochenia)	largeflower hawksbeard	
Cryptantha gracilis	narrowstem catseye	
Cymopterus planosus	Rocky Mountain springparsley	
Cynoglossum officinale	gypsyflower	ADV
Delphinium nuttallianum	Nuttal's larkspur	
Descurainia incana (D. richardsonii)	mountain tansymustard	
Epilobium angustifolium (Chamerion danielsii)	fireweed	
Erigeron engelmannii	Engelmann's fleabane	
Erigeron flagellaris	trailing fleabane	
Erigeron speciosus	aspen fleabane	
Eriogonum umbellatum var. umbellatum	sulphurflower buckwheat	
Erysimum capitatum	sanddune wallflower	

<i>Fragaria virginiana</i>	Virginia strawberry	
<i>Frasera speciosa</i>	showy frasera	
<i>Galium boreale</i> (G.septentrionale)	northern bedstraw	
<i>Galium coloradense</i>	Colorado bedstraw	
<i>Geranium richardsonii</i>	Richardson's geranium	
<i>Geranium viscosissimum</i> var. <i>nervosum</i>	sticky purple geranium	
<i>Heracleum lanatum</i> (sphondylium)	cow parsnip	
<i>Hydrophyllum capitatum</i>	ballhead waterleaf	
<i>Ipomopsis aggregata</i>	skyrocket gilia	
<i>Lappula occidentalis</i> var. <i>occidentalis</i> (L. redowskii)	desert stickseed	
<i>Lathyrus lanszwertii</i> var. <i>leucanthus</i> (L. leucanthus)	aspen peavine	
<i>Lesquerella rectipes</i>	straight bladderpod	
<i>Ligusticum porteri</i>	Porter's licoriceroot (osha)	
<i>Linum lewisii</i> var. <i>lewisii</i>	Lewis' flax	
<i>Lithophragma glabrum</i>	bulbous woodlandstar	
<i>Lithophragma tenellum</i>	slender woodlandstar	
<i>Lithospermum ruderales</i>	western gromwell	
<i>Lomatium grayi</i>	Gray's biscuitroot	
<i>Lupinus ammophilus</i>	sand lupine	
<i>Mahonia repens</i>	Oregon grape	
<i>Maianthemum</i> (<i>Smilacina</i> *) <i>stellatum</i>	starry false Solomon's seal	
<i>Maianthemum</i> (<i>Smilacina</i> *) <i>racemosum</i> ssp. <i>amplexicaule</i> (<i>M. amplexicaule</i>)	western Solomon's seal	
<i>Mentha arvensis</i>	wild mint	
<i>Mertensia fusiformis</i>	spindleroot bluebells	
<i>Oxytropis lambertii</i>	Lambert's crazyweed	
<i>Pedicularis procera</i>	giant lousewort	
<i>Penstemon osterhoutii</i>	Osterhout's beardtongue	
<i>Penstemon watsonii</i>	Watson's penstemon	
<i>Phacelia heterophylla</i>	varileaf phacelia	
<i>Phlox gracilis</i> ssp. <i>humilis</i> (<i>Microsteris</i>)	dwarf phlox	
<i>Phlox longifolia</i>	longleaf phlox	
<i>Physaria acutifolia</i>	sharpleaf twinpod	
<i>Physaria rollinsii</i>	Rollins' twinpod	
<i>Potentilla pulcherrima</i>	beautiful cinquefoil	
<i>Pseudostellaria jamesiana</i>	tuber starwort	
<i>Senecio multilobatus</i> (<i>Packera</i>)	manylobed groundsel	
<i>Senecio integerrimus</i>	lambstongue groundsel	
<i>Taraxacum officinale</i>	common dandelion	ADV
<i>Thalictrum fendleri</i>	Fendler's meadowrue	
<i>Thlaspi montanum</i> (<i>Noccaea</i>)	alpine pennycress	
<i>Urtica dioica</i> ssp. <i>holosericea</i> (<i>U. gracilis</i>)	stinging nettle	
<i>Valeriana acutiloba</i> var. <i>acutiloba</i> (<i>V. capitata</i>)	sharpleaf valerian	
<i>Vicia americana</i> ssp. <i>minor</i>	mat vetch	
<i>Viola adunca</i>	hookedspur violet	
<i>Viola biflora</i> (<i>V. canadensis</i> , <i>V. scopulorum</i>)	field pansy	
<i>Viola praemorsa</i> ssp. <i>linguifolia</i>	upland yellow violet	
<i>Woodsia oregana</i>	Woods fern	

**COVER TYPES OF THE
CERISE GULCH POTENTIAL RESEARCH NATURAL AREA**

Legend

- df Interior Douglas fir forest (SAF 210)**
includes plant associations:
 Pseudotsuga menziesii / *Carex geeyeri*
 Pseudotsuga menziesii / *Amelanchier alnifolia*
- pj Pinyon-Juniper woodlands (SAF 239)**
 Pinus edulis-*Juniperus osteosperma* / *Cercocarpus montanus*
 Pinus edulis / *Quercus gambelii*
- as Aspen (SAF 217)**
includes plant association:
 Populus tremuloides / *Symphoricarpos oreophilus*
- sh Shrublands**
includes plant associations:
 Amelanchier alnifolia / *Symphoricarpos oreophilus* -*Artemisia tridentata*
 Artemisia tridentata / *Symphoricarpos oreophilus*
 Artemisia tridentata / *Carex geeyeri*
 Artemisia tridentata / *Festuca thurberi*
 Purshia tridentata / *Arenaria congesta*
 Quercus gambelii / *Amelanchier utahensis*
 Quercus gambelii / *Symphoricarpos oreophilus*
 Symphoricarpos oreophilus / *Festuca thurberi*
- ____ Potential RNA boundary