

Gunnison Gorge National Conservation Area Survey of Impacts on Rare Plants

Prepared for U.S.D.A. Bureau of Land Management
Montrose, Colorado

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Gunnison Gorge NCA Survey of Impacts on Rare Plants

Introduction

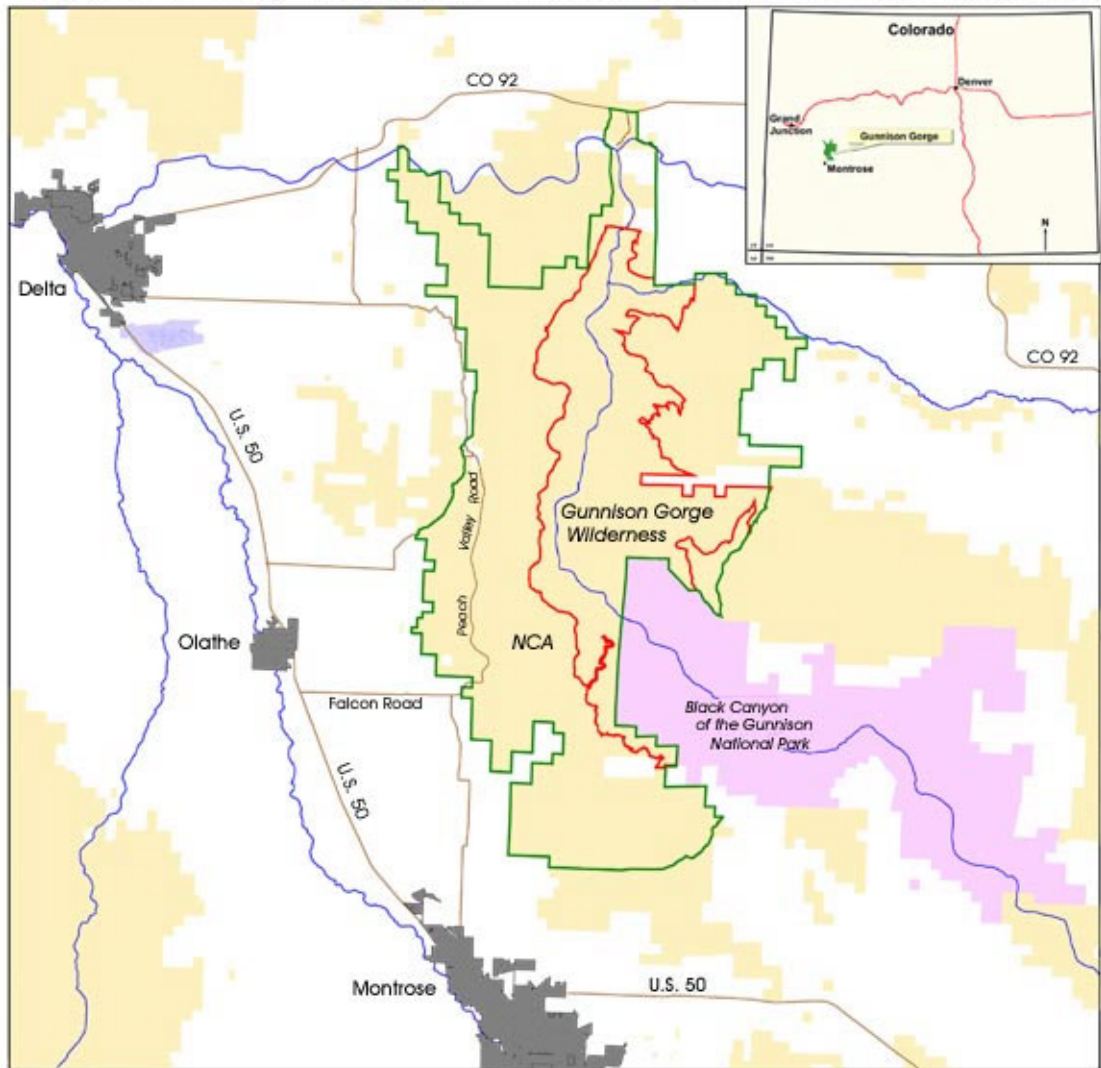
The purpose of this project was to assess the impacts of roads and ATV trails on populations of rare plants in the southern part of the Gunnison Gorge National Conservation Area (NCA), managed by the Montrose Resource Area of the Bureau of Land Management. The Gunnison Gorge NCA is located about seven miles northeast of Montrose in west central Colorado, just downstream from the Black Canyon of the Gunnison National Park. It encompasses approximately 57,725 acres of public lands in Montrose and Delta counties. It was designated an NCA by Congress in 1999. Congress has required the BLM to prepare a management plan for the NCA within four years from the date the legislation was signed. Until the management plan is prepared and approved, BLM will continue to manage the NCA in accordance with the legislation and the existing Resource Management Plan and Recreation Area Management Plan.

Boundaries for this project were defined as the BLM lands in the desert shrub zone (“the adobes”) south of Falcon Road within the NCA, and adjacent connecting BLM land south of the NCA to U.S. Highway 50 (see map). The study area includes approximately 16,719 acres of adobe badlands. Continuation of the project to include the area north of Falcon Road is planned for the near future.



Figure 1. Typical landscape and ATV trails at south end of study area

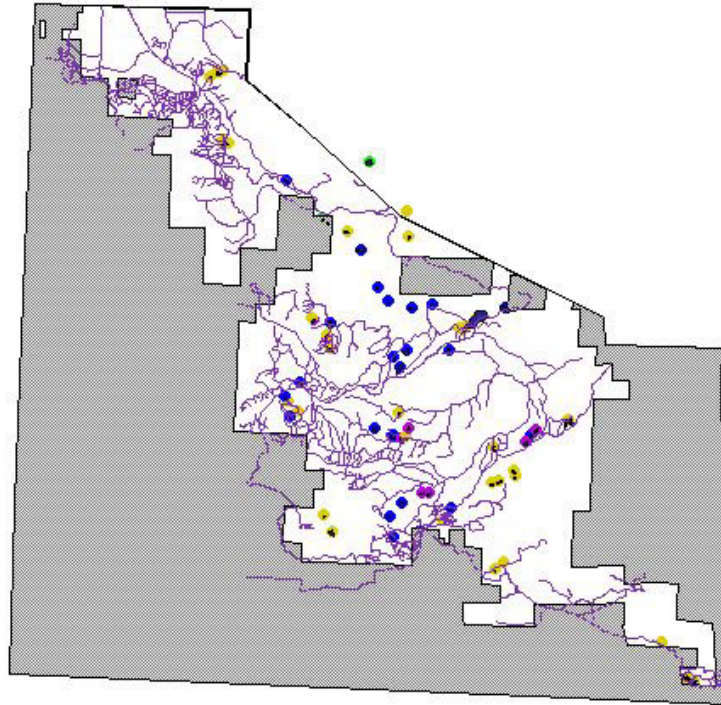
Gunnison Gorge National Conservation Area & Wilderness



*This Map Was Prepared By
The Montrose Public Lands Center*



Study Area
Gunnison Gorge NCA, south of Falcon Road



Roads clip.shp



BLM



PVT

- CIRSIUM PERPLEXANS
- CRYPTANTHA LONGIFLORA
- LOMATIUM CONCINNUM
- PENSTEMON RETRORSUS

Vegetation in the study area consists of salt desert shrub communities dominated by species of *Atriplex* in the uplands, with generally sparse vegetation. The most common plant associations are *Atriplex corrugata/Shale Barren* and *Atriplex confertifolia/Hilaria jamesii*. Other common shrubs are *Atriplex gardneri* and *Tetradymia spinosa*. *Sarcobatus vermiculatus* is common in the bottoms. The salt desert shrub areas grade into pinyon-juniper woodlands at their upper limits. A species list of plants observed within the study area is included in Appendix I.

Four rare plants tracked by the Colorado Natural Heritage Program are known from the study area: *Lomatium concinnum*, *Penstemon retrorsus*, *Cryptantha longiflora*, and *Cirsium perplexans*. These species are ranked by CNHP as follows:

<i>Lomatium concinnum</i>	G2S2 (Globally imperiled)
<i>Penstemon retrorsus</i>	G3S3 (Globally vulnerable)
<i>Cryptantha (Oreocarya) longiflora</i>	G3S2 (Globally vulnerable, imperiled in Colorado)
<i>Cirsium perplexans</i>	G2S2 (Globally imperiled)

See Appendix III for more information on CNHP ranking system.

Two other rare plant species, *Eriogonum pelinophilum* and *Lesquerella vicina*, are known from areas to the north and south of the study area, but were not found during this survey.

Lomatium concinnum, (Figure 4) is the most abundant of the rare plants in this study area. It is a member of the parsley family, the Apiaceae. Its shiny leaves resemble parsley, while the tiny yellow flowers are arranged in an umbel, with flower stems spreading from a central point like the spokes of an umbrella. It grows in areas of sparse vegetation on hillsides, and especially along ridges and in the gullies that extend down from the ridges. It is often accompanied by a similar member of the parsley family, *Cymopterus bulbosus*, which has white to pink flowers and more grayish leaves.

Penstemon retrorsus (Figure 5) is a mat-forming, evergreen plant with small leaves that is fairly inconspicuous when not in flower. In May and June, however, it sends up stems of brilliant blue flowers and becomes the most noticeable plant in the landscape. It tends to grow in more level areas, and is particularly abundant in the southern part of the study area.

Cryptantha longiflora (Figure 6) is found in occasional patches within the study area, but never in large numbers. A member of the borage family (Boraginaceae), it is extremely hairy. Its flowers are white with a yellow center. It grows in habitat similar to that of the *Lomatium*, but is fairly unpredictable.

Cirsium perplexans (Figure 7) is the only native thistle found in the study area. It grows in dry, sparsely vegetated or disturbed sites. Although it resembles the noxious weed, Canada thistle (*Cirsium arvense*), it can be distinguished by both physical characteristics and habitat. *Cirsium arvense* is found in more moist areas such as along irrigation ditches, and tends to be much more leafy and has no spines on the bracts of the flower head. *Cirsium perplexans* has more slender and less leafy stems with a reddish cast, and has very short spines (1 mm.), some of which are fringed.



Figure 4. *Lomatium concinnum*. Photo courtesy of Bill Jennings





Figure 6. *Cryptantha (Oreocarya) longiflora*



Figure 7. *Cirsium perplexans*

Methods

Field surveys were begun in April, 2001, and continued through May, 2001. Existing known populations of rare plants were visited, and new populations sought. When found, the perimeters of rare plant populations or subpopulations were flagged and then digitized with a Geographic Positioning System (GPS). Individual plants were counted or estimated, and a site description recorded., including presence or distance to the nearest road or trail, and associated species. Polygons were downloaded to the computer with a Pathfinder program. Due to technical problems with downloading, some polygons were mapped from manual maps and a single recorded GPS position. Some populations, especially those of *Penstemon retrorsus*, are so large that it was not feasible to GPS the entire perimeter, so mapped polygons represent only a part of the entire population.

All new locations were entered in the CNHP Biological and Conservation Datasystem as element occurrence records. Where appropriate, they were combined with new and existing polygons as single element occurrences representing populations with multiple sub-populations. The element occurrence records are included in Appendix II, and as shape files in the GIS coverage.

Analysis of the data included an estimate of density of rare plants within the site, and the estimated area of roads or trails that pass through or are immediately adjacent to the site. These estimates were used to suggest the possible number of plants that may have been lost to roads and trails. It is, of course, impossible to really know that any plants existed previously in these areas. The estimate of plants lost is based on the assumption that plants were present in the same density as in the rest of the sub-population.

Density estimates were based on the estimated number of individuals divided by the area within GPS mapped polygons. For polygons that were manually drawn, the average density of 0.4 plants per square meter for *Lomatium concinnum*, and 0.8 plants per square meter for *Penstemon retrorsus* was used. Area of roads and trails was based on an average width of 1 meter for single track motorcycle trails and 3 meters for established roads. The length included only the area of the road or trail that passed through the population or was immediately adjacent. Road information was taken from on-site observations and the GIS coverage (“Roads 1998 1999”) produced by CNHP for BLM in 1998 (Stevens and Zoerner 1999).

Results

A total of 73 sub-populations of rare plants were mapped. These are described in detail in this report, listed in chronological order by file number. They include 37 polygons of *Lomatium concinnum*, 24 *Penstemon retrorsus*, 8 *Cirsium perplexans*, and 3 *Cryptantha longiflora*. *Cirsium perplexans* was previously unknown from the NCA. Estimated number of individuals, estimated number lost to roads and trails, and percent loss are given in Table 1 and in the attributes of the GIS file “Combined files”.

Table 1.

Species	Estimated Individuals	Estimated lost to roads and trails	Percent
<i>Lomatium concinnum</i>	10,864	940	8.6
<i>Penstemon retrorsus</i>	>25,350*	2854	11*
<i>Cryptantha longiflora</i>	133	0	0
<i>Cirsium perplexans</i>	458	0	0

*Actual number of individuals may be much higher

This report is accompanied by a CD of this text and the following ArcView files:

Gg_nca.apr (project)

Study area bound. shp

Roads clip.shp (roads and trails mapped 1998-1999, clipped to study area)

Combined files.shp (polygons of rare plant occurrences, with attributes including file number, species, number of individuals, distance to nearest road or trail, density, estimated area of roads and trails in or adjacent to polygon, estimated number of individuals lost to roads or trails, and comments.

Combined points.shp (centroids of polygons, for ease of viewing)

GG001.shp through GG030.shp (element occurrence records (EORs), including multiple polygon EORs)

Landstatus clip.shp (showing BLM and private lands within study area)

Original field forms are also provided to BLM.

Discussion

Some observations were made regarding the use of the NCA for recreation. Primary use is by motorcycles or “dirt bikes”. “Four-wheeler” use appears to be limited. Several areas have extremely heavy use, where trails have replaced nearly all vegetation. These include the area at the BLM boundary on Falcon Road and the area around Flat Top. Most of the NCA receives some use, particularly along ridges. Nearly every ridge has a single track trail along the top, with one or more trails leading up the slope to the ridge, often following the least steep route. Ridge tops are often home to *Lomatium concinnum*, and constitute the greatest area of threat to that plant. Plants that are growing in the drainages coming off the tops are less susceptible to damage, as cyclists usually avoid those areas. Advantages of the adobe landscape to cyclists are the soft soils, and absence of woody vegetation and rocks that could lead to injury.

Although this study focused only on the impacts of ATVs and roads on rare plants, other impacts to the ecosystem should not be ignored. Both the rare plants and the vegetation in general are impacted by other uses, such as sheep grazing and irrigation. It should also be noted that ATVs and off-road vehicles affect not only the rare plants, but entire plant communities, both directly and through the introduction of exotic species and increased erosion. The number of plants that may have been lost already gives only a rough estimate of impacts. Cumulative impacts over time should be considered, as well as the potential future effects of a growing population of recreationists.

Exotic species that threaten the adobe ecosystem are listed in Appendix I, and are mentioned in the site descriptions. The most abundant of these is cheatgrass (*Bromus tectorum*). Russian knapweed (*Centaurea repens*) and Canada thistle (*Cirsium arvense*) were common in more moist areas.



Figure 8. Salt desert vegetation with ATV trail

File Summaries

File number: F042116a

Species: *Lomatium Concinnum*

Date: 4-21-01

Survey site: AB lateral

USGS quad: Montrose East

Legal description: T49N R8W S27

Eor number: GG001

Eor rank: A

Estimated number of individuals: 500

Brief description of site: South facing sparsely vegetated hillsides in adobes, with *Atriplex corrugata*, *Elymus elymoides*, *Cymopterus bulbosus*, *Tetradymia spinosa*, *Sarcobatus vermiculatus*, *Artemisia tridentata* ssp. *tridentata*.

ATV impacts: (light, moderate, heavy, none?) moderate

Distance to nearest road or trail: 0m. Several trails, Road 2627 and canal run through population.

Estimated density of plants (Est. number/area of population): 0.827/m²

Estimate of maximum area of potential habitat lost to roads and trails: 200 m²

Estimate of maximum individuals lost: 165

Comments: Several trails run through site, road and canal are adjacent. Road and canal may have replaced some habitat. GPS start position: 259497.7; 4263424.9.



F042116A



F042119B



F042118B



F042119B

File number: F042118b
Species: *Lomatium concinnum*
Date: 4-21-01
Survey site: AB lateral
USGS quad: Montrose East
Legal description: T49N R8W S22, 27
Eor number: GG001
Eor rank: A
Estimated number of individuals: 600
Brief description of site: Small drainage running northeast/southwest, with side drainages, and continuing up west facing hillside, spreading out near top. *Bromus tectorum* in bottom. Associated spp: *Atriplex corrugata*, *Artemisia tridentata* ssp. *tridentata*, *Tetradymia spinosa*, *Cymopterus bulbosus*, *Lepidium perfoliatum*.
ATV impacts: (light, moderate, heavy, none) moderate
Distance to nearest road or trail: 0m. Road 2627 is adjacent, some plants on south side of road.
Estimated density of plants (Est. number/area of population): 0.558/m²
Estimated area of roads and trails within or adjacent to population: 270 m²
Estimate of maximum individuals lost: 150
Comments: No ATV tracks in population. Main road at east end of populaton, 50 m to ATV tracks up hill. Exotics include *Bromus tectorum*, *Lepidium perfoliatum*.

File number: F042119b
Species: *Lomatium concinnum*
Date: 4-21-01
Survey site: AB Lateral
USGS quad: Montrose East
Legal description: T49N R8W S22
Eor number: GG001
Eor rank: A
Estimated number of individuals: 200
Brief description of site: Gentle south facing slope with *Atriplex corrugata*, *Penstemon retrorsus*, *Cymopterus bulbosus*, *Elymus elymoides*, *Allium macropetalum*, *Astragalus flavus*, *Eremopyrum triticeum*.
Distance to nearest road or trail: 0m. Road 2620 bisects population
ATV impacts: (light, moderate, heavy, none) light
Distance to nearest road or trail: 0m. Road 2620 bisects site.
Estimated density of plants (Est. number/area of population): 0.46/m²
Estimate of maximum area of potential habitat lost to roads and trails: 80 m²
Estimate of maximum individuals lost: 37
Comments: *Penstemon retrorsus* also common in area, not mapped. Exotics include *Eremopyrum triticeum*.

File number: F0421120a

Species: *Lomatium concinnum*

Date: 4-21-01

Survey site: AB Lateral

USGS quad: Montrose East

Legal description: T49N R8W S22

Eor number: GG001

Eor rank: A

Estimated number of individuals: 2000

Brief description of site: Large site along low east-west running ridge. *Lomatium* grows on both north and south facing slopes in shallow swales with more varied vegetation, rather than in *Atriplex corrugata*/bare soil areas. Associated species include *Elymus elymoides*, *Hilaria jamesii*, *Artemisia tridentata*, *Chrysothamnus viscidiflorus*, *Cymopterus bulbosus*, and *Astragalus amphioxys*.

Distance to nearest road or trail: 1 m to Road 2620. Also Roads 2619 and 2618 bisect site.

ATV impacts: (light, moderate, heavy, none) moderate

Estimated density of plants: 19/M²

Estimate of maximum area of potential habitat lost to roads and trails: 292 m²

Estimate of maximum individuals lost: 55



Above: View to east from site. Right: transect stake on top of ridge.

File number: F042121a

Species: *Lomatium concinnum*

Date: 4-21-01

USGS quad: Montrose East

Legal description: T49N R8W S22

Eor number: GG002

Eor rank: C

Estimated number of individuals: 78

Brief description of site: Ridge top running east-west, and south slopes near top; *Atriplex confertifolia*/*Hilaria jamesii* community with *Atriplex gardneri*, *Artemisia tridentata* ssp. *tridentata*, *Chrysothamnus viscidiflorus*, *Cymopterus bulbosus*.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: 12 m. to Road 2620

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: small, sparse population

File number: F042122b

Species: *Lomatium concinnum*

Date: 4-21-01

Survey site: AB Lateral

USGS quad: Red Rock Canyon

Legal description: T49N R8W S18

Eor number: GG003

Eor rank: B

Estimated number of individuals: 160

Brief description of site: small drainage from near top of ridge. Adobe hills with typical vegetation. Population extends downhill to north.

ATV impacts: (light, moderate, heavy, none) moderate

Distance to nearest road or trail: 1 m.

Estimate of maximum area of potential habitat lost to roads and trails: 15 m²

Estimate of maximum individuals lost: 36

Comments: ATV trail runs along top of ridge. Road 2560, adobe 30.



File number: F042122c

Species: *Lomatium concinnum*

Date: 4-21-01

Survey site: AB Lateral

USGS quad: Red Rock Canyon

Legal description: T49N R8W S18

Eor number: GG003

Eor rank: B

Estimated number of individuals: 80

Brief description of site: Ridgetop and west drainage near top. *Lomatium* mainly on top, population becomes narrow as it comes down drainages, linear at bottom.

ATV impacts: (light, moderate, heavy, none) none. Single track trail along side of hill, but does not intersect population.

Distance to nearest road or trail: 2 m. Road 2567 along ridge top

Estimated density of plants (Est. number/area of population): 0.24

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: no *Lomatium* intersected by trails. Prairie dog holes appear to be recently used.



← trail

← *Lomatium concinnum*

File number: F042516a

Species: *Lomatium concinnum*

Date: 4-25-01

Survey site: Flat Top

USGS quad: Red Rock Canyon

Legal description: T49N R9W S14

Eor number: GG004

Eor rank: C

Estimated number of individuals: 400

Brief description of site: dry, windy, exposed site at east end of Flat Top, rim and flats, with some *Lomatium* on steep east slope near top. Associated spp. include *Atriplex gardneri*, *Ephedra torreyana*, *Cymopterus bulbosus*, *Atriplex confertifolia*, *Hilaria jamesii*, *Opuntia polyacantha*, *Sphaeralcea coccinea*, *Physaria acutifolia*, *Cryptantha longiflora*, *Artemisia spinescens*, *Tetradymia spinosa*. *Lomatium* plants smaller than on better protected sites. At west end of mesa top, *Lomatium* replaced by *Cymopterus bulbosus*. Mapped area includes fenced radio towers. *Lomatium* growing inside fence and in compacted soil of roads.

ATV impacts: (light, moderate, heavy, none) heavy

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): .04

Estimate of maximum area of potential habitat lost to roads and trails: 4500 m²

Estimate of maximum individuals lost: 200

Comments: polygon contains fenced radio tower. Many roads and trails, with *Lomatium* growing in road, even in very hard-packed areas.



F042516a

File number: F042518a

Species: *Lomatium concinnum*

Date: 4-25-01

Survey site: Flat Top

USGS quad: Red Rock Canyon

Legal description: T49N R9W S11

Eor number: GG004

Eor rank: C

Estimated number of individuals: 200

Brief description of site: small north-running drainage from ridge that forms the northeast flank of flat top, (north of the east end). *Atriplex corrugata*/shale barren community.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: 25 m

Estimated density of plants (Est. number/area of population): 0.48

Estimate of maximum area of potential habitat lost to roads and trails: unknown

Estimate of maximum individuals lost: none

Comments: very heavy ATV use nearby, but not in drainage. This is one of the most heavily used areas in the NCA. It is not possible to estimate how many rare plants may once have grown here. Existing plants are in small protected drainages.



F042518a

File number: F042521a
Species: *Lomatium concinnum*
Date: 4-25-01
Survey site: Bostwick Park Road
USGS quad: Red Rock Canyon
Legal description: T50N R8W S33
Eor number: GG006
Eor rank: B

Estimated number of individuals: 200

Brief description of site: small population near top of Bostwick Park Road, along north and south sides of ridge. *Penstemon retrorsus* also present throughout. *Atriplex confertifolia*/*Leymus salina* community, with a few scattered *Juniperus osteosperma*, 80% bare ground. Other spp. include *Astragalus flavus*, *Xylorhiza venusta*.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: > 50 m

Estimated density of plants (Est. number/area of population): 0.55

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: some animal trails, no ATV. Private land adjacent to BLM



F052521A

File number: F042522a
Species: *Lomatium concinnum*
Date: 4-25-01
Survey site: Bostwick Park North at state tunnel
USGS quad: Red Rock Canyon
Legal description: T49N R8W S5
Eor number: GG007
Eor rank: A

Estimated number of individuals: 2000+

Brief description of site: ridge top, small drainages, and east facing slopes. Large area. Population probably continues to west slope along ridge and down additional drainages.

ATV impacts: (light, moderate, heavy, none) light

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.12

Estimate of maximum area of potential habitat lost to roads and trails: 67 m²

Estimate of maximum individuals lost: 8

File number: F042717a

Species: *Lomatium concinnum*

Date: 04-27-01

Survey site: East of Chukar Trail and Falcon Road intersection

USGS quad: Olathe

Legal description: T50N R9W S9

Eor number: GG008

Eor rank: B

Estimated number of individuals: 130

Brief description of site: barren southwest facing slope with *Atriplex gordonii*, *Allium macropetalum*, *Cymopterus bulbosus*. Plants widely scattered on hillside, but not at very top or bottom. 15% flowering.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: 50 m.

Estimated density of plants (Est. number/area of population): 0.55

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: Road 1526 at top of ridge, not in population.



F042717A

File number: F042718a

Species: *Lomatium concinnum*

Date: 4-27-01

Survey site: East of Chukar and Falcon intersection

USGS quad: Olathe

Legal description: T50N R9W S9

Eor number: GG008

Eor rank: B

Estimated number of individuals: 30

Brief description of site: ridge top with *Juniperus osteosperma*, *Atriplex confertifolia*, *Forsellesia meionandra*, *Yucca*. Population extends almost to trail. Plants widely scattered. Area more rocky than most.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: 5 m.

Estimated density of plants (Est. number/area of population): 0.15

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: single track, signed road no. 1541, runs along ridge top, not in population.



F042718A

File number: F042718b

Species: *Lomatium concinnum*

Date: 4-27-18b

Survey site: East of Chukar and Falcon intersection

USGS quad: Olathe

Legal description: T50N R9W S9

Eor number: GG008

Eor rank: B

Estimated number of individuals: 200

Brief description of site: east facing slope, rocky site, plants widely scattered from drainage at bottom, almost to top of hill. Assoc. spp.: *Juniperus osteosperma*, *Atriplex confertifolia*, *Forsellesia meionandra*, *Yucca*.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail:

Estimated density of plants (Est. number/area of population): 0.1

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none



F042718B

File number: F042721a

Species: *Lomatium concinnum*

Date: 4-27-01

USGS quad: Red Rock Canyon

Legal description: T50N R9W S24

Eor number: GG009

Eor rank: B

Estimated number of individuals: 200

Brief description of site: East facing hillside and gully, and extending slightly to west side of ridge. Scattered *Juniperus osteosperma*, *Atriplex confertifolia*, *Forsellesia meionandra*. Many sheep trails, no ATV trails nearby. Elev. 6214.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: >50 m.

Estimated density of plants (Est. number/area of population): 0.12

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none



Sheep trails, F042721A

File number: F042722a

Species: *Lomatium concinnum*

Date: 4-27-01

USGS quad: Red Rock Canyon

Legal description: T50N R9W S24

Eor number: GG010

Eor rank: C

Estimated number of individuals: 60

Brief description of site: Small population at end of jeep trail where it becomes a single track. Assoc. spp: *Juniperus osteosperma*, *Hilaria jamesii*, *Sarcobatus vermiculatus*

ATV impacts: (light, moderate, heavy, none) light

Distance to nearest road or trail: 1 m.

Estimated density of plants (Est. number/area of population): 0.5

Estimate of maximum area of potential habitat lost to roads and trails: 5 m²

Estimate of maximum individuals lost: 3



F042722A

File number: F042916A

Species: *Lomatium concinnum*

Date: 4-29-01

Survey site: Bostwick Park Road

USGS quad: Red Rock Canyon

Legal description: T49N R8W S6

Eor number: GG011

Eor rank: A

Estimated number of individuals: 1000

Brief description of site: Steep east facing slope north of Bostwick Park Road, with soft clay soils. 90% bare ground, with *Atriplex corrugata* the dominant shrub and a few *Eriogonum gordonii* and *Cymopterus bulbosus*. *Lomatium concinnum* is the dominant forb. Occurrence extends along ridge top and down shallow gullies about halfway to bottom.

ATV impacts: (light, moderate, heavy, none) moderate

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.33/m²

Estimate of maximum area of potential habitat lost to roads and trails: 125 m²

Estimate of maximum individuals lost: 41



F042916A

File number: F043021a

Species: *Lomatium concinnum*

Date: 04-30-01

Survey site: East of water tank

USGS quad: Olathe

Legal description: T50N R9W S16

Eor number: GG012

Eor rank: B

Estimated number of individuals: 200

Brief description of site: adobe hills east of water tank southeast of Falcon Road.

Atriplex corrugata/barren shale community, with sparsely scattered *Lomatium concinnum*, mostly on north facing slopes that are sheltered from wind. Associated spp. include: *Xylorhiza venusta*, *Cymopterus bulbosus*, *Eriogonum gordonii*

ATV impacts: (light, moderate, heavy, none) light

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.07

Estimate of maximum area of potential habitat lost to roads and trails: 174 m²

Estimate of maximum individuals lost: 12

Comments: ATV trail (Road 1793) extends along ridge from water tank. Most of *Lomatium concinnum* is on north side of trail, with a few on south side. Closest plants are 1 meter from trail.



F043021A



F043021A, View west from site



F043021A, trail

File number: F043022a

Species: *Lomatium concinnum*

Date: 4-30-01

Survey site: East of water tank

USGS quad: Olathe

Legal description: T50N R9W S16

Eor number: GG012

Eor rank: B

Estimated number of individuals: 100

Brief description of site: just east of site F043021a. Most plants on east side of ATV trail that runs along ridge. Assoc. spp: *Xylorhiza venusta*, *Cymopterus bulbosus*, *Eriogonum gordonii*

ATV impacts: (light, moderate, heavy, none) light

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.04

Estimate of maximum area of potential habitat lost to roads and trails: 72 m². (72 m x 1m)

Estimate of maximum individuals lost: 3

Comments: Roads 1781, 1792, and 1782 intersect at site.



F043022A, trail along ridge top

File number: F043022b

Species: *Lomatium concinnum*

Date: 4-30-01

Survey site: East of water tank

USGS quad: Olathe

Legal description: T50N R9W S16

Eor number: GG012

Eor rank: B

Estimated number of individuals: 50

Brief description of site: ridge top, with *Elymus salina*, *Atriplex gardneri*, *Eriogonum ovalifolium*, *Opuntia polyacantha*, *Forsellesia meionandra*, *Yucca*, *Phlox longifolia*, *Arabis sp.*

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: >50 m

Estimated density of plants (Est. number/area of population):0.05

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none



F043022B

File number: F050119a

Species: *Penstemon retrorsus*

Date: 5-01-01

USGS quad: Red Rock Canyon

Legal description: T50N R8W S30

Eor number: GG013

Eor rank: A

Estimated number of individuals: 10,000+

Brief description of site: low, rolling clay hills, with *Atriplex confertifolia*, *Elymus salina*, *Chrysothamnus nauseosus*, *Phlox longifolia*, *Astragalus flavus*, *A. amphioxys*. *Penstemon retrorsus* is one of dominant plants in area. Population continues to south and west, polygon does not include full area. 6243 ft. Elev.

ATV impacts: (light, moderate, heavy, none) heavy

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 765 m². (153 m x 5 m)

Estimate of maximum individuals lost: 306

Comments: Road 1956 bisects population



F050119A

File number: F050121a

Species: *Lomatium concinnum*

Date: 5-01-01

Survey site: water development

USGS quad: Red Rock Canyon

Legal description: T50N R8W S31

Eor number: GG014

Eor rank: B

Estimated number of individuals: 50

Brief description of site: low hills above large water development, west facing slope. Small population. Assoc. spp.: *Atriplex corrugata*, *Xylorhiza venusta*, *Androstephium*, *Chrysothamnus viscidiflorus*, *Tetradymia spinosa*, *Cymopterus bulbosus*, *Elymus elymoides*.

ATV impacts: (light, moderate, heavy, none)

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.03

Estimate of maximum area of potential habitat lost to roads and trails: 300 m². (60 m x 5 m)

Estimate of maximum individuals lost: 9

Comments: Road 1969 (two track) bisects site



F050121A

File number: F050121b

Species: *Lomatium concinnum*

Date: 5-01-01

Survey site: water development

USGS quad: Red Rock Canyon

Legal description: T50N R8W S31

Eor number: GG014

Eor rank: B

Estimated number of individuals: 225

Brief description of site: low hills above large water development, west facing slope. Small population. Assoc. spp.: *Atriplex corrugata*, *Xylorhiza venusta*, *Androstephium*, *Chrysothamnus viscidiflorus*, *Tetradymia spinosa*, *Cymopterus bulbosus*, *Elymus elymoides*.

ATV impacts: (light, moderate, heavy, none) moderate

Distance to nearest road or trail: 0 m

Estimated density of plants (Est. number/area of population): 0.7

Estimate of maximum area of potential habitat lost to roads and trails: 24 m² (24 m x 1 m)

Estimate of maximum individuals lost: 17

Comments: Road 1983 bisects site.

File number: F050121c

Species: *Lomatium concinnum*

Date: 5-01-01

Survey site: water development

USGS quad: Red Rock Canyon

Legal description: T50N R8W S31

Eor number: GG014

Eor rank: B

Estimated number of individuals: unknown

Brief description of site: low hills above large water development, west facing slope. Small population. Assoc. spp.: *Atriplex corrugata*, *Xylorhiza venusta*, *Androstephium*, *Chrysothamnus viscidiflorus*, *Tetradymia spinosa*, *Cymopterus bulbosus*, *Elymus elymoides*.

ATV impacts: (light, moderate, heavy, none)

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.7

Estimate of maximum area of potential habitat lost to roads and trails: 52 m² (Road 1985, 24m x 1m; Road 1990, 28 m x 1m)

Estimate of maximum individuals lost: 2

Comments: two ATV trails in site

File number: F050220a

Species: *Cryptantha longiflora*

Date: 5-02-01

Survey site: Chukar Tr. stock pond

USGS quad: Red Rock Canyon

Legal description: T50N R9W S23

Eor number: GG015

Eor rank: C

Estimated number of individuals: 50

Brief description of site: top of knoll south of stock pond, heavily grazed by sheep.

Assoc. spp.: *Artemisia spinescens*, *Phlox longifolia*, *Opuntia polyacantha*, *Androstephium*, *Leymus salina*, *Hilaria jamesii*, *Yucca harrimanniae*, *Ephedra torryeana*, *Forsellesia meionandra*, *Psilostrophe bakeri*, and scattered *Cryptantha longiflora*.

ATV impacts: (light, moderate, heavy, none, none)

Distance to nearest road or trail: >50 m

Estimated density of plants (Est. number/area of population): na

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: heavy sheep impacts



F050220A

File number: F050220b

Species: *Cryptantha longiflora*

Date: 5-02-01

Survey site: Chukar Tr. at stock pond

USGS quad: Red Rock Canyon

Legal description: T50N R9W S23

Eor number: GG015

Eor rank: C

Estimated number of individuals: 50

Brief description of site: west end of ridge south-southeast of stock pond, heavily grazed by sheep. Assoc. spp.: *Artemisia spinescens*, *Phlox longifolia*, *Opuntia polyacantha*, *Androstephium*, *Leymus salina*, *Hilaria jamesii*, *Yucca harrimanniae*, *Ephedra torryeana*, *Forsellesia meionandra*, *Psilostrophe bakeri*, and scattered *Cryptantha longiflora*.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail:

Estimated density of plants (Est. number/area of population):

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: heavy sheep impacts



Large sheep herds graze the NCA

File number: F050221a

Species: *Lomatium concinnum*

Date: 5-02-01

USGS quad: Red Rock Canyon

Legal description: T50N R9W S23

Eor number: GG016

Eor rank: B

Estimated number of individuals: 300

Brief description of site: along irrigation ditch in grassy areas at base of hill and extending partway up south facing slope, avoiding steep areas. Assoc. spp: *Leymus salina*, *Bromus tectorum*, *Astragalus flavus*, *Xylorhiza venusta*, *Atriplex confertifolia*, *Hilaria jamesii*, *Tetradymia spinosa*, *Psilostrophe bakeri*, *Cryptantha longiflora*, *Yucca harrimanniae*, *Atriplex gardneri*, *Opuntia polyacantha*, *Cymopterus bulbosus*, *Androstephium breviflorum*.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: > 50 m

Estimated density of plants (Est. number/area of population): na

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: no ATV impacts, but irrigation ditch may have replaced habitat.



F050221A

File number: F050720a

Species: *Penstemon retrorsus*

Date: 5-07-01

USGS quad: Red Rock Canyon

Legal description: T50N R9W S22

Eor number: GG017

Eor rank: C

Estimated number of individuals: 300

Brief description of site: narrow, north facing drainage of adobe hills. Area heavily trampled and grazed by sheep. Assoc. spp: *Atriplex confertifolia*, *Atriplex corrugata*, *Yucca harrimanniae*, *Krascheninnikovia lanata*, *Cymopterus bulbosus*, *Ranunculus testiculatus*, *Hilaria jamesii*, *Camissonia scapoidea*, *Bromus tectorum*, *Opuntia* sp. One plant of *Cryptantha longiflora* observed. 5882 ft.

ATV impacts: (light, moderate, heavy, none)

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 20 m²

Estimate of maximum individuals lost: 8



F050720A

File number: F050818a

Species: *Lomatium concinnum*

Date: 5-08-01

Survey site: Bostwick Park Road south

USGS quad: Red Rock Canyon

Legal description: T49N R8W S7

Eor number: GG028

Eor rank: A

Estimated number of individuals: 250+

Brief description of site: north facing gully and ridge top above Landfill Road, southeast of landfill. Assoc. spp: *Leymus salina*, *Abronia elliptica*, *Astragalus flavus*, *Xylorhiza venusta*, *Salsola iberica*, *Atriplex confertifolia*, *Cymopterus bulbosus*, *Camissonia scapoidea*, *Calochortus nuttallii*, *Atriplex corrugata*, *Phlox longifolia*, *Androstephium breviflorum*, *Ceratocephala orthoceras*.

ATV impacts: (light, moderate, heavy, none) moderate

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 100 m².

ATV trail follows ridge line.

Estimate of maximum individuals lost: 40

Comments: plants growing in single track trail on ridge top. 30% flowering.



F050818A

File number: F050818b

Species: *Lomatium concinnum*

Date: 5-08-01

Survey site: Bostwick Park Road south

USGS quad: Red Rock Canyon

Legal description: T49N R8W S7

Eor number: GG028

Eor rank: A

Estimated number of individuals: 180

Brief description of site: north-northwest facing slope east of F050818a, along same ridge. Assoc. spp: *Leymus salina*, *Abronia elliptica*, *Astragalus flavus*, *Xylorhiza venusta*, *Salsola iberica*, *Atriplex confertifolia*, *Cymopterus bulbosus*, *Camissonia scapoidea*, *Calochortus nuttallii*, *Atriplex corrugata*, *Phlox longifolia*, *Androstephium breviflorum*, *Ceratocephala orthoceras*.

ATV impacts: (light, moderate, heavy, none) moderate

Distance to nearest road or trail: 0 m. Unmapped trail along ridge.

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 116 m².

Estimate of maximum individuals lost: 46



F050818B

File number: F050819a

Species: *Lomatium concinnum*

Date: 5-08-01

Survey site: Bostwick Park Road south

USGS quad: Red Rock Canyon

Legal description: T49N R8W S7

Eor number: GG028

Eor rank: A

Estimated number of individuals: 175

Brief description of site: northeast facing slope of adobe hill above Bostwick Park Road, with *Cymopterus bulbosus*, *Atriplex confertifolia*, *Atriplex corrugata*, *Androstephium brevifolium*. 6299 ft.

ATV impacts: (light, moderate, heavy, none) moderate

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 67 m².

Estimate of maximum individuals lost: 27



F050819A

File number: F050819b
Species: *Lomatium concinnum*
Date: 5-08-01
Survey site: Bostwick Park Road south
USGS quad: Red Rock Canyon
Legal description: T49N R8W S7
Eor number: GG028
Eor rank: A
Estimated number of individuals: 200
Brief description of site: gully on northeast facing slope, with *Cymopterus bulbosus*, *Atriplex confertifolia*, *Atriplex corrugata*, *Androstephium brevifolium*. 6194 ft.
ATV impacts: (light, moderate, heavy, none) moderate
Distance to nearest road or trail: 0 m.
Estimated density of plants (Est. number/area of population):
Estimate of maximum area of potential habitat lost to roads and trails: 67 m²
Estimate of maximum individuals lost: 27
Comments: motorcycle trail along ridge top

File number: F050821a
Species: *Penstemon retrorsus*
Date: 5-08-01
Survey site: State tunnel dam
USGS quad: Red Rock Canyon
Legal description: T49N R8W S5
Eor number: GG018
Eor rank: A
Estimated number of individuals: 1000
Brief description of site: valley between two adobe ridges. Assoc. spp: *Xylorhiza venusta*, *Cymopterus bulbosus*, *Atriplex corrugata*, *Atriplex confertifolia*, *Astragalus asclepiadoides*, *Phlox longifolia*, *Pascopyrum smithii*. 6132 ft.
ATV impacts: (light, moderate, heavy, none) none
Distance to nearest road or trail: 23 m
Estimated density of plants (Est. number/area of population): NA
Estimate of maximum area of potential habitat lost to roads and trails: none
Estimate of maximum individuals lost: none
Comments: *Penstemon retrorsus* common on lower reaches of nw facing hills.

File number: F050913a

Species: *Cryptantha longiflora*

Date: 5-09-01

USGS quad: Red Rock Canyon

Legal description: T50N R9W S14, 23

Eor number: GG019

Eor rank: C

Estimated number of individuals: 33

Brief description of site: Northwest facing slope above Chukar trail, with *Atriplex gardneri*, *Camissonia breviflora*, *Asclepias cryptoceras*, *Cryptantha longiflora*, *Opuntia polyacantha*, *Poa sp.*, *Yucca harrimanniae*, *Hilaria jamesii*, *Tetradymia spinosa*, *Eriogonum sp.*, *Oryzopsis hymenoides*, *Artemisia spinosa*, *Androstephium breviflorum*, *Bromus tectorum*, *Alyssum minus*.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.003

Estimate of maximum area of potential habitat lost to roads and trails: 351 m². (117 m x 3 m)

Estimate of maximum individuals lost: none

Comments: Road 1828 bisects site. However, plants are so widely scattered that few were likely to be in road.

File number: F050914a

Species: *Lomatium concinnum*

Date: 5-09-01

USGS quad: Olathe

Legal description: T50N R9W S9

Eor number: GG008

Eor rank: A

Estimated number of individuals: 150

Brief description of site: Northwest facing slope above Chukar Trail, with *Atriplex gardneri*, *Camissonia breviflora*, *Asclepias cryptoceras*, *Cryptantha longiflora*, *Opuntia polyacantha*, *Poa sp.*, *Yucca harrimanniae*, *Hilaria jamesii*, *Tetradymia spinosa*, *Eriogonum sp.*, *Oryzopsis hymenoides*, *Artemisia spinosa*, *Androstephium breviflorum*, *Bromus tectorum*, *Alyssum minus*.

ATV impacts: (light, moderate, heavy, none) light

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 23 m²

Estimate of maximum individuals lost: 9

Comments: *Lomatium concinnum* 30% flowering, 10% fruiting, 60% vegetative. Population continues on ridge to the south, but still prefers western slopes.

File number: F050918a

Species: *Lomatium concinnum*

Date: 5-09-01

Survey site: NE of Flat Top

USGS quad: Red Rock Canyon

Legal description: T49N R9W S12

Eor number: no eor

Eor rank: na

Estimated number of individuals: 1

Brief description of site: very disturbed area SSW of landfill, with many unmapped ATV trails and non-native species. Assoc. spp: *Leymus salina*, *Astragalus flavus*, *Sarcobatus vermiculatus*, *Tragopogon dubius*, *Bromus tectorum*, *Cymopterus bulbosus*, *Astragalus asclepiadoides*, *Salsola*. Aspect: north. 5991 ft.

ATV impacts: (light, moderate, heavy, none) unknown

Distance to nearest road or trail: 0 m. Nearest mapped trail is 50 m. Away

Estimated density of plants (Est. number/area of population): na

Estimate of maximum area of potential habitat lost to roads and trails:

Estimate of maximum individuals lost: none

Comments: disturbed site, but presence of one plant indicates that there is potential habitat. Difficult to determine previous extent of population.



F050918a

File number: F050919c

Species: *Penstemon retrorsus*

Date: 5-09-01

Survey site: NE of Flat Top

USGS quad: Red Rock Canyon

Legal description: T49N R8W S7

Eor number: GG020

Eor rank: C

Estimated number of individuals: 100

Brief description of site: Valley in adobe hills directly southeast of entrance to landfill. 5905 ft.

ATV impacts: (light, moderate, heavy, none) unknown

Distance to nearest road or trail: 0 m. Unmapped ATV trails.

Estimated density of plants (Est. number/area of population): 1.8

Estimate of maximum area of potential habitat lost to roads and trails: unable to determine

Estimate of maximum individuals lost: unable to determine

Comments: Population appears to be fragmented due to disturbance, past use. Trails and trash in site.



F050919c

File number: F052319a
Species: *Lomatium concinnum*
Date: T49N R9W S3
USGS quad: Red Rock Canyon
Legal description: T49N R9W S3
Eor number: GG021
Eor rank: C
Estimated number of individuals: 5
Brief description of site: north facing slope with *Atriplex corrugata*, *Oryzopsis hymenoides*, *Calochortus nuttallii*, *Camissonia scapoidea*, *Phacelia* sp.
ATV impacts: (light, moderate, heavy, none) light
Distance to nearest road or trail: 0 m. Road 2192 goes through site.
Estimated density of plants (Est. number/area of population): 0.4
Estimate of maximum area of potential habitat lost to roads and trails: 23 m². (23 m. X 1 m.)
Estimate of maximum individuals lost: 9

File number: F052319b
Species: *Penstemon retrorsus*
Date: 5-23-01
USGS quad: Red Rock Canyon
Legal description: T49N R9W S3
Eor number: GG013
Eor rank: A
Estimated number of individuals: 15
Brief description of site: toe slope of shallow drainage on north facing slope, with *Atriplex corrugata*, *Xylorhiza venusta*, *Elymus elymoides*, *Calochortus nuttallii*. Valley bottom adjacent to population is dominated by *Krascheninnikovia lanata* and *Artemisia spinescens*. 5781 ft.
ATV impacts: (light, moderate, heavy, none) none
Distance to nearest road or trail: 21 m. Road 2203 in valley bottom is 2-track; Road 2217 along ridge is single track ATV trail. No evidence that population formerly occupied road areas.
Estimated density of plants (Est. number/area of population): na
Estimate of maximum area of potential habitat lost to roads and trails: ? Na
Estimate of maximum individuals lost: none

File number: F052320a

Species: *Lomatium concinnum*

Date: 5-23-01

Survey site: NE of Flat Top

USGS quad: Red Rock Canyon

Legal description: T49N R9W S3

Eor number: GG021

Eor rank: C

Estimated number of individuals: 60

Brief description of site: steep north facing slope with *Atriplex corrugata*, *Leymus salina*.

ATV impacts: (light, moderate, heavy, none) light

Distance to nearest road or trail: 0 m. Road 2192 goes through population.

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 18 m². (18 m. X 1 m.)

Estimate of maximum individuals lost: 7

Comments: *Lomatium concinnum* 20% fruit, 80% vegetative.

File number: F052320b

Species: *Penstemon retrorsus*

Date: 5-23-01

USGS quad: Red Rock Canyon

Legal description: T49N R9W S3

Eor number: GG013

Eor rank: A

Estimated number of individuals: 25

Brief description of site: north facing slope above irrigation ditch, 35% slope. Assoc. spp: *Atriplex corrugata*, *Atriplex confertifolia*.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: 46 m.

Estimated density of plants (Est. number/area of population): NA

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none



F052320b

File number: F052322a

Species: *Penstemon retrorsus*

Date: 5-23-01

USGS quad: Red Rock Canyon

Legal description: T40N R8W S31

Eor number: GG013

Eor rank: A

Estimated number of individuals: 10,000+

Brief description of site: very large site (>95,000 m²), fairly level area surrounded by adobe hills. Assoc. spp: *Tetradymia spinosa*, *Atriplex confertifolia*, *Ranunculus testiculatus*, *Gutierrezia sarothrae*, *Eriogonum gordonii*, *Camissonia scapoidea*, *Yucca*, *Eriogonum lonchophyllum*, *Bromus tectorum*, *Artemisia nova*, *Chorispora tenella*, *Halogeton glomerata*, *Leymus salina*, *Hordeum bracheantherum*, *Krascheninnikovia lanata*.

ATV impacts: (light, moderate, heavy, none) heavy

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 2323 m²

Estimate of maximum individuals lost: 929

Comments: very large site, impossible to count



F052322a

File number: F052414a
Species: *Penstemon retrorsus*
Date: 5-24-01
USGS quad: Red Rock Canyon
Legal description: T50N R9W S26
Eor number: GG013
Eor rank: A
Estimated number of individuals: 400
Brief description of site: low, rolling hills in *Atriplex corrugata* community. Some evidence of sheep grazing, but less than in surrounding areas. Assoc. spp: *Hilaria jamesii*, *Leymus salina*, *Xylorhiza venusta*, *Gutierrezia sarothrae*, *Tetradymia spinosa*, *Phacelia crenulata*, *Astragalus asclepiadoides*, *Opuntia sp.*, *Atriplex corrugata*, *Calochortus nuttallii*, *Elymus elymoides*, *Forsellesia meionandra*, *Yucca*.
ATV impacts: (light, moderate, heavy, none) none
Distance to nearest road or trail: >50 m.
Estimated density of plants (Est. number/area of population):
Estimate of maximum area of potential habitat lost to roads and trails: NA
Estimate of maximum individuals lost: none
Comments: population continues to east and west. No roads or trails in site.

File number: F052415a
Species: *Penstemon retrorsus*
Date: 5-24-01
Survey site: Loutzenheizer Arroyo tributary
USGS quad: Red Rock Canyon
Legal description: T50N R9W S26
Eor number: GG013
Eor rank: A
Estimated number of individuals: 75
Brief description of site: steeply sloping bank along a large arroyo. Assoc. spp: *Sarcobatus vermiculatus*, *Atriplex confertifolia*, *Erodium cicutarium*, *Bromus tectorum*, *Atriplex confertifolia*, *Xylorhiza venusta*, *Tetradymia spinosa*, *Sphaeralcea coccinea*, *Chrysothamnus viscidiflorus*, *Chorispora tenella*. 6004 ft..
ATV impacts: (light, moderate, heavy, none) none
Distance to nearest road or trail: > 50 m.
Estimated density of plants (Est. number/area of population): NA
Estimate of maximum area of potential habitat lost to roads and trails: none
Estimate of maximum individuals lost: none
Comments: no roads or ATV trails in populaton

File number: F052415b

Species: *Penstemon retrorsus*

Date: 5-24-01

Survey site: Loutzenheizer Arroyo tributary

USGS quad: Red Rock Canyon

Legal description: T50N R9W S25

Eor number: GG013

Eor rank: A

Estimated number of individuals: 400

Brief description of site: north facing slope and gullies at head of large arroyo.

Disturbed area. Assoc. spp: *Chrysothamnus viscidiflorus*, *Xylorhiza venusta*, *Elymus elymoides*, *Atriplex corrugata*, *Artemisia spinescens*, *Lygodesmia grandiflora*. 6037 ft.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: >50 m

Estimated density of plants (Est. number/area of population): na

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: population continues to southeast. Area is disturbed, but no ATV trails.



F052415b

File number: F052416a

Species: *Penstemon retrorsus*

Date: 5-24-01

USGS quad: Red Rock Canyon

Legal description: T50N R9W S25

Eor number: GG013

Eor rank: A

Estimated number of individuals: 200+

Brief description of site: north facing slopes, rim and some south facing slopes of arroyo tributary. Assoc. spp: *Chrysothamnus viscidiflorus*, *Xylorhiza venusta*, *Elymus elymoides*, *Atriplex corrugata*, *Artemisia spinescens*, *Lygodesmia grandiflora*. 6040 ft.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: >50 m

Estimated density of plants (Est. number/area of population): NA

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

File number: F052417a

Species: *Penstemon retrorsus*

Date: 5-24-01

Survey site: Loutzenheizer Arroyo tributary

USGS quad: Red Rock Canyon

Legal description: T50N R9W S25

Eor number: GG013

Eor rank: A

Estimated number of individuals: 1000+

Brief description of site: gently sloping area adjacent to private property, with *Atriplex confertifolia*, *Gutierrezia sarothrae*, *Penstemon retrorsus* dominant. Other spp: *Pascopyrum smithii*, *Yucca*, *Chrysothamnus viscidiflorus*, *Eriogonum lonchophyllum*, *Xylorhiza venusta*, *Calochortus nuttallii*. Primarily north facing slopes, but also some tops and south sides. 6165 ft.

ATV impacts: (light, moderate, heavy, none) moderate

Distance to nearest road or trail: 0 m

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 60 m²

Estimate of maximum individuals lost: 24

Comments: *Penstemon retrorsus* common throughout area.

File number: F052620a

Species: *Penstemon retrorsus*

Date: 5-26-01

Survey site: Loutzenheiser Arroyo tributary

USGS quad: Red Rock Canyon

Legal description: T50N R9W S36

Eor number: GG013

Eor rank: A

Estimated number of individuals: 200

Brief description of site: north facing slopes of low adobe hills south of arroyo, with *Atriplex corrugata*, *Yucca harrimanniae*, *Leymus salina* community. Also *Bromus tectorum* and *Chorispora tenella*. 6014 ft.

ATV impacts: (light, moderate, heavy, none)

Distance to nearest road or trail: 0 m. Road 2027. Many small trails cut through lower part of population.

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 90 m²

Estimate of maximum individuals lost: 36

Comments: *Bromus tectorum* invasion may be affecting viability of lower part of population. *Penstemon retrorsus* 88% vegetative, 10% flowering, 2% fruiting. Population continues to east in north facing drainages.

File number: F052620b

Species: *Penstemon retrorsus*

Date: 5-26-01

USGS quad: Red Rock Canyon

Legal description: T50N R9W S36

Eor number: GG013

Eor rank: A

Estimated number of individuals: 50

Brief description of site: north facing slopes of lower reaches of adobe hills. Assoc. spp: *Tetradymia spinosa*, *Artemisia spinescens*, *Atriplex confertifolia*, *Hordeum bracheantherum*, *Bromus tectorum*, *Oryzopsis hymenoides*, *Calochortus nuttallii*, *Gutierrezia sarothrae*, *Xylorhiza venusta*, *Chorispora tenella*, *Cymopterus bulbosus*, *Androstephium brevifolium*. 5915 ft.

ATV impacts: (light, moderate, heavy, none)

Distance to nearest road or trail: > 50 m

Estimated density of plants (Est. number/area of population): na

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: *Penstemon retrorsus* 25% flowering, 75% vegetative. Population is scattered on nw slopes to north and east of mapped polygon.

File number: F062621b
Species: *Penstemon retrorsus*
Date: 5-26-01
Survey site: Loutzenheiser Arroyo tributary
USGS quad: Red Rock Canyon
Legal description: T50N R9W S36
Eor number: GG013
Eor rank: A
Estimated number of individuals: 30
Brief description of site: north facing slopes of lower reaches of adobe hills. Assoc. spp: *Tetradymia spinosa*, *Artemisia spinescens*, *Atriplex confertifolia*, *Hordeum bracheantherum*, *Bromus tectorum*, *Oryzopsis hymenoides*, *Calochortus nuttallii*, *Gutierrezia sarothrae*, *Xylorhiza venusta*, *chorispora tenella*, *Cymopterus bulbosus*, *Androstephium brevifolium*. 5958 ft.
ATV impacts: (light, moderate, heavy, none) none
Distance to nearest road or trail: 112 m.
Estimated density of plants (Est. number/area of population): NA
Estimate of maximum area of potential habitat lost to roads and trails: none
Estimate of maximum individuals lost: none

File number: F052621c
Species: *Penstemon retrorsus*
Date: 5-26-01
USGS quad: Red Rock Canyon
Legal description: T50N R9W S36
Eor number: GG013
Eor rank: A
Estimated number of individuals: 45
Brief description of site: ridgetop and extending a short distance on north slope of adobe hills in *Atriplex corrugata* community. 6060 ft.
ATV impacts: (light, moderate, heavy, none) moderate
Distance to nearest road or trail: 0 m.
Estimated density of plants (Est. number/area of population): 0.4
Estimate of maximum area of potential habitat lost to roads and trails: 64 m²
Estimate of maximum individuals lost: 26
Comments: *Penstemon retrorsus* 5% flowering.

File number: F052718a

Species: *Penstemon retrorsus*

Date: 5-27-01

Survey site: Loutzenheiser Arroyo tributary

USGS quad: Red Rock Canyon

Legal description: T49N R9W S3

Eor number: GG013

Eor rank: A

Estimated number of individuals: 250

Brief description of site: lower north facing slopes of adobe hills, heavily grazed by sheep. Assoc. spp: *Atriplex corrugata*, *Xylorhiza venusta*, *Gutierrezia sarothrae*, *Bromus tectorum*, *Astragalus flavus*, *Tetradymia spinosa*, *Krascheninnikovia lanata*, *Hordeum sp.*, *Calochortus nuttallii*, *Sphaeralcea coccinea*, *Opuntia sp.*, *Artemisia spinescens*. 5797 ft.

ATV impacts: (light, moderate, heavy, none) moderate

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 165 m²

Estimate of maximum individuals lost: 66

Comments: *Penstemon retrorsus* 8% flowering, 92% vegetative.

File number: F052719a

Species: *Lomatium concinnum*

Date: 5-27-01

USGS quad: Red Rock Canyon

Legal description: T50N R9W S35

Eor number: GG022

Eor rank: B

Estimated number of individuals: 40+

Brief description of site: steep east facing slope with *Atriplex corrugata* community. Assoc. spp: *Atriplex corrugata*, *Ephedra torreyana*, *Xylorhiza venusta*, *Oryzopsis hymenoides*, *Cleomella palmerana*. 5932 ft.

ATV impacts: (light, moderate, heavy, none)

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 18 m²

Estimate of maximum individuals lost: 7

Comments: *Lomatium concinnum* 40% fruiting, 60% vegetative. Many plants beginning to dry up.

File number: F052720a
Species: *Cirsium perplexans*
Date: 5-27-01
Survey site: Loutzenheiser Arroyo tributary
USGS quad: Red Rock Canyon
Legal description: T50N R9W S35
Eor number: GG023
Eor rank: B
Estimated number of individuals: 80
Brief description of site: ridge top of adobe hill, mostly south slopes, with *Halogeton glomerata*, *Abronia elliptica*, *Eriogonum gordonii*, *Ephedra torreyana*, *Lygodesmia* sp., *Astragalus asclepiadoides*, *Acrolasia* sp. 6217 ft.
ATV impacts: (light, moderate, heavy, none)
Distance to nearest road or trail: 0 m.
Estimated density of plants (Est. number/area of population): unknown
Estimate of maximum area of potential habitat lost to roads and trails: unknown
Estimate of maximum individuals lost: unknown
Comments: 6 plants flowering. Roads 1193, 1978 and 1997 in vicinity of population

File number: F052720b
Species: *Lomatium concinnum*
Date: 5-27-01
Survey site: Loutzenheiser Arroyo tributary
USGS quad: Red Rock Canyon
Legal description: T50N R9W S35
Eor number: GG022
Eor rank: B
Estimated number of individuals: 300
Brief description of site: tall adobe hills, 2.5 mi. North of flat top, with *Atriplex corrugata* community. Assoc. spp: *Atriplex corrugata*, *Camissonia scapoidea*, *Androstephium brevifolium*, *Oryzopsis hymenoides*, *Chorispora tenella*, *Xylorhiza venusta*, *Eriogonum gordonii*, *Acrolasia* sp. 6224 ft.
ATV impacts: (light, moderate, heavy, none)
Distance to nearest road or trail: 0 m.
Estimated density of plants (Est. number/area of population): est 0.4
Estimate of maximum area of potential habitat lost to roads and trails: 20 m²
Estimate of maximum individuals lost: 8
Comments: Road 1997 20 m. X 1 m. Trail runs along ridgeline.

File number: F052721a

Species: *Penstemon retrorsus*

Date: 5-27-01

USGS quad: Red Rock Canyon

Legal description: T50N R9W S35

Eor number: GG013

Eor rank: A

Estimated number of individuals: 75

Brief description of site: gentle northeast facing slopes below steep adobe hills, with *Atriplex corrugata* community. Assoc. spp: *Atriplex corrugata*, *Hilaria jamesii*, *Oryzopsis hymenoides*, *Bromus tectorum*, *Calochortus nuttallii*, *Opuntia sp.*, *Tetradymia spinosa*, *Atriplex confertifolia*, *Xylorhiza venusta*. 6079 ft.

ATV impacts: (light, moderate, heavy, none) light

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 30 m²

Estimate of maximum individuals lost: 12

File number: F052721b

Species: *Lomatium concinnum*

Date: 5-27-01

USGS quad: Red Rock Canyon

Legal description: T50N R9W S35

Eor number: GG029

Eor rank: B

Estimated number of individuals: 300

Brief description of site: northeast facing slope at lower part of large adobe hills. Assoc. spp: *Lomatium concinnum*, *Penstemon retrorsus*, *Atriplex corrugata*, *Xylorhiza venusta*, *Hordeum sp.*, *Calochortus nuttallii*, *Cymopterus bulbosus*, *Oryzopsis hymenoides*, *Astragalus asclepiadoides*. 5823 ft.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: >50 m.

Estimated density of plants (Est. number/area of population):

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: population extends down drainage to bottom of hill.

File number: F052721c

Species: *Cirsium perplexans*

Date: 5-27-01

USGS quad: Red Rock Canyon

Legal description: T50N R9W S35

Eor number: GG023

Eor rank: B

Estimated number of individuals: 70

Brief description of site: northwest facing slope at lower prt of large adobe hills. Assoc. spp: *Lomatium concinnum*, *Penstemon retrorsus*, *Atriplex corrugata*, *Xylorhiza venusta*, *Hordeum sp.*, *Calochortus nuttallii*, *Cymopterus bulbosus*, *Oryzopsis hymenoides*, *Astragalus asclepiadoides*. 5804 ft.

ATV impacts: (light, moderate, heavy, none)

Distance to nearest road or trail: 114 m.

Estimated density of plants (Est. number/area of population): na

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

File number: F052816a

Species: *Penstemon retrorsus*

Date: 5-28-01

USGS quad: Red Rock Canyon

Legal description: T49N R9W S2

Eor number: GG013

Eor rank: A

Estimated number of individuals: 50

Brief description of site: valley bottom between adobe ridges, with relatively little disturbance. Assoc. spp: *Hordeum bracheantherum*, *Xylorhiza venusta*, *Atriplex corrugata*, *Atriplex confertifolia*, *Cirsium perplexans*, *Sinapis arvensis*. 5820 ft.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: > 50 m.

Estimated density of plants (Est. number/area of population): na

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: *Penstemon retrorsus* 20% flowering, 80% vegetative. Additional scattered populations are present on most north facing toes slopes of ridge.

File number: F052816b

Species: *Penstemon retrorsus*

Date: 5-28-01

USGS quad: Red Rock Canyon

Legal description: T49N R9W S1

Eor number: GG013

Eor rank: A

Estimated number of individuals: 65

Brief description of site: southwest facing drainage of adobe hills. Assoc. spp: *Astragalus flavus*, *Hilaria jamesii*, *Xylorhiza venusta*, *Opuntia polyacantha*, *Ephedra torreyana*, *Atriplex confertifolia*, *Oenothera caespitosa*, *Cymopterus bulbosus*, *Lactuca serriola*, *Hordeum sp.*, *Bromus tectorum*. 5968 ft.

ATV impacts: (light, moderate, heavy, none)

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 50 m²

Estimate of maximum individuals lost: 20



F052816b

File number: F052817a

Species: *Cirsium perplexans*

Date: 5-28-01

USGS quad: Red Rock Canyon

Legal description: T49N R9W S1

Eor number: GG024

Eor rank: B

Estimated number of individuals: 22

Brief description of site: steep southwest facing slope of adobe hill, sparsely vegetated. Assoc. spp: *Astragalus flavus*, *Abronia* sp., *Oryzopsis hymenoides*, *Ephedra torreyana*, *Atriplex gardneri*. 6266 ft.

ATV impacts: (light, moderate, heavy, none)

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.1

Estimate of maximum area of potential habitat lost to roads and trails: 70 m²

Estimate of maximum individuals lost: 7

Comments: 5 plants in bud.



F052817a

File number: F052817b

Species: *Lomatium concinnum*

Date: 5-28-01

USGS quad: Red Rock Canyon

Legal description: T49N R9W S1

Eor number: GG025

Eor rank: B

Estimated number of individuals: 30+

Brief description of site: steep north facing slope at top of adobe hill. Assoc. spp: *Atriplex corrugata*, *Atriplex confertifolia*, *Xylorhiza venusta*, *Oryzopsis hymenoides*, *Stanleya pinnata*, *Erigeron pulcherrimus*, *Abronia sp.*, *Hordeum sp.*. 6279 ft.

ATV impacts: (light, moderate, heavy, none)

Distance to nearest road or trail: 0 m.

Estimated density of plants (Est. number/area of population): 0.4

Estimate of maximum area of potential habitat lost to roads and trails: 47 m²

Estimate of maximum individuals lost: 19

Comments: *Lomatium concinnum* 5% fruit, 95% vegetative. Road 2265 along ridge, 47 x 1 m.



F052817b

File number: F052818a

Species: *Cirsium perplexans*

Date: 5-28-01

USGS quad: Red Rock Canyon

Legal description: T49N R9W S1

Eor number: GG024

Eor rank: B

Estimated number of individuals: 150

Brief description of site: drainage below adobe hills. Assoc. spp: *Chorispora tenella*, *Hordeum sp.*, *Atriplex confertifolia*, *Erigeron pulcherrimus*, *Eriogonum gordonii*, *Leymus salina*. 5961 ft.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: > 50 m

Estimated density of plants (Est. number/area of population): NA

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: cirsium 15% flowering. Population continues both up and down drainage. There is a large knapweed patch just below population. Some recent ATV use in area, but not a regular trail, no evidence of impacts on plants.



F052818a

File number: F052818b
Species: *Lomatium concinnum*
Date: 5-28-01
USGS quad: Red Rock Canyon
Legal description: T49N R9W S1
Eor number: GG025
Eor rank: B
Estimated number of individuals: 175
Brief description of site: steep northwest facing slope in *Atriplex corrugata* community. 6050 ft.
ATV impacts: (light, moderate, heavy, none) none
Distance to nearest road or trail: > 50 m.
Estimated density of plants (Est. number/area of population): na
Estimate of maximum area of potential habitat lost to roads and trails: none
Estimate of maximum individuals lost: none
Comments: *Lomatium concinnum* 35% fruiting, 64% vegetative, 1% flowering. No ATV trails in site.

File number: F053118a
Species: *Cirsium perplexans*
Date: 5-31-01
USGS quad: Red Rock Canyon
Legal description: T49N R8W S5
Eor number: GG026
Eor rank: B
Estimated number of individuals: 15
Brief description of site: drainage of small valley in adobe hills. Assoc. spp: *Atriplex confertifolia*, *Bromus tectorum*, *Atriplex corrugata*, *Hordeum sp.*, *Allium acuminatum*, *Xylorhiza venusta*, *Cymopterus bulbosus*, *Calochortus nuttallii*, *Krascheninnikovia lanata*, *Pascopyrum smithii*, *Cirsium arvense*, *Salsola australis*, *Tragopogon dubius*, *Cleomella palmerana*, *Eriogonum gordonii*. 6102 ft.
ATV impacts: (light, moderate, heavy, none) none
Distance to nearest road or trail: > 50 m.
Estimated density of plants (Est. number/area of population): NA
Estimate of maximum area of potential habitat lost to roads and trails: none
Estimate of maximum individuals lost: none
Comments: *Cirsium* 30% flowering, 70% vegetative.

File number: F053118b
Species: *Cirsium perplexans*
Date: 5-31-01
USGS quad: Red Rock Canyon
Legal description: T49N R8W S5
Eor number: GG026
Eor rank: B
Estimated number of individuals: 40
Brief description of site: *Eriogonum gordonii*, *Cleomella palmerana*, *Xylorhiza venusta*, *Tetradymia spinosa*, *Oenothera caespitosa*, *Camissonia scapoidea*, *Atriplex confertifolia*, *Helianthus annuus*, *Phacelia crenulata*, *Acrolasia humilis*. 6194 ft.
ATV impacts: (light, moderate, heavy, none)
Distance to nearest road or trail: 12 m
Estimated density of plants (Est. number/area of population): na
Estimate of maximum area of potential habitat lost to roads and trails: none
Estimate of maximum individuals lost: none
Comments: Road 2283 is 12 m. From site.

File number: F053119a
Species: *Penstemon retrorsus*
Date: 5-31-01
USGS quad: Red Rock Canyon
Legal description: T49N R9W S13
Eor number: GG020
Eor rank: C
Estimated number of individuals: 15
Brief description of site: northwest facing slope in disturbed area along Landfill Road.
Assoc. spp: *Hordeum sp.*, *Atriplex confertifolia*, *Xylorhiza venusta*, *Oryzopsis hymenoides*, *Cymopterus bulbosus*. 5932 ft.
ATV impacts: (light, moderate, heavy, none)
Distance to nearest road or trail: > 50 m.
Estimated density of plants (Est. number/area of population): NA
Estimate of maximum area of potential habitat lost to roads and trails: none
Estimate of maximum individuals lost: none
Comments: *Penstemon retrorsus* growing mainly in protection of *Atriplex confertifolia*.

File number: F053120a

Species: *Penstemon retrorsus*

Date: 5-31-01

USGS quad: Red Rock Canyon

Legal description: T49N R9W S13

Eor number: GG020

Eor rank: C

Estimated number of individuals: 60

Brief description of site: north-northwest facing slope of adobe hills. Assoc. spp: *Yucca harrimanniae*, *Atriplex confertifolia*, *Bromus tectorum*, *Gutierrezia sarothrae*, *Hordeum sp.*, *Artemisia spinescens*. 5859 ft.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: 45 m

Estimated density of plants (Est. number/area of population): NA

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: small population between Roads 2498 and 2527.

File number: F053120b

Species: *Penstemon retrorsus*

Date: 5-31-01

USGS quad: Red Rock Canyon

Legal description: T49N R9W S12

Eor number: GG020

Eor rank: C

Estimated number of individuals: 20

Brief description of site: north facing slope of adobe hills. Assoc. spp: *Tetradymia spinosa*, *Chrysothamnus viscidiflorus*, *Atriplex corrugata*, *Hordeum sp.*, *Bromus tectorum*, *Artemisia spinescens*. 5863 ft.

ATV impacts: (light, moderate, heavy, none) none

Distance to nearest road or trail: 144 m.

Estimated density of plants (Est. number/area of population): NA

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: Road 2456 is 144 m. from site

File number: F053120c
Species: *Penstemon retrorsus*
Date: 5-31-01
USGS quad: Red Rock Canyon
Legal description: T49N R9W S12
Eor number: GG020
Eor rank: C
Estimated number of individuals: 30
Brief description of site: northeast slope in relatively undisturbed site with *Gutierrezia sarothrae*, *Atriplex corrugata*, *Eriogonum gordonii*, *Xylorhiza venusta*. 5899 ft.
ATV impacts: (light, moderate, heavy, none) none
Distance to nearest road or trail: 252 m.
Estimated density of plants (Est. number/area of population): NA
Estimate of maximum area of potential habitat lost to roads and trails: none
Estimate of maximum individuals lost: none

File number: F053121a
Species: *Cirsium perplexans*
Date: 5-31-01
USGS quad: Red Rock Canyon
USGS quad: T49N R9W S12
Eor number: GG027
Eor rank: C
Estimated number of individuals: 61
Brief description of site: drainage in large adobe hill, with *Atriplex corrugata*, *Hordeum sp.*, *Eriogonum gordonii*, *Xylorhiza venusta*.
ATV impacts: (light, moderate, heavy, none) none
Distance to nearest road or trail: 100 m.
Estimated density of plants (Est. number/area of population): NA
Estimate of maximum area of potential habitat lost to roads and trails: none
Estimate of maximum individuals lost: none
Comments: Road 2415 is 100 m. from site.

File number: F053121b

Species: *Cirsium perplexans*

Date: 5-31-01

USGS quad: Red Rock Canyon

Legal description: T49N R9W S12

Eor number: GG027

Eor rank: C

Estimated number of individuals: 20

Brief description of site: southeast facing slope of adobe hills. Assoc. spp: *Atriplex corrugata*, *Hordeum sp.*, *Eriogonum gordonii*, *Xylorhiza venusta*.

ATV impacts: none

Distance to nearest road or trail: 15 m.

Estimated density of plants (Est. number/area of population): NA

Estimate of maximum area of potential habitat lost to roads and trails: none

Estimate of maximum individuals lost: none

Comments: Road 2415 is 15 m. from site.

Appendix I. Plant Species List for Study Area

Blue=most often found in LOMATIUM CONCINNUM and PENSTEMON RETRORSUS sites

Abronia elliptica
Acrolasia sp.
Allium acuminatum
[Allium macropetalum](#)
Alyssum minus
Amelanchier utahensis
Androstephium breviflorum
Artemisia nova
[Artemisia spinescens \(Picrothamnus\)](#)
[Artemisia tridentata ssp. tridentata](#)
Asclepias cryptoceras
Astragalus amphioxys
[Astragalus asclepiadoides](#)
[Astragalus flavus](#)
[Atriplex confertifolia](#)
[Atriplex corrugata](#)
[Atriplex gardneri](#)
Boechera sp.
[Bromus tectorum](#)
Calochortus nuttallii
Camissonia scapoidea
Cardaria sp.
Centaurea repens
Ceratocephala orthoceras (Ranunculus testiculatus)
[Chorispora tenella](#)
Chrysothamnus depressus
Chrysothamnus nauseosus
Chrysothamnus viscidiflorus
Cirsium arvense
Cirsium perplexans
Cleomella palmerana
Cryptantha longiflora
[Cymopterus bulbosus](#)
Delphinium scaposum (D. andersonii ssp. scaposum)
[Elymus elymoides](#)
Ephedra torreyana
Eremopyrum triticeum
Erigeron pulcherrimus
[Eriogonum gordonii](#)
Eriogonum lonchophyllum
Eriogonum ovalifolium
[Erodium cicutarium](#)
Forsellesia meionandra
Gutierrezia sarothrae
Halogeton glomerata
[Hilaria jamesii](#)
Hordeum brachyantherum
Juniperus osteosperma

Krascheninnikovia lanata (Ceratooides, Eurotia)
Lactuca serriola
Lepidium perfoliatum
Lesquerella vicina
[Lomatium concinnum](#)
Lygodesmia grandiflora
Oenothera caespitosa
[Opuntia polyacantha](#)
[Oryzopsis hymenoides](#)
Pascopyrum smithii
[Penstemon retrorsus](#)
Phacelia crenulata
Phlox longifolia
Physaria acutifolia
Psilostrophe bakeri
Salsola australis
Sarcobatus vermiculatus
Sinapis arvensis
[Sphaeralcea coccinea](#)
Stanleya pinnata
Stenotus armerioides
[Tetradymia spinosa](#)
Tragopogon dubius
[Yucca harrimaniae](#)
Xylorhiza venusta

Non-native Plant Species in Study Area

Alyssum minus

[Bromus tectorum](#)

Cardaria sp.

Centaurea repens

Ceratocephala orthoceras (Ranunculus testiculatus)

[Chorispora tenella](#)

Cirsium arvense

Eremopyrum triticeum

[Erodium cicutarium](#)

Halogeton glomerata

Hordeum brachyantherum

Lactuca serriola

Lepidium perfoliatum

Salsola australis

Sinapis arvensis

Tragopogon dubius

Appendix II. Element Occurrence Records

<<<NEWREC>>> NEW
<<<IGNORE>>> EOR

FILENAME: GG001 (F042116A; F042118B; F042119B; F042120A)
LOCATION:FIELD
TECHNICIAN:MJL
DATE:2001-04-21
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<<<FONUM>>>
<<<IDENT>>>
<<<SNAME>>>LOMATIUM CONCINNUM
<<<SITECODE>>>
<<<SITENAME>>>CEDAR CREEK
<<<SURVEYSITE>>>AB LATERAL
<<<PRECISION>>>S
<<<COUNTYCODE>>> COMONT
<<<COUNTYNAME>>> MONTROSE
<<<LOCALJURIS>>>
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<<<N>>>
<<<E>>>
<<<W>>>
<<<TOWNRANGE>>>049N008W
<<<SECTION>>>22, 27
<<<MERIDIAN>>>
<<<TRSNOTE>>>
<<<DIRECTIONS>>>[LYON 2001:] FROM HIGHWAY 50 EAST OF MONTROSE, TURN NORTH ON DIRT JUST BEFORE INTERSECTION WITH (KINNIKIN?) RD.
<<<WATERSHED>>>
<<<SURVEYDATE>>>2001-04-21
<<<LASTOBS>>>2001-04-21
<<<FIRSTOBS>>>2001-04-21
<<<EORANK>>>A
<<<EORANKDATE>>>2001-04-21
<<<EORANKCOM>>>[LYON 2001:] SIZE A--; CONDITION--B; LANDSCAPE CONTEXT B—.
<<<EODATA>>>[LYON 2001:] 4 SUBPOPULATIONS. SUB A (FILE F042116A)EST. 500+ INDIV;
SUB B (F042118B), 600+; SUB C (F042119B), 200 +; SUB D (F042120A), 2000+;
<<<EOTYPE>>>
<<<GENDESC>>>[LYON 2001:] ADOBE HILLS EAST OF MONTROSE, SOILS DERIVED FROM MANCOS SHALE. ATRIPLEX CORRUGATA/ELYMUS ELYMOIDES DOMINANT IN SUBS A-C. ASSOC. SPP: ATRIPLEX CONFERTIFOLIA, CYMOPTERUS BULBOSUS, TETRADYMIA SPINESCENS, ALLIUM MACROPETALUM, HILARIA JAMESII. SARCOBATUS VERMICULATUS AND ARTEMISIA TRIDENTATA SSP. TRIDENTATA IN BOTTOMS. SOME BROMUS TECTORUM. PENSTEMON RETRORSUS ABUNDANT IN SUB C. ALSO ASTRAGALUS FLAVUS, EREMOPYRUM TRITICEUM .
<<<MINELEV>>>6398 6417 FT
<<<MAXELEV>>>6437

<<<SIZE>>>
 <<<MACODE>>>
 <<<MANAME>>>
 <<<MATYPE>>>
 <<<CONTAINED>>>
 <<<MGMTCOM>>>[LYON 2001:]. ROAD AND CANAL AND MANY ATV TRAILS RUN
 THROUGH POPULATION, AND MAY HAVE REPLACED SOME HABITAT. EXOTIC SPECIES IN
 SITE INCLUDE BROMUS TECTORUM, LEPIDIUM PERFOLIATUM, EREMOPYRUM TRITICEUM,
 <<<PROTCOM>>>[LYON 2001:]
 <<<OWNER>>>BLM
 <<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
 <<<OWNERCOM>>>
 <<<COMMENTS>>> GPS FILE NUMBERS F042116A; F042118B; F042119B, F042120A.
 <<<TOPIC.KEYWORDS>>>
 <<<DATASENS>>>
 <<<BOUNDARIES>>>Y
 <<<PHOTOS>>>GG ROLL 1, #1-13, ROLL 2, #1-5. (SUB A, #1,2; SUB B, #3-6, SUB C, #9-12; SUB
 D, ROLL 1, #13, ROLL 2 #1-5.
 <<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
 OF IMPACTS ON RARE PLANTS
 <<<SOURCECODE>>>
 <<<SPECIMENS>>> LYON 9194
 <<<TRANSCRIBR>>>
 <<<MAPPER>>>
 BIOTICS INFO
 *TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
 *CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
 *SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
 *IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
 *IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>>

<<<IGNORE>>>

EOR

FILENAME: GG002 (F042121A)

LOCATION:FIELD

TECHNICIAN:MJL

DATE: 2001-04-21

<<<EOCODE>>>

<<<FONUM>>>

<<<IDENT>>>

<<<SNAME>>>LOMATIUM CONCINNUM

<<<SITECODE>>>

<<<SITENAME>>>

<<<SURVEYSITE>>>

<<<PRECISION>>>S

<<<COUNTYCODE>>> COMONT

<<<COUNTYNAME>>> MONTROSE

<<<LOCALJURIS>>>

<<<QUADNAME>>>MONTROSE EAST

<<<QUADCODE>>>3810747

<<<DOTNUM>>>

<<<LAT>>>

<<<LONG>>>

<<<S>>>

<<<N>>>

<<<E>>>

<<<W>>>

<<<TOWNRANGE>>>049N008W

<<<SECTION>>>21, 22

<<<MERIDIAN>>>

<<<TRSNOTE>>>

<<<DIRECTIONS>>>TAKE HIGHWAY 50 ABOUT 5 MILES EAST FROM MONTROSE, TURN NORTH ON SMALL DIRT ROAD BY CANAL. FOLLOW ROAD TO LEFT TO TOP OF HILL.

<<<WATERSHED>>>

<<<SURVEYDATE>>>2001-04-21

<<<LASTOBS>>>2001-04-21

<<<FIRSTOBS>>>2001-04-21

<<<EORANK>>>C

<<<EORANKDATE>>>2001-10-11

<<<EORANKCOM>>>SMALL POPULATION

<<<EODATA>>>COUNTED 78 INDIVIDUALS. MOST IN FLOWER

<<<EOTYPE>>>PRINCIPAL EO

<<<GENDESC>>>RIDGE TOP AND SOUTH FACING SLOPE PARTWAY DOWN FROM RIDGE. ADOBE HILLS WITH ATRIPLEX GARDNERI, ARTEMISIA TRIDENTATA SSP. TRIDENTATA, CHRYSOTHAMNUS VISCIDIFLORUS, CYMPTERUS BULBOSUS, ATRIPLEX CONFERTIFOLIA, HILARIA JAMESII.

<<<MINELEV>>>6400 FT

<<<MAXELEV>>>

<<<SIZE>>>

<<<MACODE>>>

<<<MANAME>>>

<<<MATYPE>>>

<<<CONTAINED>>>

<<<MGMTCOM>>>MANY ATV TRAILS IN AREA. ROAD IS ABOUT 12 M FROM POPULATION.

<<<PROTCOM>>>

<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>Y. GG ROLL 2, #1
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>> NEW
 <<<IGNORE>>> EOR

 FILENAME: GG003 (F042122B, F042122C)
 LOCATION:FIELD
 TECHNICIAN:MJL
 DATE: 2001-04-21
 <<<EOCODE>>>
 <<<FONUM>>>
 <<<IDENT>>>
 <<<SNAME>>>LOMATIUM CONCINNUM
 <<<SITECODE>>>
 <<<SITENAME>>>
 <<<SURVEYSITE>>>AB LATERAL FLUME
 <<<PRECISION>>>
 <<<COUNTYCODE>>> COMONT
 <<<COUNTYNAME>>> MONTROSE
 <<<LOCALJURIS>>>
 <<<QUADNAME>>> RED ROCK CANYON
 <<<QUADCODE>>>3810757
 <<<DOTNUM>>>
 <<<LAT>>>
 <<<LONG>>>
 <<<S>>>
 <<<N>>>
 <<<E>>>
 <<<W>>>
 <<<TOWNRANGE>>>049N008W
 <<<SECTION>>>18
 <<<MERIDIAN>>>
 <<<TRSNOTE>>>[LYON 2001:]
 <<<DIRECTIONS>>>[LYON 2001:]
 <<<WATERSHED>>>
 <<<SURVEYDATE>>>2001-04-21
 <<<LASTOBS>>>2001-04-21
 <<<FIRSTOBS>>>2001-04-10
 <<<EORANK>>>B
 <<<EORANKDATE>>>2001-10-12
 <<<EORANKCOM>>>[LYON 2001:] SIZE--; CONDITION--; LANDSCAPE CONTEXT—.
 <<<EODATA>>>[LYON 2001:] SUB 22B: 160 INDIVIDUALS COUNTED; SUB 22C: 80 COUNTED,
 EST. 100+. MOST PLANTS IN FLOWER.
 <<<EOTYPE>>>
 <<<GENDESC>>>[LYON 2001:] POPULATION OCCUPIES RIDGE TOP AND SMALL
 DRAINAGES NEAR TOP, BECOMING LINEAR AT BOTTOM.
 <<<MINELEV>>>
 <<<MAXELEV>>>
 <<<SIZE>>>
 <<<MACODE>>>
 <<<MANAME>>>
 <<<MATYPE>>>
 <<<CONTAINED>>>
 <<<MGMTCOM>>>[LYON 2001:]. ROAD 2560 AND 2567 (ADOBE 30C, TWO TRACK) ALONG
 RIDGE TOP CLOSE TO POPULATION. ALSO SINGLE TRACK ATV TRAIL JUST TO SOUTH
 ALONG SIDE OF HILL. SEVERAL MORE SINGLE TRACK TRAILS UP HILL TO EAST.
 <<<PROTCOM>>>[LYON 2001:]

<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 2
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED):
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>> NEW
 <<<IGNORE>>> EOR

 FILENAME: GG004 (F042516A, F042518A)
 LOCATION:FIELD
 TECHNICIAN:MJL
 DATE: 2001-04-25
 <<<EOCODE>>>
 <<<FONUM>>>
 <<<IDENT>>>
 <<<SNAME>>>LOMATIUM CONCINNUM
 <<<SITECODE>>>
 <<<SITENAME>>>
 <<<SURVEYSITE>>>FLAT TOP
 <<<PRECISION>>>S
 <<<COUNTYCODE>>> COMONT
 <<<COUNTYNAME>>> MONTROSE
 <<<LOCALJURIS>>>
 <<<QUADNAME>>>RED ROCK CANYON
 <<<QUADCODE>>>3810757
 <<<DOTNUM>>>
 <<<LAT>>>
 <<<LONG>>>
 <<<S>>>
 <<<N>>>
 <<<E>>>
 <<<W>>>
 <<<TOWNRANGE>>>049N009W
 <<<SECTION>>>14, 11
 <<<MERIDIAN>>>
 <<<TRSNOTE>>>[LYON 2001:] NE1/4 OF NW 1/4
 <<<DIRECTIONS>>>[LYON 2001:] SUB 16A: EAST END OF FLAT TOP, RIM AND FLATS,
 SMALL AREAS OF STEEP EAST SLOPES. SUB 18A: NORTHEAST FLANK OF FLAT TOP. EAST
 FACING SLOPE OF NORTH RUNNING DRAINAGE, BETWEEN 1/3 AND 1/2 WAY UP.
 <<<WATERSHED>>>
 <<<SURVEYDATE>>>2001-04-25
 <<<LASTOBS>>>2001-04-25
 <<<FIRSTOBS>>>2001-04-25
 <<<EORANK>>>C
 <<<EORANKDATE>>>2001-04-25
 <<<EORANKCOM>>>[LYON 2001:] SIZE B--; CONDITION -C; LANDSCAPE CONTEXT C.
 <<<EODATA>>>[LYON 2001:] SUB 16A: 400+ INDIVIDUALS; SUB 18A: 200+ INDIVIDUALS.
 <<<EOTYPE>>>
 <<<GENDESC>>>[LYON 2001:] SUB A: EAST END OF FLAT TOP MOUNTAIN, VERY
 DISTURBED AREA WITH ROADS, RADIO TOWERS, ATV TRAILS. DRY, EXPOSED, WINDY
 SITE. PLANTS MOSTLY ON TOP, SOMETIMES SPILLING OVER THE EDGE. FENCE AREA
 WITH RADIO TOWER IS INSIDE POLYGON. PLANTS GROWING IN ROADS AND DITCHES AS
 WELL AS IN RELATIVELY UNDISTURBED AREAS. ASSOC SPP: ATRIPLEX GARDNERI,
 EPHEDRA TORREYANA, CYMPTERUS BULBOSUS, ATRIPLEX CONFERTIFOLIA, HILARIA
 JAMESII, OPUNTIA POLYACANTHA, SPHAERALCEA CONNINEA, ARTEMISIA SPINESCENS,
 TETRADYMIA SPINOSA. SUB B: EAST FACING SLOPE NORTH OF FLAT TOP MOUNTAIN,
 ADOBE HILLS, CLAY SOILS DERIVED FROM MANCOS SHALE.

 <<<MINELEV>>>6200 FT
 <<<MAXELEV>>>6256 FT

<<<SIZE>>>
<<<MACODE>>>
<<<MANAME>>>
<<<MATYPE>>>
<<<CONTAINED>>>
<<<MGMTCOM>>>[LYON 2001:]. VERY DISTURBED AREA, MANY MOTORCYCLE TRAILS.
<<<PROTCOM>>>[LYON 2001:]
<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 2, #10-15
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO): (GPS)
*IF NOT, ACCURACY IS WITHIN -----

NO 005

<<<NEWREC>>> NEW OR UPDATE OF *025
<<<IGNORE>>> EOR

FILENAME: GG006 (F042521A)

LOCATION:FIELD

TECHNICIAN:MJL

DATE: 2001-04-25

<<<EOCODE>>>

<<<FONUM>>>

<<<IDENT>>>

<<<SNAME>>>LOMATIUM CONCINNUM

<<<SITECODE>>>

<<<SITENAME>>>

<<<SURVEYSITE>>>BOSTWICK PARK ROAD

<<<PRECISION>>>S

<<<COUNTYCODE>>> COMONT

<<<COUNTYNAME>>> MONTROSE

<<<LOCALJURIS>>>

<<<QUADNAME>>>RED ROCK CANYON

<<<QUADCODE>>>3810757

<<<DOTNUM>>>

<<<LAT>>>

<<<LONG>>>

<<<S>>>

<<<N>>>

<<<E>>>

<<<W>>>

<<<TOWNRANGE>>>050N008W

<<<SECTION>>>33

<<<MERIDIAN>>>

<<<TRSNOTE>>>[LYON 2001:]

<<<DIRECTIONS>>>[LYON 2001:] TAKE BOSTWICK PARK ROAD ALMOST TO TOP, WALK UP HILL TO NORTH. POPULATION IS ALONG NORTH AND SOUTH SIDES OF RIDGE.

<<<WATERSHED>>>

<<<SURVEYDATE>>>2001-04-25

<<<LASTOBS>>>2001-04-25

<<<FIRSTOBS>>>2001-04-25

<<<EORANK>>>B

<<<EORANKDATE>>>

<<<EORANKCOM>>>[LYON 2001:] SIZE B; CONDITION B; LANDSCAPE CONTEXT A.

<<<EODATA>>>[LYON 2001:] ESTIMATE 200+ PLANTS.

<<<EOTYPE>>>

<<<GENDESC>>>[LYON 2001:] ATRIPLEX CONFERTIFOLIA/LEYMUS SALINUS COMMUNITY WITH SCATTERED JUNIPERUS OSTEOSPERMA, 80% BARE GROUND. ALSO PENSTEMON RETRORSUS (SEE EOR GG030); ASTRAGALUS FLAVUS, XYLORHIZA VENUSTA.

<<<MINELEV>>>6800 FT

<<<MAXELEV>>>6840 FT

<<<SIZE>>>

<<<MACODE>>>

<<<MANAME>>>

<<<MATYPE>>>

<<<CONTAINED>>>

<<<MGMTCOM>>>[LYON 2001:]. ANIMAL TRAILS PRESENT, BUT NO ATV TRAILS.

<<<PROTCOM>>>[LYON 2001:]

<<<OWNER>>>BLM

<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL2, #16
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>> UPDATE OF *025
<<<IGNORE>>> EOR

FILENAME: GG007 (F042522A)
LOCATION:FIELD
TECHNICIAN:MJL
DATE: 2001-04-25
<<<EOCODE>>>
<<<FONUM>>>
<<<IDENT>>>
<<<SNAME>>>LOMATIUM CONCINNUM
<<<SITECODE>>>
<<<SITENAME>>>
<<<SURVEYSITE>>>BOSTWICK PARK ROAD AT STATE TUNNEL
<<<PRECISION>>>S
<<<COUNTYCODE>>> COMONT
<<<COUNTYNAME>>> MONTROSE
<<<LOCALJURIS>>>
<<<QUADNAME>>>RED ROCK CANYON
<<<QUADCODE>>>3810757
<<<DOTNUM>>>
<<<LAT>>>
<<<LONG>>>
<<<S>>>
<<<N>>>
<<<E>>>
<<<W>>>
<<<TOWNRANGE>>>049N008W
<<<SECTION>>>5
<<<MERIDIAN>>>
<<<TRSNOTE>>>[LYON 2001:] SE
<<<DIRECTIONS>>>[LYON 2001:]
<<<WATERSHED>>>
<<<SURVEYDATE>>>2001-04-25
<<<LASTOBS>>>2001-04-25
<<<FIRSTOBS>>>2001-04-25
<<<EORANK>>>A
<<<EORANKDATE>>>
<<<EORANKCOM>>>[LYON 2001:] SIZE-A-; CONDITION-A-; LANDSCAPE CONTEXT-A
<<<EODATA>>>[LYON 2001:] ESTIMATE 2000+ PLANTS, AND POPULATION PROBABLY
CONTINUES TO WEST AND DOWN ADDITIONAL DRAINAGES.
<<<EOTYPE>>>
<<<GENDESC>>>[LYON 2001:] RIDGE TOP AND SMALL DRAINAGES ALONG EAST FACING
SLOPE.
<<<MINELEV>>>6300 FT
<<<MAXELEV>>>6400 FT
<<<SIZE>>>
<<<MACODE>>>
<<<MANAME>>>
<<<MATYPE>>>
<<<CONTAINED>>>
<<<MGMTCOM>>>[LYON 2001:].TRAIL (ROAD 2198, ADOBE 35H) RUNS ALONG RIDGE TOP
THROUGH POPULATION
<<<PROTCOM>>>[LYON 2001:]
<<<OWNER>>>BLM

<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 2 #17
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>> NEW
<<<IGNORE>>>

EOR

FILENAME: GG008 (F042717A, F042718A, F042718B; F050914A)

LOCATION:FIELD

TECHNICIAN:MJL

DATE: 2001-04-27

<<<EOCODE>>>

<<<FONUM>>>

<<<IDENT>>>

<<<SNAME>>>LOMATIUM CONCINNUM

<<<SITECODE>>>

<<<SITENAME>>>

<<<SURVEYSITE>>>EAST OF CHUKAR AND FALCON INTERSECTION

<<<PRECISION>>>S

<<<COUNTYCODE>>> COMONT

<<<COUNTYNAME>>> MONTROSE

<<<LOCALJURIS>>>

<<<QUADNAME>>>OLATHE

<<<QUADCODE>>>3810758

<<<DOTNUM>>>

<<<LAT>>>

<<<LONG>>>

<<<S>>>

<<<N>>>

<<<E>>>

<<<W>>>

<<<TOWNRANGE>>>050N009W

<<<SECTION>>>9

<<<MERIDIAN>>>

<<<TRSNOTE>>>[LYON 2001:]

<<<DIRECTIONS>>>[LYON 2001:] FALCON ROAD AT CHUKAR TRAIL

<<<WATERSHED>>>

<<<SURVEYDATE>>>2001-04-27

<<<LASTOBS>>>2001-04-27

<<<FIRSTOBS>>>2001-04-27

<<<EORANK>>>B

<<<EORANKDATE>>>

<<<EORANKCOM>>>[LYON 2001:] SIZE B; CONDITION--B; LANDSCAPE CONTEXT--B

<<<EODATA>>>[LYON 2001:] 4 SUBPOPULATIONS; SUB 17A: 130 INDIVIDUALS; SUB 18A: 30;
SUB 18B: 200+; SUB F050914A: 150.

<<<EOTYPE>>>

<<<GENDESC>>>[LYON 2001:] RIDGE TOP AND ROCKY SLOPE, PLANTS WIDELY
SCATTERED FROM DRAINAGE AT BOTTOM, TO TOP. ASSOC. SPP: JUNIPERUS
OSTEOSPERMA, ATRIPLEX CONFERTIFOLIA, ATRIPLEX GARDNERI, ARTEMISIA
SPINESCENS, FORSELLESIA MEIONANDRA, YUCCA HARRIMANIAE, CYMPTERUS
BULBOSUS. AREA MORE ROCKY THAN MOST LOMATIUM SITES, AT UPPER EDGE OF
RANGE.

<<<MINELEV>>>5800 FT

<<<MAXELEV>>>5900 FT

<<<SIZE>>>

<<<MACODE>>>

<<<MANAME>>>

<<<MATYPE>>>

<<<CONTAINED>>>

<<<MGMTCOM>>>[LYON 2001:]. TRAIL ALONG RIDGE WITHIN 5 M OF SUB 18A. EXOTICS
INCLUDE BROMUS TECTORUM, ALYSSUM MINUS. (F050914A)
<<<PROTCOM>>>[LYON 2001:]
<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 2, # 20-23; ROLL 4, # 14
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>> NEW
 <<<IGNORE>>> EOR

 FILENAME: GG009 (F042721A)
 LOCATION:FIELD
 TECHNICIAN:MJL
 DATE: 2001-04-27
 <<<EOCODE>>>
 <<<FONUM>>>
 <<<IDENT>>>
 <<<SNAME>>>LOMATIUM CONCINNUM
 <<<SITECODE>>>
 <<<SITENAME>>>
 <<<SURVEYSITE>>>
 <<<PRECISION>>>S
 <<<COUNTYCODE>>> COMONT
 <<<COUNTYNAME>>> MONTROSE
 <<<LOCALJURIS>>>
 <<<QUADNAME>>> RED ROCK CANYON
 <<<QUADCODE>>>3810757
 <<<DOTNUM>>>
 <<<LAT>>>
 <<<LONG>>>
 <<<S>>>
 <<<N>>>
 <<<E>>>
 <<<W>>>
 <<<TOWNRANGE>>>050N009W
 <<<SECTION>>>24
 <<<MERIDIAN>>>
 <<<TRSNOTE>>>[LYON 2001:]
 <<<DIRECTIONS>>>[LYON 2001:]
 <<<WATERSHED>>>
 <<<SURVEYDATE>>>2001-04-27
 <<<LASTOBS>>>2001-04-27
 <<<FIRSTOBS>>>2001-04-27
 <<<EORANK>>>B
 <<<EORANKDATE>>>2001-04-27
 <<<EORANKCOM>>>[LYON 2001:] SIZE--B; CONDITION--B; LANDSCAPE CONTEXT—B.
 <<<EODATA>>>[LYON 2001:] COUNTED 151, ESTIMATE 200 PLANTS.
 <<<EOTYPE>>>
 <<<GENDESC>>>[LYON 2001:] EAST FACING HILLSIDE WITH SCATTERED JUNIPERUS
 OSTEOSPERMA, ATRIPLEX CONFERTIFOLIA, FORSELLESIA MEIONANDRA. CYMPTERUS
 BULBOSUS AND LOMATIUM CONCINNUM IN ABOUT EQUAL AMOUNTS.
 <<<MINELEV>>>6200 FT
 <<<MAXELEV>>>6240 FT
 <<<SIZE>>>
 <<<MACODE>>>
 <<<MANAME>>>
 <<<MATYPE>>>
 <<<CONTAINED>>>
 <<<MGMTCOM>>>[LYON 2001:]. MANY SHEEP TRAILS IN AREA, NO ATV TRAILS NEARBY.
 <<<PROTCOM>>>[LYON 2001:]
 <<<OWNER>>>BLM
 <<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA

<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 3, #2
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>> NEW
 <<<IGNORE>>> EOR

 FILENAME: GG010 (F042722A)
 LOCATION:FIELD
 TECHNICIAN:MJL
 DATE: 2001-04-27
 <<<EOCODE>>>
 <<<FONUM>>>
 <<<IDENT>>>
 <<<SNAME>>>LOMATIUM CONCINNUM
 <<<SITECODE>>>
 <<<SITENAME>>>
 <<<SURVEYSITE>>>GUNNISON GORGE NCA
 <<<PRECISION>>>S
 <<<COUNTYCODE>>> COMONT
 <<<COUNTYNAME>>> MONTROSE
 <<<LOCALJURIS>>>
 <<<QUADNAME>>>RED ROCK CANYON
 <<<QUADCODE>>>3810757
 <<<DOTNUM>>>
 <<<LAT>>>
 <<<LONG>>>
 <<<S>>>
 <<<N>>>
 <<<E>>>
 <<<W>>>
 <<<TOWNRANGE>>>050N009W
 <<<SECTION>>>24
 <<<MERIDIAN>>>
 <<<TRSNOTE>>>[LYON 2001:]
 <<<DIRECTIONS>>>[LYON 2001:] AT END OF JEEP TRAIL (WHERE IT BECOMES SINGLE
 TRACK MOTORCYCLE TRAIL)
 <<<WATERSHED>>>
 <<<SURVEYDATE>>>2001-04-27
 <<<LASTOBS>>>2001-04-27
 <<<FIRSTOBS>>>2001-04-27
 <<<EORANK>>>C
 <<<EORANKDATE>>>2001-04-27
 <<<EORANKCOM>>>[LYON 2001:] SIZE--C; CONDITION--B; LANDSCAPE CONTEXT—B.
 <<<EODATA>>>[LYON 2001:] SMALL POPULATION. COUNTED 60 PLANTS. NEAR UPPER
 LIMIT OF MANCOS SHALE, BEGINNING OF PINYON-JUNIPER AREA.
 <<<EOTYPE>>>
 <<<GENDESC>>>[LYON 2001:] ADOBE HILLS, WITH JUNIPER, HILARIA JAMESII,
 SARCOBATUS VERMICULATUS. FAIRLY ROCKY SITE, ON LOWER WEST SIDE OF SOUTH
 RIM OF BLACK CANYON
 <<<MINELEV>>>6257 FT
 <<<MAXELEV>>>
 <<<SIZE>>>
 <<<MACODE>>>
 <<<MANAME>>>
 <<<MATYPE>>>
 <<<CONTAINED>>>
 <<<MGMTCOM>>>[LYON 2001:]. JEEP TRAIL ADJACENT TO SITE.
 <<<PROTCOM>>>[LYON 2001:]

<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 3, #3.
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>> NEW
 <<<IGNORE>>> EOR

 FILENAME: GG011 (F042916A)
 LOCATION:FIELD
 TECHNICIAN:MJL
 DATE: 2001-04-29
 <<<EOCODE>>>
 <<<FONUM>>>
 <<<IDENT>>>
 <<<SNAME>>>LOMATIUM CONCINNUM
 <<<SITECODE>>>
 <<<SITENAME>>>
 <<<SURVEYSITE>>>BOSTWICK PARK ROAD
 <<<PRECISION>>>
 <<<COUNTYCODE>>> COMONT
 <<<COUNTYNAME>>> MONTROSE
 <<<LOCALJURIS>>>
 <<<QUADNAME>>> RED ROCK CANYON
 <<<QUADCODE>>>3810757
 <<<DOTNUM>>>
 <<<LAT>>>
 <<<LONG>>>
 <<<S>>>
 <<<N>>>
 <<<E>>>
 <<<W>>>
 <<<TOWNRANGE>>>049N008W
 <<<SECTION>>>6
 <<<MERIDIAN>>>
 <<<TRSNOTE>>>[LYON 2001:]
 <<<DIRECTIONS>>>[LYON 2001:] TAKE BOSTWICK PARK ROAD ABOUT 1 MILE NORTHEAST
 OF LANDFILL, WALK TO TOP OF HILL ON NORTH
 <<<WATERSHED>>>
 <<<SURVEYDATE>>>2001-04-29
 <<<LASTOBS>>>2001-04-29
 <<<FIRSTOBS>>>2001-04-29
 <<<EORANK>>>A
 <<<EORANKDATE>>>2001-04-29
 <<<EORANKCOM>>>[LYON 2001:] SIZE--A; CONDITION--A; LANDSCAPE CONTEXT—B.
 <<<EODATA>>>[LYON 2001:] 1000+ PLANTS, LOMATIUM IS THE DOMINANT FORB
 <<<EOTYPE>>>
 <<<GENDESC>>>[LYON 2001:] STEEP EAST FACING SLOPE WITH SOFT CLAY SOILS,
 ATRIPLEX CORRUGATA, 90% BARE GROUND, AND A FEW CYMPTERUS BULBOSUS AND
 ERIOGONUM GORDONII. OCCURRENCE IS ON RIDGE TOP, AND EXTENDING DOWN
 SHALLOW GULLIES, ABOUT HALF-WAY TO BOTTOM.
 <<<MINELEV>>>6200 FT
 <<<MAXELEV>>>6400 FT
 <<<SIZE>>>
 <<<MACODE>>>
 <<<MANAME>>>
 <<<MATYPE>>>
 <<<CONTAINED>>>
 <<<MGMTCOM>>>[LYON 2001:]. TWO TRACK (ROAD 2364) GOES ALONG RIDGE TOP,
 THROUGH POPULATION. MOST PLANTS ARE BELOW RIDGE.

<<<PROTCOM>>>[LYON 2001:]
<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 3, #4.
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>>

<<<IGNORE>>>

EOR

FILENAME: GG012 (F043021A, F043022A, F043022B)

LOCATION:FIELD

TECHNICIAN:MJL

DATE: 2001-04-30

<<<EOCODE>>>

<<<FONUM>>>

<<<IDENT>>>

<<<SNAME>>>LOMATIUM CONCINNUM

<<<SITECODE>>>

<<<SITENAME>>>

<<<SURVEYSITE>>>EAST OF WATER TANK

<<<PRECISION>>>S

<<<COUNTYCODE>>> COMONT

<<<COUNTYNAME>>> MONTROSE

<<<LOCALJURIS>>>

<<<QUADNAME>>>OLATHE

<<<QUADCODE>>>3810758

<<<DOTNUM>>>

<<<LAT>>>

<<<LONG>>>

<<<S>>>

<<<N>>>

<<<E>>>

<<<W>>>

<<<TOWNRANGE>>>050N009W

<<<SECTION>>>16

<<<MERIDIAN>>>

<<<TRSNOTE>>>

<<<DIRECTIONS>>>FROM FALCON ROAD TAKE TWO TRACK TO EAST TO WATER TANK,
PARK AND WALK UP TO TOP OF RIDGE TO EAST.

<<<WATERSHED>>>

<<<SURVEYDATE>>>2001-04-30

<<<LASTOBS>>>2001-04-30

<<<FIRSTOBS>>>2001-04-30

<<<EORANK>>>B

<<<EORANKDATE>>>2001-04-30

<<<EORANKCOM>>> SIZE, CONDITION AND LANDSCAPE CONTEXT ALL B.

<<<EODATA>>>SUB 21A: ESTIMATE 200 INDIVIDUALS; 22A: 100+; 22B: 50. SPARSELY
SCATTERED ALONG RIDGE AND IN GULLIES, MOSTLY ON NORTH FACING SLOPES.

<<<EOTYPE>>>PRINCIPAL EO

<<<GENDESC>>>ADOBE HILLS EAST OF FALCON ROAD, WITH ATRIPLEX
CORRUGATA/SHALE BARREN COMMUNITY. ASSOCIATED SPP: XYLORHIZA VENUSTA,
CYMPTERUS BULBOSUS, ERIOGONUM GORDONII. SUB 22B, IN MORE PROTECTED AREA,
ALSO HAS ATRIPLEX GARDNERI, ERIOGONUM OVALIFOLIUM, OPUNTIA POLYACANTHA,
FORSELLESIA MEIONANDRA, YUCCA HARRIMANNIAE, PHLOX LONGIFOLIA AND ELYMUS
SALINUS.

<<<MINELEV>>>5840 FT

<<<MAXELEV>>>5900 FT

<<<SIZE>>>

<<<MACODE>>>

<<<MANAME>>>

<<<MATYPE>>>

<<<CONTAINED>>>
<<<MGMTCOM>>>MOTORCYCLE TRAIL EXTENDS ALONG RIDGE FROM WATER TANK,
THROUGH MARGIN OF POPULATION. SOME SHEEP TRAMPLING AROUND SUB 22B.
<<<PROTCOM>>>
<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 3, #5 - 9
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED):
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO): (UNCORRECTED GPS)
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>> Update *016 and add *017
<<<IGNORE>>> EOR

FILENAME: GG013 (F050119A; F052319B; F052320B; F052322A; F052414A; F052415A; F052415B;
F052417A; F052620A; F052620B; F052621B; F052621C; F052718A; F052721A; F052816A; F052816B)

LOCATION:FIELD

TECHNICIAN:MJL

DATE: 2001-05-28

<<<EOCODE>>>

<<<FONUM>>>

<<<IDENT>>>

<<<SNAME>>>PENSTEMON RETRORSUS

<<<SITECODE>>>

<<<SITENAME>>>

<<<SURVEYSITE>>>

<<<PRECISION>>>S

<<<COUNTYCODE>>> COMONT

<<<COUNTYNAME>>> MONTROSE

<<<LOCALJURIS>>>

<<<QUADNAME>>> RED ROCK CANYON

<<<QUADCODE>>>3810757

<<<DOTNUM>>>

<<<LAT>>>

<<<LONG>>>

<<<S>>>

<<<N>>>

<<<E>>>

<<<W>>>

<<<TOWNRANGE>>>049N009W|050N009W|050N008W

<<<SECTION>>>1,2,3|25,26,35,36|30

<<<MERIDIAN>>>

<<<TRSNOTE>>>

<<<DIRECTIONS>>>ACCESS THROUGH PRIVATE LAND WITH PERMISSION

<<<WATERSHED>>>

<<<SURVEYDATE>>>2001-05-28

<<<LASTOBS>>>2001-05-28

<<<FIRSTOBS>>>2001-05-19

<<<EORANK>>>A

<<<EORANKDATE>>>2001-05-28

<<<EORANKCOM>>>SIZE A. MANY SUBS; ONE SUB HAS >100,000 ESTIMATED
INDIVIDUALS. CONDITION: A; LANDSCAPE CONTEXT: B.

<<<EODATA>>>PENSTEMON IS ONE OF DOMINANT PLANTS IN AREA. MAPPED AREAS DO
NOT REPRESENT ALL OCCUPIED AREA.

<<<EOTYPE>>>PRINCIPAL EO

<<<GENDESC>>>MOSTLY LEVEL TO GENTLY NORTH SLOPING AREAS AT LOWER PARTS
OF ADOBE HILLS, ESPECIALLY ON TOE SLOPES AND SHALLOW DRAINAGES. ASSOCIATED
SPECIES IN LARGEST SUBS (F052322A AND F050119A) INCLUDE TETRADYMIA SPINOSA,
ATRIplex CONFERTIFOLIA, CHRYSOTHAMNUS NAUSEOSUS, ARTEMISIA NOVA,
ERIOGONUM GORDONII, YUCCA HARRIMANNIAE; ERIOGONUM LONCHOPHYLLUM,
KRASCHENINNIKOVIA LANATA, LEYMUS SALINUS, GUTIERREZIA SAROTHRAE, PHLOX
LONGIFLORA, ASTRAGALUS FLAVUS. ALSO SOME RANUNCULUS TESTICULATUS,
BROMUS TECTORUM, CHORISPORA TENELLA AND HALOGETON GLOMERATUS.

<<<MINELEV>>>5781 FT.

<<<MAXELEV>>>6243 FT

<<<SIZE>>>

<<<MACODE>>>

<<<MANAME>>>
<<<MATYPE>>>
<<<CONTAINED>>>
<<<MGMTCOM>>>A ROAD AND MANY SMALL TRAILS (BOTH SHEEP AND MOTORCYCLE)
RUN THROUGH POPULATION. WEEDS INCLUDE RANUNCULUS TESTICULATUS, BROMUS
TECTORUM, CHORISPORA TENELLA AND HALOGETON GLOMERATUS.
<<<PROTCOM>>>
<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 3, #14, 15; DIGITAL DISK 3, #7-9; DISK 5, #1, 7, 8,10; DISK 6, #1; ROLL
5, #19, 20, 22, 23
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED):
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>>

<<<IGNORE>>>

EOR

FILENAME: GG014 (F050121A; F050121B; F050121C)

LOCATION:FIELD

TECHNICIAN:MJL

DATE: 2001-05-01

<<<EOCODE>>>

<<<FONUM>>>

<<<IDENT>>>

<<<SNAME>>>LOMATIUM CONCINNUM

<<<SITECODE>>>

<<<SITENAME>>>

<<<SURVEYSITE>>>WATER DEVELOPMENT NORTHWEST

<<<PRECISION>>>S

<<<COUNTYCODE>>> COMONT

<<<COUNTYNAME>>> MONTROSE

<<<LOCALJURIS>>>

<<<QUADNAME>>>RED ROCK CANYON

<<<QUADCODE>>>3810757

<<<DOTNUM>>>

<<<LAT>>>

<<<LONG>>>

<<<S>>>

<<<N>>>

<<<E>>>

<<<W>>>

<<<TOWNRANGE>>>050N008W

<<<SECTION>>>31

<<<MERIDIAN>>>

<<<TRSNOTE>>>

<<<DIRECTIONS<<<WATERSHED>>>>

<<<SURVEYDATE>>>2001-05-01

<<<LASTOBS>>>2001-05-01

<<<FIRSTOBS>>>2001-05-01

<<<EORANK>>>B

<<<EORANKDATE>>>2001-05-01

<<<EORANKCOM>>>SIZE B; CONDITION B; LANDSCAPE CONTEXT B.

<<<EODATA>>> ESTIMATE 300 INDIVIDUALS IN 3 POLYGONS

<<<EOTYPE>>>PRINCIPAL EO

<<<GENDESC>>>LOW HILLS ABOVE WATER DEVELOPMENT ALONG ROAD BETWEEN NICHOLS AND WILLIAMS PROPERTIES. RIDGE TOPS, EAST AND WEST FACING SLOPES. ATRIPLX CORRUGATA/SHALE BARREN COMMUNITY, WITH XYLORHIZA VENUSTA, ANDROSTEPHIUM BREVIFLORUM, TETRADYMIA SPINOSA, CYMPTERUS BULBOSUS, AND ELYMUS ELYMOIDES.

<<<MINELEV>>>6125 FT

<<<MAXELEV>>>6278 FT

<<<SIZE>>>

<<<MACODE>>>

<<<MANAME>>>

<<<MATYPE>>>

<<<CONTAINED>>>

<<<MGMTCOM>>>ROAD (1969) GOES THROUGH LOWER PART OF POPULATION. MOTORCYCLE TRAILS ALONG RIDGE.

<<<PROTCOM>>>

<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 3, #17
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>>

<<<IGNORE>>>

EOR

FILENAME: GG015 (F050220A; F050220B)

LOCATION:FIELD

TECHNICIAN:MJL

DATE: 2001-05-02

<<<EOCODE>>>

<<<FONUM>>>

<<<IDENT>>>

<<<SNAME>>>OREOCARYA LONGIFLORA

<<<SITECODE>>>

<<<SITENAME>>>

<<<SURVEYSITE>>>CHUKAR TRAIL STOCK POND

<<<PRECISION>>>S

<<<COUNTYCODE>>> COMONT

<<<COUNTYNAME>>> MONTROSE

<<<LOCALJURIS>>>

<<<QUADNAME>>>RED ROCK CANYON

<<<QUADCODE>>>3810757

<<<DOTNUM>>>

<<<LAT>>>

<<<LONG>>>

<<<S>>>

<<<N>>>

<<<E>>>

<<<W>>>

<<<TOWNRANGE>>>050N009W

<<<SECTION>>>23

<<<MERIDIAN>>>

<<<TRSNOTE>>>

<<<DIRECTIONS<<<WATERSHED>>>>

<<<SURVEYDATE>>>2001-05-02

<<<LASTOBS>>>2001-05-02

<<<FIRSTOBS>>>2001-05-02

<<<EORANK>>>C

<<<EORANKDATE>>>2001-05-02

<<<EORANKCOM>>>SIZE C. CONDITION A. LANDSCAPE CONTEXTC.

<<<EODATA>>> ESTIMATE 50 INDIVIDUALS, WIDELY SCATTERED

<<<EOTYPE>>>PRINCIPAL EO

<<<GENDESC>>>NORTH-NORTHEAST FACING SLOPE ABOVE STOCK POND WITH ATRIPLEX GARDNERI, LEYMUS SALINUS, ERIOGONUM SP., PICROTHAMNUS DESERTORUM, PHLOX LONGIFOLIA, OPUNTIA POLYACANTHA, ANDROSTRPHIUM BREVIFLORUM, KRANSCHENINNIKOVIA LANATA, EPHEDRA TORREYANA, FORSELLESIA MEIONANDRA, PSILOSTROPHE BAKERI. SPARSELY SCATTERED INDIVIDUALS CONTINUE ALONG RIDGE TO SOUTH.

<<<MINELEV>>>6000 FT

<<<MAXELEV>>>6100 FT

<<<SIZE>>>

<<<MACODE>>>

<<<MANAME>>>

<<<MATYPE>>>

<<<CONTAINED>>>

<<<MGMTCOM>>>HEAVILY GRAZED BY SHEEP

<<<PROTCOM>>>

<<<OWNER>>>PRIVATE.
<<<OWNERINFO>>> GET PERMISSION FROM RAY NICHOLS, MONTROSE
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 3, #22
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>>

<<<IGNORE>>>

EOR

FILENAME: GG016 (F050221A)

LOCATION:FIELD

TECHNICIAN:MJL

DATE: 2001-05-02

<<<EOCODE>>>

<<<FONUM>>>

<<<IDENT>>>

<<<SNAME>>>LOMATIUM CONCINNUM

<<<SITECODE>>>

<<<SITENAME>>>

<<<SURVEYSITE>>>

<<<PRECISION>>>S

<<<COUNTYCODE>>> COMONT

<<<COUNTYNAME>>> MONTROSE

<<<LOCALJURIS>>>

<<<QUADNAME>>> RED ROCK CANYON

<<<QUADCODE>>>3810757

<<<DOTNUM>>>

<<<LAT>>>

<<<LONG>>>

<<<S>>>

<<<N>>>

<<<E>>>

<<<W>>>

<<<TOWNRANGE>>>050N009W

<<<SECTION>>>23

<<<MERIDIAN>>>

<<<TRSNOTE>>>

<<<DIRECTIONS>>>TAKE CHUKAR TRAIL ROAD SOUTH FROM FALCON ROAD.

OCCURRENCE IS ALONG RIDGE SOUTH OF SECOND STOCK POND, AND EXTENDING SOUTH TO IRRIGATION DITCH.

<<<WATERSHED>>>

<<<SURVEYDATE>>>2001-05-02

<<<LASTOBS>>>2001-05-02

<<<FIRSTOBS>>>2001-05-02

<<<EORANK>>>B

<<<EORANKDATE>>>2001-05-02

<<<EORANKCOM>>>SIZE B; CONDITION A; LANDSCAPE CONTEXT B.

<<<EODATA>>>ESTIMATE 300 PLANTS

<<<EOTYPE>>>PRINCIPAL EO

<<<GENDESC>>>RIDGE AND SOUTH FACING SLOPE TO BOTTOM. ASSOCIATED SPP:

LEYMUS SALINUS; BROMUS TECTORUM, ASTRAGALUS FLAVUS, XYLORHIZA VENUSTA,

ATRIPLEX CONFERTIFOLIA, HILARIA JAMESII, TETRADYMIA SPINOSA, PSILOSTROPHE

BAKERI, CRYPTANTHA LONGIFLORA, YUCCA HARRIMANNEAI, ATRIPLEX GARDNERI,

DELPHINIUM SP., OPUNTIA POLYACANTHA, CYMOPTERUS BULBOSUS, ANDROSTEPHIUM

BREVIFLORUM

<<<MINELEV>>>6030 FT

<<<MAXELEV>>>6140 FT

<<<SIZE>>>

<<<MACODE>>>

<<<MANAME>>>

<<<MATYPE>>>

<<<CONTAINED>>>
<<<MGMTCOM>>>
<<<PROTCOM>>>
<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 3 #23
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>> update *009
<<<IGNORE>>> EOR

FILENAME: GG017 (F050720A)
LOCATION:FIELD
TECHNICIAN:MJL
DATE: 2001-05-07

<<<EOCODE>>>
<<<FONUM>>>
<<<IDENT>>>
<<<SNAME>>>PENSTEMON RETRORSUS
<<<SITECODE>>>
<<<SITENAME>>>
<<<SURVEYSITE>>>
<<<PRECISION>>>S
<<<COUNTYCODE>>> COMONT
<<<COUNTYNAME>>> MONTROSE
<<<LOCALJURIS>>>
<<<QUADNAME>>> RED ROCK CANYON
<<<QUADCODE>>>3810757
<<<DOTNUM>>>
<<<LAT>>>
<<<LONG>>>
<<<S>>>
<<<N>>>
<<<E>>>
<<<W>>>
<<<TOWNRANGE>>>050N009W
<<<SECTION>>>22
<<<MERIDIAN>>>
<<<TRSNOTE>>>
<<<DIRECTIONS>>>
<<<WATERSHED>>>
<<<SURVEYDATE>>>2001-05-07
<<<LASTOBS>>>2001-05-07
<<<FIRSTOBS>>>2001-05-07
<<<EORANK>>>C
<<<EORANKDATE>>>2001-05-07
<<<EORANKCOM>>>SIZE C. CONDITION C; LANDSCAPE CONTEXT B.
<<<EODATA>>>ESTIMATE 300 PLANTS
<<<EOTYPE>>>PRINCIPAL EO
<<<GENDESC>>>ADOBE BADLANDS. ASSOCIATED SPP: , ATRIPLEX CONFERTIFOLIA,
ATRIPLEX CORRUGATA, YUCCA HARRIMANIAE, XYLORHIZA VENUSTA, ANDROSTEPHIUM
BREVIFLORUM, PHLOX LONGIFOLIA, KRASCHENINNIKOVIA LANATA, CYMPTERUS
BULBOSUS, BROMUS TECTORUM, OPUNTIA POLYACANTHA, CERATOCEPHALA
ORTHOCERAS, HILARIA JAMESII
<<<MINELEV>>>5920 FT
<<<MAXELEV>>>5960 FT
<<<SIZE>>>
<<<MACODE>>>
<<<MANAME>>>
<<<MATYPE>>>
<<<CONTAINED>>>

<<<MGMTCOM>>>HEAVY SHEEP GRAZING, MUCH TRAMPLING. LOCATED BETWEEN
ROADS 1859 AND 1860. SINGLE TRACK (UNMAPPED) GOES THROUGH SOUTHERN PART OF
POPULATION.

<<<PROTCOM>>>

<<<OWNER>>>BLM

<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA

<<<OWNERCOM>>>

<<<COMMENTS>>>

<<<TOPIC.KEYWORDS>>>

<<<DATASENS>>>

<<<BOUNDARIES>>>Y

<<<PHOTOS>>>GG ROLL 4, #4, 5.

<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS

<<<SOURCECODE>>>

<<<SPECIMENS>>>

<<<TRANSCRIBR>>>

<<<MAPPER>>>

BIOTICS INFO

*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)

*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)

*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:

*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):

*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>> update *008 and add *014
<<<IGNORE>>> EOR

FILENAME: GG018 (F050821A)
LOCATION:FIELD
TECHNICIAN:MJL
DATE: 2001-05-08

<<<EOCODE>>>
<<<FONUM>>>
<<<IDENT>>>
<<<SNAME>>>PENSTEMON RETRORSUS
<<<SITECODE>>>
<<<SITENAME>>>
<<<SURVEYSITE>>>STATE TUNNEL DAM
<<<PRECISION>>>S
<<<COUNTYCODE>>> COMONT
<<<COUNTYNAME>>> MONTROSE
<<<LOCALJURIS>>>
<<<QUADNAME>>> RED ROCK CANYON
<<<QUADCODE>>>3810757
<<<DOTNUM>>>
<<<LAT>>>
<<<LONG>>>
<<<S>>>
<<<N>>>
<<<E>>>
<<<W>>>
<<<TOWNRANGE>>>049N008W
<<<SECTION>>>5
<<<MERIDIAN>>>
<<<TRSNOTE>>>
<<<DIRECTIONS>>>
<<<WATERSHED>>>
<<<SURVEYDATE>>>2001-05-08
<<<LASTOBS>>>2001-05-08
<<<FIRSTOBS>>>2001-05-08
<<<EORANK>>>A
<<<EORANKDATE>>>2001-05-08
<<<EORANKCOM>>>SIZE: A; CONDITION: B; LANDSCAPE CONTEXT A.
<<<EODATA>>>ESTIMATE THOUSANDS OF PLANTS. 60% IN FLOWER. COMMON ON
LOWER REACHES OF NORTHWEST FACING HILLSIDES
<<<EOTYPE>>>PRINCIPAL EO
<<<GENDESC>>>VALLEY BETWEEN TWO ADOBE RIDGES. ASSOC. SPP: XYLORHIZA
VENUSTA, CYMPTERUS BULBOSUS, ATRIPLEX CORRUGATA, ATRIPLEX CONFERTIFOLIA,
ASTRAGALUS ASCLEPIADOIDES, PHLOX LONGIFOLIA, PASCOPYRUM SMITHII.
<<<MINELEV>>>6132 FT
<<<MAXELEV>>>6200 FT
<<<SIZE>>>
<<<MACODE>>>
<<<MANAME>>>
<<<MATYPE>>>
<<<CONTAINED>>>
<<<MGMTCOM>>>TRAIL ALONG RIDGE TOP, DOES NOT INTERCEPT POPULATION.
<<<PROTCOM>>>
<<<OWNER>>>BLM

<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 4, #10, 11
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED):
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----
POLYGON ESTIMATED FROM GPS POINT.

<<<NEWREC>>>

<<<IGNORE>>>

EOR

FILENAME: GG019 (F050913A)

LOCATION:FIELD

TECHNICIAN:MJL

DATE: 2001-05-09

<<<EOCODE>>>

<<<FONUM>>>

<<<IDENT>>>

<<<SNAME>>>OREOCARYA LONGIFLORA

<<<SITECODE>>>

<<<SITENAME>>>

<<<SURVEYSITE>>>

<<<PRECISION>>>S

<<<COUNTYCODE>>> COMONT

<<<COUNTYNAME>>> MONTROSE

<<<LOCALJURIS>>>

<<<QUADNAME>>>RED ROCK CANYON

<<<QUADCODE>>>3810757

<<<DOTNUM>>>

<<<LAT>>>

<<<LONG>>>

<<<S>>>

<<<N>>>

<<<E>>>

<<<W>>>

<<<TOWNRANGE>>>050N009W

<<<SECTION>>>14,23

<<<MERIDIAN>>>

<<<TRSNOTE>>>

<<<DIRECTIONS>>>FROM FALCON ROAD, TAKE CHUKAR TRAIL SOUTH, TURN LEFT TOWARD TRAILHEAD, CONTINUE TO TOP OF RIDGE, THEN LEFT AT PULLOUT.

<<<WATERSHED>>>

<<<SURVEYDATE>>>2001-05-09

<<<LASTOBS>>>2001-05-09

<<<FIRSTOBS>>>2001-05-09

<<<EORANK>>>C

<<<EORANKDATE>>>2001-05-09

<<<EORANKCOM>>>SIZE C. CONDITION B. LANDSCAPE CONTEXT B.

<<<EODATA>>>COUNTED 33 PLANTS.

<<<EOTYPE>>>PRINCIPAL EO

<<<GENDESC>>>PINYON-JUNIPER COMMUNITY ON SANDY SOILS ABOVE ADOBE HILLS.

<<<MINELEV>>>6520 FT

<<<MAXELEV>>>6580 FT

<<<SIZE>>>

<<<MACODE>>>

<<<MANAME>>>

<<<MATYPE>>>

<<<CONTAINED>>>

<<<MGMTCOM>>>

<<<PROTCOM>>>

<<<OWNER>>>BLM

<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA

<<<OWNERCOM>>>

<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>> UPDATE *004 , and add *011
<<<IGNORE>>> EOR

FILENAME: GG020 (F050919C; F053119A; F053120A;F053120B; FO53120C)
LOCATION:FIELD
TECHNICIAN:MJL
DATE: 2001-05-31

<<<EOCODE>>>
<<<FONUM>>>
<<<IDENT>>>
<<<SNAME>>>PENSTEMON RETRORSUS
<<<SITECODE>>>
<<<SITENAME>>>
<<<SURVEYSITE>>>NORTHEAST OF FLAT TOP
<<<PRECISION>>>S
<<<COUNTYCODE>>> COMONT
<<<COUNTYNAME>>> MONTROSE
<<<LOCALJURIS>>>
<<<QUADNAME>>>RED ROCK CANYON
<<<QUADCODE>>>3810757
<<<DOTNUM>>>
<<<LAT>>>
<<<LONG>>>
<<<S>>>
<<<N>>>
<<<E>>>
<<<W>>>
<<<TOWNRANGE>>>049N009W|049N008W
<<<SECTION>>>12,13|7
<<<MERIDIAN>>>
<<<TRSNOTE>>>
<<<DIRECTIONS>>> SUB 19A: From Montrose take the Bostwick Park/ Landfill Road until you reach the north boundary of section 13, park on the North side of the road at the pull out. The population is just off the road to the north.
SUB F050919C IS JUST SOUTHEAST OF INTERSECTION OF BOSTWICK PARK ROAD AND LANDFILL ROAD. ACCESS REMAINING SUBS FROM BOSTWICK PARK ROAD.
<<<WATERSHED>>>
<<<SURVEYDATE>>>2001-05-31
<<<LASTOBS>>>2001-05-31
<<<FIRSTOBS>>>2001-05-09
<<<EORANK>>>C
<<<EORANKDATE>>>2001-05-31
<<<EORANKCOM>>>SIZE C. CONDITION: C. LANDSCAPE CONTEXT C.
<<<EODATA>>>SUB F050919C: 100 PLANTS; F053119A: 15; F053120A: 60; F053120B: 20.
PENSTEMON IS SPARSELY DISTRIBUTED, MOSTLY UNDER PROTECTION OF SHRUBS.
<<<EOTYPE>>>PRINCIPAL EO
<<<GENDESC>>>AREA OF LOW ADOBE HILLS NEAR LANDFILL, HIGHLY DISTURBED, FRAGMENTED. MANY ATV TRAILS. ASSOCIATED SPP: ATRIPLEX CONFERTIFOLIA, HORDEUM SP., XYLORHIZA VENUSTA, ORYZOPSIS HYMENOIDES, CYMPTERUS BULBOSUS, YUCCA HARRIMANIAE, BROMUS TECTORUM, GUTIERREZIA SAROTHRAE, ARTEMISIA SPINESCENS, TETRADYMIA SPINOSA, CHRYSOTHAMNUS VISCIDIFLORUS, ATRIPLEX CORRUGATA.
<<<MINELEV>>>5900 FT
<<<MAXELEV>>>6000 FT

<<<SIZE>>>
<<<MACODE>>>
<<<MANAME>>>
<<<MATYPE>>>
<<<CONTAINED>>>
<<<MGMTCOM>>>VERY DISTURBED, MANY ATV TRAILS, TRASH. GRAZED BY SHEEP.
BROMUS TECTORUM PRESENT.
<<<PROTCOM>>>
<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 4, #18; ROLL 7, #4, 5, 6
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED):
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>>
 <<<IGNORE>>> EOR

 FILENAME: GG021 (F052319A; F052320A)
 LOCATION:FIELD
 TECHNICIAN:MJL
 DATE: 2001-05-23

 <<<EOCODE>>>
 <<<FONUM>>>
 <<<IDENT>>>
 <<<SNAME>>>LOMATIUM CONCINNUM
 <<<SITECODE>>>
 <<<SITENAME>>>
 <<<SURVEYSITE>>>
 <<<PRECISION>>>S
 <<<COUNTYCODE>>> COMONT
 <<<COUNTYNAME>>> MONTROSE
 <<<LOCALJURIS>>>
 <<<QUADNAME>>> RED ROCK CANYON
 <<<QUADCODE>>>3810757
 <<<DOTNUM>>>
 <<<LAT>>>
 <<<LONG>>>
 <<<S>>>
 <<<N>>>
 <<<E>>>
 <<<W>>>
 <<<TOWNRANGE>>>049N009W
 <<<SECTION>>>3
 <<<MERIDIAN>>>
 <<<TRSNOTE>>>
 <<<DIRECTIONS>>>FROM MONTROSE TAKE 6530 ROAD NORTH. NEED PERMISSION TO
 CROSS PRIVATE LAND (JOE WILLIAMS, MONTROSE), THEN CONTINUE ONTO BLM ABOUT
 ½ MILE. OCCURRENCE IS SOUTH OF ROAD ON RIDGE TOP.
 <<<WATERSHED>>>
 <<<SURVEYDATE>>>: 2001-05-23
 <<<LASTOBS>>>: 2001-05-23
 <<<FIRSTOBS>>>: 2001-05-23
 <<<EORANK>>>C
 <<<EORANKDATE>>>: 2001-05-23
 <<<EORANKCOM>>>SIZE C: SMALL POPULATION, MOSTLY VEGETATIVE.
 <<<EODATA>>>SUB 19A: 5 PLANTS; SUB 20A: 60 PLANTS.
 <<<EOTYPE>>>PRINCIPAL EO
 <<<GENDESC>>>RIDGE TOP AND STEEP NORTH FACING SLOPES IN ADOBE HILLS WITH
 ATRIPLEX CORRUGATA, ORYZOPSIS HYMENOIDES, CALOCHORTUS NUTTALLII,
 CAMISSONIA SCAPOIDEA, LEYMUS SALINA.
 <<<MINELEV>>>5899 FT
 <<<MAXELEV>>>5912 FT
 <<<SIZE>>>
 <<<MACODE>>>
 <<<MANAME>>>
 <<<MATYPE>>>
 <<<CONTAINED>>>
 <<<MGMTCOM>>>ATV TRAIL (ROAD 2192, ADOBE A40) GOES THROUGH BOTH SUB-
 POPULATIONS.

<<<PROTCOM>>>
<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLECTIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>>

<<<IGNORE>>>

EOR

FILENAME: GG022 (F052719A; F052720B)

LOCATION:FIELD

TECHNICIAN:MJL

DATE: 2001-05-27

<<<EOCODE>>>

<<<FONUM>>>

<<<IDENT>>>

<<<SNAME>>>LOMATIUM CONCINNUM

<<<SITECODE>>>

<<<SITENAME>>>

<<<SURVEYSITE>>>

<<<PRECISION>>>S

<<<COUNTYCODE>>> COMONT

<<<COUNTYNAME>>> MONTROSE

<<<LOCALJURIS>>>

<<<QUADNAME>>>RED ROCK CANYON

<<<QUADCODE>>>3810757

<<<DOTNUM>>>

<<<LAT>>>

<<<LONG>>>

<<<S>>>

<<<N>>>

<<<E>>>

<<<W>>>

<<<TOWNRANGE>>>050N009W

<<<SECTION>>>35

<<<MERIDIAN>>>

<<<TRSNOTE>>>

<<<DIRECTIONS>>>FROM MONTROSE, TAKE 6530 ROAD NORTH. NEED PERMISSION TO CROSS PRIVATE LAND (JOE WILLIAMS, MONTROSE). CONTINUE ON BLM ABOUT 1 MILE, WALK NORTH 1 MILE.

<<<WATERSHED>>>

<<<SURVEYDATE>>>2001-05-27

<<<LASTOBS>>>2001-05-27

<<<FIRSTOBS>>>2001-05-27

<<<EORANK>>>B

<<<EORANKDATE>>>2001-05-27

<<<EORANKCOM>>> SIZE B; CONDITION B; LANDSCAPE CONTEXT B.

<<<EODATA>>>SUB 19A: 40+ PLANTS; SUB 20B: 300+ PLANTS. PLANTS 40% FRUIT, 60% VEGETATIVE. MANY PLANTS BEGINNING TO DRY UP.

<<<EOTYPE>>>PRINCIPAL EO

<<<GENDESC>>>STEEP EAST FACING SLOPE OF ADOBE HILLS IN MAT SALT BUSH COMMUNITY. ASSOC. SPP: ATRIPLEX CORRUGATA, EPHEDRA TORREYANA, XYLORHIZA VENUSTA, ORYZOPSIS HYMENOIDES, CLEOMELLA PALMERANA, CAMISSONIA, ANDROSTHEPIUM BREVI FLORUM, CHORISPORA TENELLA, ERIOGONUM GORDONII, ACROLASIA SP.

<<<MINELEV>>>5932 FT

<<<MAXELEV>>>6224 FT

<<<SIZE>>>

<<<MACODE>>>

<<<MANAME>>>

<<<MATYPE>>>

<<<CONTAINED>>>
<<<MGMTCOM>>>ATV TRAIL RUNS ALONG RIDGE TOP. LITTLE OFF TRAIL USE.
<<<PROTCOM>>>
<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>>

<<<IGNORE>>>

EOR

FILENAME: GG023 (F052720A; F052721C)

LOCATION:FIELD

TECHNICIAN:MJL

DATE: 2001-05-27

<<<EOCODE>>>

<<<FONUM>>>

<<<IDENT>>>

<<<SNAME>>>CIRSIIUM PERPLEXANS

<<<SITECODE>>>

<<<SITENAME>>>

<<<SURVEYSITE>>>

<<<PRECISION>>>S

<<<COUNTYCODE>>> COMONT

<<<COUNTYNAME>>> MONTROSE

<<<LOCALJURIS>>>

<<<QUADNAME>>>RED ROCK CANYON

<<<QUADCODE>>>3810757

<<<DOTNUM>>>

<<<LAT>>>

<<<LONG>>>

<<<S>>>

<<<N>>>

<<<E>>>

<<<W>>>

<<<TOWNRANGE>>>050N009W

<<<SECTION>>>35

<<<MERIDIAN>>>

<<<TRSNOTE>>>

<<<DIRECTIONS>>> FROM MONTROSE, TAKE 6530 ROAD NORTH. NEED PERMISSION TO CROSS PRIVATE LAND (JOE WILLIAMS, MONTROSE). CONTINUE ON BLM ABOUT 1 MILE, WALK NORTH 1 MILE.

<<<WATERSHED>>>

<<<SURVEYDATE>>>2001-05-27

<<<LASTOBS>>>2001-05-27

<<<FIRSTOBS>>>2001-05-27

<<<EORANK>>>B

<<<EORANKDATE>>>2001-05-27

<<<EORANKCOM>>>SIZE B; CONDITION B; LANDSCAPE CONTEXT C

<<<EODATA>>>SUB 20A: 80 PLANTS (6 FLOWERING); SUB 21C: 60+ PLANTS.

<<<EOTYPE>>>PRINCIPAL EO

<<<GENDESC>>>RIDGETOP, SOUTH AND NORTHWEST SLOPES OF ADOBE HILLS. ASSOC. SPP: HALOGETON GLOMERATA, ABRONIA ELLIPTICA, ERIOGONUM GORDONII, EPHEDRA TORREYANA, LYGODESMIA SP., ASTRAGALUS ASCLEPIADOIDES, ACROLASIA SP., LOMATIUM CONCINNUM, PENSTEMON RETRORSUS, ATRIPLX CORRUGATA, XYLORHIZA VENUSTA, HORDEUM SP., CALOCHORTUS NUTTALLII, CYMPTERUS BULBOSUS, ORYZOPSIS HYMENOIDES,

<<<MINELEV>>>5804 FT

<<<MAXELEV>>>6217 FT

<<<SIZE>>>

<<<MACODE>>>

<<<MANAME>>>

<<<MATYPE>>>

<<<CONTAINED>>>
<<<MGMTCOM>>>ATV TRAIL RUNS ALONG RIDGE THROUGH SUB 20A, AND MAY AFFECT
POPULATION. LITTLE OFF TRAIL USE. HALOGETON IN SUB 20A.
<<<PROTCOM>>>
<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG DISK 5, #3 – 6, 9.
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>>

<<<IGNORE>>>

EOB

FILENAME: GG024 (F052817A; F052818A)

LOCATION:FIELD

TECHNICIAN:MJL

DATE: 2001-05-28

<<<EOCODE>>>

<<<FONUM>>>

<<<IDENT>>>

<<<SNAME>>>CIRSIIUM PERPLEXANS

<<<SITECODE>>>

<<<SITENAME>>>

<<<SURVEYSITE>>>

<<<PRECISION>>>S

<<<COUNTYCODE>>> COMONT

<<<COUNTYNAME>>> MONTROSE

<<<LOCALJURIS>>>

<<<QUADNAME>>>RED ROCK CANYON

<<<QUADCODE>>>3810757

<<<DOTNUM>>>

<<<LAT>>>

<<<LONG>>>

<<<S>>>

<<<N>>>

<<<E>>>

<<<W>>>

<<<TOWNRANGE>>>049N009W

<<<SECTION>>>1

<<<MERIDIAN>>>

<<<TRSNOTE>>>

<<<DIRECTIONS>>> FROM MONTROSE, TAKE 6530 ROAD NORTH. NEED PERMISSION TO CROSS PRIVATE LAND (JOE WILLIAMS, MONTROSE). CONTINUE ON BLM ABOUT 2 MILES, WALK SOUTHEAST ½ MILE. SUB 18A IS JUST ABOVE DRAINAGE, SUB 17A IS NEAR TOP OF HILL ON WEST SIDE.

<<<WATERSHED>>>

<<<SURVEYDATE>>>2001-05-28

<<<LASTOBS>>>2001-05-28

<<<FIRSTOBS>>>2001-05-28

<<<EOBANK>>>B

<<<EOBANKDATE>>>2001-05-28

<<<EOBANKCOM>>> SIZE B; CONDITION B; LANDSCAPE CONTEXT B.

<<<EODATA>>>SUB 17A: 22 PLANTS, 5 IN BUD, 3 IN FLOWER; SUB 18A: 150+ PLANTS, ABOUT 15% IN FLOWER. SUB 18A: POPULATION CONTINUES DOWN DRAINAGE.

<<<EOTYPE>>>PRINCIPAL EO

<<<GENDESC>>>DRAINAGE AND STEEP SOUTHWEST SLOPE OF ADOBE HILLS. SPARSELY VEGETATED. ASSOCIATED SPP: ATRIPLEX CORRUGATA, ASTRAGALUS FLAVUS, ABRONIA ELLIPTICA, Oryzopsis hymenoides, EPHEDRA TORREYANA, ATRIPLEX GARDNERI, CHORISPOA TENELLA, HORDEUM SP., ATRIPLEX CONFERTIFOLIA, ERIGERON PULCHERRIMUS, ERIOGONUM GORDONII, LEYMUS SALINA.

<<<MINELEV>>>5961 FT

<<<MAXELEV>>>6300 FT

<<<SIZE>>>

<<<MACODE>>>

<<<MANAME>>>

<<<MATYPE>>>
<<<CONTAINED>>>
<<<MGMTCOM>>>LARGE PATCH OF RUSSIAN KNAPWEED JUST BELOW SUB 18A. ATV
TRAIL ALONG RIDGELINE, SUB 17A. UNMAPPED, LITTLE USED TRAIL IN SUB 18A.
<<<PROTCOM>>>
<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG DISK 6, #2, 4.
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>>
 <<<IGNORE>>> EOR

 FILENAME: GG025 (F052817B; F052818B)
 LOCATION:FIELD
 TECHNICIAN:MJL
 DATE: 2001-05-28

 <<<EOCODE>>>
 <<<FONUM>>>
 <<<IDENT>>>
 <<<SNAME>>>LOMATIUM CONCINNUM
 <<<SITECODE>>>
 <<<SITENAME>>>
 <<<SURVEYSITE>>>
 <<<PRECISION>>>S
 <<<COUNTYCODE>>> COMONT
 <<<COUNTYNAME>>> MONTROSE
 <<<LOCALJURIS>>>
 <<<QUADNAME>>>RED ROCK CANYON
 <<<QUADCODE>>>3810757
 <<<DOTNUM>>>
 <<<LAT>>>
 <<<LONG>>>
 <<<S>>>
 <<<N>>>
 <<<E>>>
 <<<W>>>
 <<<TOWNRANGE>>>049N009W
 <<<SECTION>>>1
 <<<MERIDIAN>>>
 <<<TRSNOTE>>>
 <<<DIRECTIONS>>> FROM MONTROSE, TAKE 6530 ROAD NORTH. NEED PERMISSION TO
 CROSS PRIVATE LAND (JOE WILLIAMS, MONTROSE). CONTINUE ON BLM ABOUT 2 MILES,
 WALK SOUTHEAST ½ MILE. SUB 18A IS JUST ABOVE DRAINAGE, SUB 17A IS NEAR TOP OF
 HILL ON WEST SIDE.
 <<<WATERSHED>>>
 <<<SURVEYDATE>>>2001-05-28
 <<<LASTOBS>>>2001-05-28
 <<<FIRSTOBS>>>2001-05-28
 <<<EORANK>>>B
 <<<EORANKDATE>>>2001-05-28
 <<<EORANKCOM>>>SIZE B; CONDITION B; LANDSCAPE CONTEXT B
 <<<EODATA>>>SUB 17B: 30+ PLANTS; SUB 18B: 175 PLANTS, 35% FRUIT, 64% VEG, 1%
 FLOWER.
 <<<EOTYPE>>>PRINCIPAL EO
 <<<GENDESC>>>STEEP NORTH AND NORTHWEST SLOPES OF ADOBE HILLS. ASSOCIATED
 SPP: ATRIPLEX CORRUGATA, ATRIPLEX CONFERTIFOLIA, XYLORHIZA VENUSTA,
 ORYZOPSIS HYMENOIDES, STANLEYA PINNATA, ERIGERON PULCHERRIMUS, ABRONIA SP.,
 HORDEUM SP.
 <<<MINELEV>>>6050 FT
 <<<MAXELEV>>>6279 FT
 <<<SIZE>>>
 <<<MACODE>>>
 <<<MANAME>>>
 <<<MATYPE>>>

<<<CONTAINED>>>
<<<MGMTCOM>>>SUB 17B; ATV TRAIL RUNS ALONG RIDGE. LITTLE OFF TRAIL USE.
<<<PROTCOM>>>
<<<OWNER>>>BLM
<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG DISK 6, #3.
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

PROJECT NAME: BLM GG NCA
NEW: YES UPDATE:NO UPDATE EONUM:
GG026

**COLORADO NATURAL HERITAGE PROGRAM STAFF
ELEMENT OCCURRENCE PLANT FIELD FORM**

SCIENTIFIC ELEMENT NAME: CIRSIUM PERPLEXANS
SURVEYSITE NAME: SITE NAME (IF KNOWN):
COUNTY: MONTROSE
QUADNAME: RED ROCK CANYON QUADCODE: 3810757
TOWNRANGE AND SECTION: 049N008W S5
TRS COMMENTS: SW 1/4
UTM'S: ZONE:13 NORTHING:4268854 EASTING:256016 GPS POINT NAME:
F053118B; F053118A

TYPE OF SOURCE FEATURE: **MULTIPLE SOURCE EO**
CONCEPTUAL FEATURE TYPE:**POLYGON**
OBSERVED FEATURE: AREA:_____ ACRES LENGTH:_WIDTH:
(PACE OFF OR USE A MEASURING TAPE TO OBTAIN LENGTH AND WIDTH)
SPATIAL UNCERTAINTY: **NEGLIGIBLE LINEAR AREAL-DELIMITED**
AREAL-ESTIMATED
IF AREAL-DELIMITED, DELIMITED BY
WHAT? _____
IF AREAL-ESTIMATED, ESTIMATED UNCERTAINTY = __10_____ **METERS**
_____ FEET
(IE- YOU ARE ACCURATE TO WITHIN XXX METERS OR XXX FEET)
CONFIDENCE EXTENT: Y CONFIDENCE THAT THE FULL EXTENT OF THE
ELEMENT OCCURRENCE IS KNOWN.
N THE FULL EXTENT OF THE ELEMENT OCCURRENCE IS **NOT** CAPTURED
BY THE EO REPRESENTATION.
? UNCERTAIN IF THE FULL EXTENT IS KNOWN.

DIRECTIONS:
PROMINENT TOPOGRAPHICAL FEATURES: ADOBE HILLS
DRIVING AND HIKING DIRECTIONS: FOLLOW THE BOSTWICK PARK/LAND FILL
ROAD PAST THE DUMP, GO APPROX. A MILE PAST THE DUMP AND PARK
ON NORTH SIDE OF ROAD WALK UP ADOBE HILL.

EORANK: A B C D F I SURVEYDATE:05/31/2001 EORANKDATE:

SIZE: C (AREA OF OCCUPANCY, POPULATION ABUNDANCE AND DENSITY,
POPULATION FLUCTUATION):

CONDITION: A (EVIDENCE OF REPRODUCTION, HEALTH OF POPULATION, DEGREE OF ANTHROPOGENIC DISTURBANCE, NATURALNESS OF HYDROLOGY AND OTHER ECOLOGICAL PROCESSES):

LANDSCAPE CONTEXT: A (DEGREE OF FRAGMENTATION AND CONNECTIVITY, SPECIES COMPOSITION, BIOLOGICAL STRUCTURE, ECOLOGICAL PROCESSES, AND ABIOTIC FACTORS **IN THE SURROUNDING AREA**):
EORANK SUMMARY COMMENTS:

EODATA:

NUMBER OF INDIVIDUALS COUNTED:18A: 40 ESTIMATED POPULATION SIZE: 40; 18B: 15
FLOWER COLOR: REDISH PURPLE REPRODUCTIVE SUCCESS:
VEGETATIVE: 97% , FLOWER:3% , FRUIT:0%
EVIDENCE OF DISEASE, PREDATION OR INJURY: NONE
EODATA ADDITIONAL COMMENTS:

GENERAL DESCRIPTION:

ASPECT: SOUTH SLOPE: 10-20% MOISTURE: XERIC
LIGHT EXPOSURE: FULL SUN
PARENT MATERIAL: MANCOS SHALE SOIL:ADOBE CLAY LANDFORM: ADOBE BADLANDS
DOMINANT PLANT COMMUNITY:SALTBUSH
ASSOCIATED TAXA: ERIOGONUM GORDONII, CLEOMELLA PALMERANA, XYLORHIZA VENUSTA, TETRADYMYA SPINOSA, OENOTHERA CAESPITOSA, CAMISSONIA SP., ATRIPLEX CONFERTIFOLIA, HELIANTHUS ANNUUS, PHACELIA CREMULATA, ACROLASIA HUMILIS,

MIN ELEVATION: 6174FT.
MAX ELEVATION: 6194FT.

MANAGEMENT COMMENTS:

PREDOMINANT LAND USES: SHEEP GRAZING, ATV
EXOTIC SPECIES: BROMUS TECTORUM, CIRSIUM ARVENSE
PROTECTION COMMENTS: GUNNISON GORGE NCA
OWNER: BLM
OWNER COMMENTS:
COMMENTS (OTHER):
PHOTO NUMBERS:
DATASENS: Y N BOUNDARIES ON A MAP: Y N PHOTOS: Y N
SOURCECODE: COUS
BESTSOURCE: M.W. DENSLOW COLORADO NATURAL HERITAGE PROGRAM
SPECIMENS:

<<<NEWREC>>>

<<<IGNORE>>>

EOR

FILENAME: GG027 (F053121A; F053121B)

LOCATION:FIELD

TECHNICIAN:MJL

DATE: 2001-05-31

<<<EOCODE>>>

<<<FONUM>>>

<<<IDENT>>>

<<<SNAME>>>CIRSIUM PERPLEXANS

<<<SITECODE>>>

<<<SITENAME>>>

<<<SURVEYSITE>>>WEST OF LANDFILL

<<<PRECISION>>>S

<<<COUNTYCODE>>> COMONT

<<<COUNTYNAME>>> MONTROSE

<<<LOCALJURIS>>>

<<<QUADNAME>>> RED ROCK CANYON

<<<QUADCODE>>>3810757

<<<DOTNUM>>>

<<<LAT>>>

<<<LONG>>>

<<<S>>>

<<<N>>>

<<<E>>>

<<<W>>>

<<<TOWNRANGE>>>049N009W

<<<SECTION>>>12

<<<MERIDIAN>>>

<<<TRSNOTE>>>

<<<DIRECTIONS>>>

<<<WATERSHED>>>

<<<SURVEYDATE>>>2001-05-31

<<<LASTOBS>>>2001-05-31

<<<FIRSTOBS>>>2001-05-31

<<<EORANK>>>C

<<<EORANKDATE>>>2001-05-31

<<<EORANKCOM>>>SIZE C; CONDITION B; LANDSCAPE CONTEXT C.

<<<EODATA>>>SUB 21A: 61 PLANTS; SUB 21B: 20 PLANTS.

<<<EOTYPE>>>PRINCIPAL EO

<<<GENDESC>>>WEST FACING DRAINAGE OF LARGE ADOBE HILL. ASSOC. SPP: ATRIPLEX
CORRUGATA, HORDEUM SP., ERIOGONUM GORDONII, XYLORHIZA VENUSTA.

<<<MINELEV>>>5961 FT

<<<MAXELEV>>>6200 FT

<<<SIZE>>>

<<<MACODE>>>

<<<MANAME>>>

<<<MATYPE>>>

<<<CONTAINED>>>

<<<MGMTCOM>>>ATV TRAIL (ROAD 2415, ADOBE A40) ALONG RIDGE TOP ABOVE SUB 21B.

<<<PROTCOM>>>

<<<OWNER>>>BLM

<<<OWNERINFO>>>GUNNISON GORGE NCA. MONTROSE RESOURCE AREA

<<<OWNERCOM>>>

<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 7, #7.
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>>

<<<IGNORE>>>

EOR

FILENAME: GG028 (F050818A; F050818B; F050819A; F050819B)

LOCATION:FIELD

TECHNICIAN:MJL

DATE: 2001-05-08

<<<EOCODE>>>

<<<FONUM>>>

<<<IDENT>>>

<<<SNAME>>>LOMATIUM CONCINNUM

<<<SITECODE>>>

<<<SITENAME>>>

<<<SURVEYSITE>>>BOSTWICK PARK ROAD SOUTH

<<<PRECISION>>>S

<<<COUNTYCODE>>> COMONT

<<<COUNTYNAME>>> MONTROSE

<<<LOCALJURIS>>>

<<<QUADNAME>>>RED ROCK CANYON

<<<QUADCODE>>>3810757

<<<DOTNUM>>>

<<<LAT>>>

<<<LONG>>>

<<<S>>>

<<<N>>>

<<<E>>>

<<<W>>>

<<<TOWNRANGE>>>049N008W

<<<SECTION>>>7

<<<MERIDIAN>>>

<<<TRSNOTE>>>

<<<DIRECTIONS>>>EAST SIDE OF BOSTWICK PARK ROAD ABOUT 1/2 MILE PAST
INTERSECTION OF ROAD TO LANDFILL.

<<<WATERSHED>>>

<<<SURVEYDATE>>>2001-05-08

<<<LASTOBS>>>2001-05-08

<<<FIRSTOBS>>>2001-05-08

<<<EORANK>>>A

<<<EORANKDATE>>>2001-05-08

<<<EORANKCOM>>>SIZE A; CONDITION B; LANDSCAPE CONTEXT B.

<<<EODATA>>>SUB 18A: 250+ PLANTS; SUB 18B: 180; SUB 19A: 175; SUB 19B: 200.

<<<EOTYPE>>>PRINCIPAL EO

<<<GENDESC>>>NORTHWEST TO NORTHEAST FACING SLOPES OF ADOBE HILLS. ASSOC.

SPP: ATRIPLEX CONFERTIFOLIA, CYMPTERUS BULBOSUS, ATRIPLEX CORRUGATA,

LEYMUS SALINA, ABRONIA ELLIPTICA, ASTRAGALUS FLAVUS, CAMISSONIA SCAPOIDEA,

Calochortus nuttallii, PHLOX LONGIFOLIA, ANDROSTEPHIUM BREVIFLORUM,

CERATOCEPHALA ORTHOCERAS. XYLORHIZA VENUSTA, SALSOLA AUSTRALIS,

<<<MINELEV>>>6100 FT

<<<MAXELEV>>>6300 FT

<<<SIZE>>>

<<<MACODE>>>

<<<MANAME>>>

<<<MATYPE>>>

<<<CONTAINED>>>

<<<MGMTCOM>>>SINGLE TRACK ATV TRAIL FOLLOWS RIDGETOP (UNMAPPED). SOME
PLANTS GROWING IN TRAIL, SUB 18A.
<<<PROTCOM>>>
<<<OWNER>>>
<<<OWNERINFO>>>
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 4, #6-10.
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>>
<<<IGNORE>>> EOR

FILENAME: GG029 (F052721B)
LOCATION:FIELD
TECHNICIAN:MJL
DATE: 2001-05-27

<<<EOCODE>>>
<<<FONUM>>>
<<<IDENT>>>
<<<SNAME>>>LOMATIUM CONCINNUM
<<<SITECODE>>>
<<<SITENAME>>>
<<<SURVEYSITE>>>
<<<PRECISION>>>S
<<<COUNTYCODE>>> COMONT
<<<COUNTYNAME>>> MONTROSE
<<<LOCALJURIS>>>
<<<QUADNAME>>>
<<<QUADCODE>>>
<<<DOTNUM>>>
<<<LAT>>>
<<<LONG>>>
<<<S>>>
<<<N>>>
<<<E>>>
<<<W>>>
<<<TOWNRANGE>>>050N009W
<<<SECTION>>>35
<<<MERIDIAN>>>
<<<TRSNOTE>>>
<<<DIRECTIONS>>>
<<<WATERSHED>>>
<<<SURVEYDATE>>>2001-05-27
<<<LASTOBS>>>2001-05-27
<<<FIRSTOBS>>>2001-05-27
<<<EORANK>>>B
<<<EORANKDATE>>>2001-05-27
<<<EORANKCOM>>>SIZE B
<<<EODATA>>>ESTIMATE 300 INDIVIDUALS
<<<EOTYPE>>>PRINCIPAL EO
<<<GENDESC>>>NE FACING SLOPE. POPULATION EXTENDS DOWN DRAINAGE TO
BOTTOM OF HILL.
<<<MINELEV>>>5823 FT
<<<MAXELEV>>>
<<<SIZE>>>
<<<MACODE>>>
<<<MANAME>>>
<<<MATYPE>>>
<<<CONTAINED>>>
<<<MGMTCOM>>>
<<<PROTCOM>>>
<<<OWNER>>>BLM
<<<OWNERINFO>>>
<<<OWNERCOM>>>

<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

<<<NEWREC>>> new
<<<IGNORE>>> EOR

FILENAME: GG030 (F042521A2)
LOCATION:FIELD
TECHNICIAN:MJL
DATE: 2001-04-25

<<<EOCODE>>>
<<<FONUM>>>
<<<IDENT>>>
<<<SNAME>>>PENSTEMON RETRORSUS
<<<SITECODE>>>
<<<SITENAME>>>
<<<SURVEYSITE>>>BOSTWICK PARK ROAD
<<<PRECISION>>>S
<<<COUNTYCODE>>> COMONT
<<<COUNTYNAME>>> MONTROSE
<<<LOCALJURIS>>>
<<<QUADNAME>>>RED ROCK CANYON
<<<QUADCODE>>>3710857
<<<DOTNUM>>>
<<<LAT>>>
<<<LONG>>>
<<<S>>>
<<<N>>>
<<<E>>>
<<<W>>>
<<<TOWNRANGE>>>050N008W
<<<SECTION>>>33
<<<MERIDIAN>>>
<<<TRSNOTE>>>
<<<DIRECTIONS>>>TAKE BOSTWICK PARK ROAD TO NEAR TOP, WALK UP TO TOP OF
RIDGE ON NORTH.
<<<WATERSHED>>>
<<<SURVEYDATE>>>2001-04-25
<<<LASTOBS>>>2001-04-25
<<<FIRSTOBS>>>2001-04-25
<<<EORANK>>>A
<<<EORANKDATE>>>2001-04-25
<<<EORANKCOM>>>SIZE: A; CONDITION A; LANDSCAPE CONTEXT: A.
<<<EODATA>>> THOUSANDS OF PLANTS OBSERVED ALONG WITH LOMATIUM
CONCINNUM. ONLY LOMATIUM CONCINNUM MAPPED, PENSTEMON POPULATION
PROBABLY EXTENDS FARTHER.
<<<EOTYPE>>>PRINCIPAL EO
<<<GENDESC>>>TOP OF BOSTWICK PARK ROAD ALONG NORTH AND SOUTH SIDES OF
RIDGE NORTH OF ROAD.
<<<MINELEV>>>6800 FT
<<<MAXELEV>>>6840 FT
<<<SIZE>>>
<<<MACODE>>>
<<<MANAME>>>
<<<MATYPE>>>
<<<CONTAINED>>>
<<<MGMTCOM>>>SOME ANIMAL TRAILS, BUT NO ATV USE.
<<<PROTCOM>>>

<<<OWNER>>>PVT AND BLM
<<<OWNERINFO>>>
<<<OWNERCOM>>>
<<<COMMENTS>>>
<<<TOPIC.KEYWORDS>>>
<<<DATASENS>>>
<<<BOUNDARIES>>>Y
<<<PHOTOS>>>GG ROLL 2, #16
<<<BESTSOURCE>>> LYON, P. AND M. DENSLOW. 2001.. GUNNISON GORGE NCA SURVEY
OF IMPACTS ON RARE PLANTS
<<<SOURCECODE>>>
<<<SPECIMENS>>>
<<<TRANSCRIBR>>>
<<<MAPPER>>>
BIOTICS INFO
*TYPE OF SOURCE FEATURE (SINGLE OR MULTI-SOURCE)
*CONCEPTUAL FEATURE TYPE (POINT, LINE, POLYGON)
*SPATIAL UNCERTAINTY: (NEGLIGIBLE, LINEAR, AREA-DELIMITED, AERIAL-ESTIMATED:
*IS DEPICTION ON TOPO WITHIN 20 FT OF ACTUAL (YES, NO):
*IF NOT, ACCURACY IS WITHIN -----

Appendix III. The Natural Heritage Ranking System

Each of the plant and animal species and plant communities tracked by CNHP is considered an **element of natural diversity**, or simply an **element**. Each element is assigned a rank that indicates its relative degree of imperilment on a five-point scale (e.g., 1 = extremely rare/imperiled, 5 = abundant/secure). The primary criterion for ranking elements is the number of occurrences, i.e., the number of known distinct localities or populations. This factor is weighted more heavily because an element found in one place is more imperiled than something found in twenty-one places. Also considered in the ranking is the size of the geographic range, the number of individuals, trends in population and distribution, identifiable threats, and the number of already protected occurrences.

Element imperilment ranks are assigned both in terms of the element's degree of imperilment within Colorado (its State or S-rank) and the element's imperilment over its entire range (its Global or G-rank). Taken together, these two ranks indicate the degree of imperilment of an element. For example, the lynx, which is thought to be secure in northern North America but is known from less than 5 current locations in Colorado, is ranked G5S1. Naturita milkvetch, which is known from 37 locations in the Four Corners Area, is ranked a G3S3, vulnerable both globally and in Colorado. Further, a tiger beetle that is only known from one location in the world at the Great Sand Dunes National Monument is ranked G1S1, critically imperiled both globally and in Colorado. CNHP actively collects, maps, and electronically processes specific occurrence information for elements considered extremely imperiled to vulnerable (S1 - S3). Those with a ranking of S3S4 are "watchlisted," meaning that specific occurrence data are collected and periodically analyzed to determine whether more active tracking is warranted. A complete description of each of the Natural Heritage ranks is provided in Table 1.

This single rank system works readily for all species except those that are migratory. Those animals that migrate may spend only a portion of their life cycles within the state. In these cases, it is necessary to distinguish between breeding, non-breeding, and resident species. As noted in Table 1, ranks followed by a "B", e.g., S1B, indicate that the rank applies only to the status of breeding occurrences. Similarly, ranks followed by an "N", e.g., S4N, refer to non-breeding status, typically during migration and winter. Elements without this notation are believed to be year-round residents within the state.

Table 1. Definition of Colorado Natural Heritage Imperilment Ranks.

Global imperilment ranks are based on the range-wide status of a species. State imperilment ranks are based on the status of a species in an individual state. State and Global ranks are denoted, respectively, with an "S" or a "G" followed by a character. These ranks should not be interpreted as legal designations.	
G/S1	Critically imperiled globally/state because of rarity (5 or fewer occurrences in the world/state; or very few remaining individuals), or because some factor of its biology makes it especially vulnerable to extinction.
G/S2	Imperiled globally/state because of rarity (6 to 20 occurrences), or because of other factors demonstrably making it very vulnerable to extinction throughout its range.
G/S3	Vulnerable throughout its range or found locally in a restricted range (21 to 100 occurrences).

G/S4	Apparently secure globally/state, though it might be quite rare in parts of its range, especially at the periphery.
G/S5	Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
GX	Presumed extinct.
G#?	Indicates uncertainty about an assigned global rank.
G/SU	Unable to assign rank due to lack of available information.
GQ	Indicates uncertainty about taxonomic status.
G/SH	Historically known, but not verified for an extended period.
G#T#	Trinomial rank (T) is used for subspecies or varieties. These species or subspecies are ranked on the same criteria as G1-G5.
S#B	Refers to the breeding season imperilment of elements that are not permanent residents.
S#N	Refers to the non-breeding season imperilment of elements that are not permanent residents. Where no consistent location can be discerned for migrants or non-breeding populations, a rank of SZN is used
SZ	Migrant whose occurrences are too irregular, transitory, and/or dispersed to be reliably identified, mapped, and protected.
SA	Accidental in the state.
SR	Reported to occur in the state, but unverified.
S?	Unranked. Some evidence that species may be imperiled, but awaiting formal rarity ranking.

Notes: Where two numbers appear in a state or global rank (e.g., S2S3), the actual rank of the element falls between the two numbers.

Element Occurrence Ranking

Actual locations of elements, whether they be single organisms, populations, or plant communities, are referred to as element occurrences. The element occurrence is considered the most fundamental unit of conservation interest and is at the heart of the Natural Heritage Methodology. In order to prioritize element occurrences for a given species, an element occurrence rank (EO-Rank) is assigned according to the estimated viability or probability of persistence (whenever sufficient information is available). This ranking system is designed to indicate which occurrences are the healthiest and ecologically the most viable, thus focusing conservation efforts where they will be most successful. The EO-Rank is based on 3 factors:

Size – a quantitative measure of the area and/or abundance of an occurrence such as area of occupancy, population abundance, population density, or population fluctuation.

Condition – an integrated measure of the quality of biotic and abiotic factors, structures, and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Components may include reproduction and health, development/maturity for communities, ecological processes, species composition and structure, and abiotic physical or chemical factors.

Table 2. Federal and State Agency Special Designations.

Federal Status:	
1.	U.S. Fish and Wildlife Service (58 Federal Register 51147, 1993) and (61 Federal Register 7598, 1996)
LE	Endangered; species or subspecies formally listed as endangered.
E(S/A)	Endangered due to similarity of appearance with listed species.
LT	Threatened; species or subspecies formally listed as threatened.
P	Potential Endangered or Threatened; species or subspecies formally listed as potentially endangered or threatened.
PD	Potential for delisting
C	Candidate: species or subspecies for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened.
2.	U.S. Forest Service (Forest Service Manual 2670.5) (noted by the Forest Service as “S”)
FS	Sensitive: those plant and animal species identified by the Regional Forester for which population viability is a concern as evidenced by: <ul style="list-style-type: none"> a. Significant current or predicted downward trends in population numbers or density. b. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.
3.	Bureau of Land Management (BLM Manual 6840.06D) (noted by BLM as “S”)
BLM	Sensitive: those species found on public lands, designated by a State Director that could easily become endangered or extinct in a state. The protection provided for sensitive species is the same as that provided for C (candidate) species. This list does not include species that are listed endangered (LE) or threatened (LT).
State Status:	
1.	Colorado Division of Wildlife
	CO-E Endangered
	CO-T Threatened
	CO-SC Special Concern

Landscape Context – an integrated measure of the quality of biotic and abiotic factors, and processes surrounding the occurrence, and the degree to which they affect the continued existence of the occurrence. Components may include landscape structure and extent, genetic connectivity, and condition of the surrounding landscape.

Each of these factors is rated on a scale of A through D, with A representing an excellent grade and D representing a poor grade. These grades are then averaged to determine an appropriate EO-Rank for the occurrence. If there is insufficient information available to rank an element occurrence, an EO-Rank is not assigned. Possible EO-Ranks and their appropriate definitions are as follows:

- A** Excellent estimated viability.
- B** Good estimated viability.
- C** Fair estimated viability.
- D** Poor estimated viability.
- E** Viability has not been assessed.
- H** Historically known, but not verified for an extended period of time
- X** Extirpated