Michael O. Leavitt
Governor
Ted Stewart
Executive Director
James W. Carter
Division Director

# State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

August 24, 1993

TO: Pamela Grubaugh-Littig, Permit Supervisor

FROM: Jess Kelley, Reclamation Engineer JK

RE: Correction of Deficiencies in New Surface Facilities Amendment, PacifiCorp, Trail Mountain Mine, ACT/015/009-93E, Folder #2, Emery County, Utah

## SYNOPSIS

The Division received the application for Amendment 93E on June 11, 1993. I reviewed the amendment application and on July 8, 1993, I wrote a memorandum in which I listed six (6) deficiencies which would have to be corrected before the amendment could be approved. Then, on August 16, 1993, the permittee submitted corrections to those deficiencies for Division approval.

## ANALYSIS

In the August 16, 1993 submittal, the permittee has corrected the six (6) deficiencies listed in my July 8, 1993 deficiency memorandum.

## RECOMMENDATIONS

It is recommended that the August 16, 1993 submittal be accepted as correcting the deficiencies in the original amendment application and that the amendment be approved.

TMAM93EA.MEM

# State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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December 8, 1993

Mr. Val Payne
Senior Environmental Engineer
PacifiCorp
P.O. Box 1005
Huntington, Utah 84528

Re: Clarification Requi ain Mine,
PacifiCorp, ACT/C , Utah

Approved ?

Dear Mr. Payne:

The Division rece 993 relative to
Stipulation R645-301-3 which required that
"By November 30, 199 sion in the PAP, the
data, discussions and r drill pads, roads, and
reference areas. The d e reference areas for
similarity as described guidelines. The
range condition classifi ction rates must also
be included in the refe

The data submitted is ... is must be clarified
prior to approval.

ACT/015/000-93B

1. The cover letter st nd TMTN-15 were not drilled
and are not expected to be d on data were submitted for
these holes and associated re years, this will be confusing,
and must, therefore, be delet hit maps show these sites as
disturbed and must be revise

2. It is unclear, once th access roads merge, what the "reference area" of that part of the road will be compared to. Please clarify. A map would be helpful in this regard.

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December 8, 1993

Mr. Val Payne
Senior Environmental Engineer
PacifiCorp
P.O. Box 1005
Huntington, Utah 84528

Re: Clarification Required for Vegetation Survey, Trail Mountain Mine, PacifiCorp, ACT/015/009-93B, Folder #2, Emery County, Utah

Dear Mr. Payne:

The Division received the information on December 3, 1993 relative to Stipulation R645-301-356 (SW) for the Trail Mountain drilling, which required that "By November 30, 1993, the permittee must submit, for inclusion in the PAP, the data, discussions and results of the vegetation survey of the drill pads, roads, and reference areas. The disturbed areas must be compared to the reference areas for similarity as described in the Division's Vegetation Information guidelines. The range condition classification and current and potential production rates must also be included in the reference area discussion".

The data submitted is adequate, however, several items must be clarified prior to approval.

1. The cover letter stated that holes TMTN-9 and TMTN-15 were not drilled and are not expected to be drilled. However, vegetation data were submitted for these holes and associated reference areas. In future years, this will be confusing, and must, therefore, be deleted. Additionally, the permit maps show these sites as disturbed and must be revised.

2. It is unclear, once the access roads merge, what the "reference area" of that part of the road will be compared to. Please clarify. A map would be helpful in this regard.

3. The PAP must contain a map with the location of **all** reference areas (R645-301-323.100). This map must include the reference area for the Trail Mountain drilling sites.

4. A summary of this drilling should also be included in the annual report. This summary should include, among other things, the exact acreages of disturbance.

Please submit items 1 through 3 by January 5, 1994. Item #4 will be included in the annual report, due March 31, 1994. If you have any questions, please call me.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

pgl

# State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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December 7, 1993

TO: Pamela Grubaugh-Littig, Permit Supervisor

FROM: Susan M. White, Senior Reclamation Biologist

RE: 1993 Trail Mountain Drilling Amendment, Pacificorp, Trail Mountain Mine, ACT/015/009-93B, Emery County, Utah

Susan, I can't believe you put "amendment". Please return. THX.

SYNOPSIS AND ANALYSIS

A stipulation to the app[illegible] :ail Mountain Drilling required the per[illegible] ıformation concerning the vegetation survey. [illegible] ıds as follow:

R645-301-356(SW). By November 30, 1993 the permittee must submit, for inclusion in the PAP, the data, discussions and results of the vegetation survey of the drill pads, roads, and reference areas. The disturbed areas must be compared to the reference areas for similarity as described in the Divisions Vegetation Information Guidelines. The range condition classification and current and potential production rates must also be included in the reference area discussion.

The permittee submitted the required material December 3, 1993. The data submitted is adequate except for several confusing items which must be clarified prior to approval. These items are listed below.

1. The cover letter states that Holes TMTN-9 and TMTN-15 were not drilled and are not expected to be drilled. However, vegetation data were submitted for these holes and associated reference areas. In future years this will be confusing to the reader of the permit and therefore must be deleted. Additionally, the permit maps show these sites as disturbed and must be revised.

2. It is unclear once access roads merge as to the reference area that the road will be compared (a map would help clarify).

Now that the permit will contain the required vegetation reference area information an additional deficiency is noted. R645-301-323.100 requires the permit to contain a map with the location of all reference areas. This information is not present and must be provided by the permittee.

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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December 7, 1993

TO: Pamela Grubaugh-Littig, Permit Supervisor

FROM: Susan M. White, Senior Reclamation Biologist

RE: 1993 Trail Mountain Drilling Amendment, Pacificorp, Trail Mountain Mine, ACT/015/009-93B, Emery County, Utah

SYNOPSIS AND ANALYSIS

A stipulation to the approval of the 1993 Trail Mountain Drilling required the permittee to provide information concerning the vegetation survey. The stipulation reads as follow:

R645-301-356(SW). By November 30, 1993 the permittee must submit, for inclusion in the PAP, the data, discussions and results of the vegetation survey of the drill pads, roads, and reference areas. The disturbed areas must be compared to the reference areas for similarity as described in the Divisions Vegetation Information Guidelines. The range condition classification and current and potential production rates must also be included in the reference area discussion.

The permittee submitted the required material December 3, 1993. The data submitted is adequate except for several confusing items which must be clarified prior to approval. These items are listed below.

1. The cover letter states that Holes TMTN-9 and TMTN-15 were not drilled and are not expected to be drilled. However, vegetation data were submitted for these holes and associated reference areas. In future years this will be confusing to the reader of the permit and therefore must be deleted. Additionally, the permit maps show these sites as disturbed and must be revised.

2. It is unclear once access roads merge as to the reference area that the road will be compared (a map would help clarify).

Now that the permit will contain the required vegetation reference area information an additional deficiency is noted. R645-301-323.100 requires the permit to contain a map with the location of all reference areas. This information is not present and must be provided by the permittee.

The permittee should also be required to provide to the Division some type of summary of operations in perhaps the annual report. The summary should include important dates of accomplishments in each step of the operations and the exact acreage of disturbance.

RECOMMENDATION

The above referenced amendment may not be approved until the above noted information is provided.

From the desk of
**Pam Grubaugh-Littig**

12/3

Susan –

Would you please review before this is put into the plan.

Pat

Pam

Need – Acreage distributed this year

One Utah Center
201 South Main, Suite 2100
Salt Lake City, Utah 84140-0021
(801) 220-2000

PACIFICORP
POWER SUPPLY

November 30, 1993

RECEIVED
DEC 0 3 1993
DIVISION OF
OIL, GAS & MINING

Mr. Lowell P. Braxton
Associate Director, Mining
State of Utah
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

**RE: TRAIL MOUNTAIN 1993 EXPLORATION DRILLING, PACIFICORP, TRAIL MOUNTAIN MINE, ACT/015/009-93B, FOLDER #3, EMERY COUNTY, UTAH**

#2 Copy PAM

Dear Mr. Braxton:

Pursuant to your letter of October 7, 1993 which granted approval, with stipulations, for the above referenced project, please find enclosed the following required items:

1) Vegetation monitoring report titled ***Vegetation Sampling Trail Mountain Drill Sites: TMTN 9-15, 1993***. Please use this information to replace the materials titled Vegetation Sampling of the Proposed Drill Sites on Trail Mountain 1993, found in Attachment 1 of the Trail Mountain Drilling Plan.

2) ***Trail Mountain 1993 Drilling Range Conditions and Plant Community Associations***. Please place this information at the end of Attachment 1.

Additionally, the **List of Attachments** has been revised to reflect this new information. A copy of the revised page is provided herein.

For your information, the drilling was completed on October 27 and reclamation work was completed on November 10. Only five of the seven permitted holes were drilled. Holes TMTN-9 and TMTN-15 were not drilled and are not expected to be drilled in the future.

If you have questions regarding this information, please call me at 653-2312.

Sincerely,

Val Payne

Val Payne
Sr. Environmental Engineer

cc: M. Moon
B. Webster

# LIST OF ATTACHMENTS

1. REVEGETATION SEED MIX FOR TRAIL MOUNTAIN RECLAMATION.

   RECLAMATION SUCCESS.

   VEGETATION SAMPLING TRAIL MOUNTAIN DRILL SITES TMTN-9 TO TMTN-15 1993

   TRAIL MOUNTAIN 1993 DRILLING RANGE CONDITION AND VEGETATION COMMUNITY ASSOCIATIONS

2. BLM CONDITIONAL APPROVAL.

   BLM COAL EXPLORATION DRILLING STIPULATIONS INSIDE THE PERMIT AREA.

3. ROAD USE PERMIT.

4. ARCHEOLOGICAL CLEARANCE.

5. PACIFICORP RECLAMATION COST ESTIMATE FOR DRILL HOLES TMTN-9 THROUGH TMTN-15.

6. WATER USAGE ESTIMATE AND WATER RIGHTS INFORMATION.

7. BONDING INFORMATION. (UDOGM AND PACIFICORP COPIES ONLY)

8. AFFIDAVIT OF NEWSPAPER PUBLICATION.

9. SOIL SURVEY INFORMATION.

   SOIL STRIPPING AND STOCKPILING PLAN.

REVISED 11/30/93

## TRAIL MOUNTAIN 1993 DRILLING
## RANGE CONDITIONS AND PLANT COMMUNITY ASSOCIATIONS

As discussed in the following Range Conditions Statement, three general plant communities are impacted by the Trail Mountain drilling. The drill site/plant community associations are as follows:

| | |
|---|---|
| **Smooth brome** | **TMTN-9** |
| **Mixed brush** | **TMTN-10**<br>**TMTN-14**<br>**TMTN-15** |
| **Pinyon/Juniper** | **TMTN-11**<br>**TMTN-12**<br>**TMTN-13** |

Range Conditions Statement
Trail Mountain
Core Drilling Proposal - Energy West
September 1993

Generally three plant communities will be impacted by proposed drilling activities: 1) Smooth brome seeding - Top of trail mountain. 2) Mixed brush plant community - First bench on the south end of the mountain. 3) Pinyon-juniper plant community - Break below the first bench.

1. Smooth brome seeding

The seeding is dominated by smooth brome (Bromus inermis) with scattered mountain big sagebrush plants (Artemisia tridentata var. vaseyana). Many native species are present and increasing. Production is approximately 500 Lbs./ac. Ground cover, approximately 80 percent, is made up mostly of litter and vegetation.

Range condition: Range condition is generally good. Increases in native plant species is improving vegetative diversity. With good ground cover, soil movement is slight and local .

Ecological status: Ecological status is early seral due to the seeding; however, conditions are moving toward mid seral status as native species increase in the area.

2. Mixed brush community

This plant community is dominated by mountain big sagebrush (Artemisia tridentata var. vaseyana) and service berry (Amelanchier alnifolia) . The dominate grass is Salina wildrye (Elymus salina). Most of the area has been treated by various methods (crushing, furrowing, seeding) to maintain/improve forage production for biggame and to reduce sheet erosion. Site production is approximately 400 lbs/ac and there is about 50 percent ground cover (vegetation, litter and pavement).

Range condition: Range condition is fair due to the large amount of bare ground and active sheet erosion. A recently completed watershed improvement project (furrowing and seeding) is reducing overland flows.

Ecological status: The area is considered to be in late seral status (Fair ecological condition) with trends toward seral status as sheet erosion is reduced.

ATTACHMENT 1

3. Pinyon/juniper community

This site is dominated by pinyon pine (Pinus edulis) and Utah juniper (Juniperus osteosperma). Production varies from 50 to 500 lbs/ac. depending stand density. Salina wildrye (Elymus salina) and bluebunch wheat grass (Agropyron spicatum) are the dominate grasses. Ground cover ranges from 80 to 20%, depending on stand density. Most bare ground occurs between trees in small openings. Larger openings have better ground cover where grasses and frobs dominate.

Range condition: Range condition varies from poor to fair due the lack of understory vegetation production, large amounts of bare ground and signs of active sheet erosion (rilling).

Ecological status: Ecologically the site is in late seral status, (good condition) and has stable trends.

Above situation is typical for the P/J community. Ecologically the area is in good condition but from the forage production stand point (Range condition) site condition varies.

John S. Healy
Range Conservationist
Ferron Ranger District
Manti-La Sal National Forest

# *VEGETATION SAMPLING*

## *TRAIL MOUNTAIN*
## *DRILL SITES: TMTN 9-15*

*1993*

**ATTACHMENT 1**

Prepared by

*MT. NEBO SCIENTIFIC, INC.*
330 East 400 South, Ste. 6
P.O. Box 337
Springville, Utah 84663
(801) 489-6937

for

*ENERGY WEST MINING COMPANY*
P.O. Box 1005
Huntington, Utah 84528

November 30, 1993

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*VEGETATION SAMPLING*

*TRAIL MOUNTAIN*
*DRILL SITES: TMTN 9-15*

*1993*

## SCOPE

The purpose of this document is to provide baseline information of the existing vegetation of an area that is proposed for disturbance by exploratory drilling. Moveover, reference or comparison areas were chosen and sampled to be compared with the proposed disturbance areas and later used for standards of revegetation success.

## INTRODUCTION

### General Site Description

A exploratory drilling program is proposed on Trail Mountain in Emery County, Utah. Trail Mountain is on the Wasatch Plateau of central Utah. Elevation of the study areas were between 8,000 ft and 9,000 ft above sea level. The dominant plant communities

studied were Sagebrush/Grass and Pinyon/Juniper. Other plant communities of the area included: Spruce/Fir, Mountain Brush, Aspen and Mountain Herb/Grasslands.

Many of the plant communities have been historically disturbed or at least "altered" by large contour furrows by the CCC's, or more recently by the USDA Forest Service. It is assumed that this practice was employed as an attempt to retain available soil moisture, reduce erosion, and increase forage for big game and livestock. The study area is heavily grazed by cattle in the summer months.

Some of the areas also seemed to have been "chained" or employed other techniques to remove large woody species. This may also have been used as a technique to increase understory production for livestock and big game.

## METHODS

### Proposed Disturbances

The areas proposed for drilling and the access roads to them were the focus of this study. Each site was shown to the sample team by a representative from Energy West. Aerial photographs and contour maps were used to mark each site. Quantitative and qualitative data were taken on the sample sites. Sampling was accomplished from July 14 - August 1, 1993.

## Reference (Comparison) Areas

Reference areas were chosen with basic physiognomic characteristics similar to those areas proposed for disturbance. These areas were used for comparisons at present and will remain undisturbed in the future to be used for standards of revegetation success.

## Transect and Quadrat Placement

Transect lines were placed along each proposed drill pad and access road. If the vegetative types were the same for the drill site and access road, the transect lines dissected both and the data were combined.

Numbers were chosen at regular intervals on the transect lines. At each regular number, a random number dictated the direction and sample location for quadrat placement.

## Cover and Composition

Cover estimates were made using ocular methods with meter square quadrats. Species composition and relative frequencies were also assessed from the quadrats. Additional information recorded on data sheets were: estimated precipitation, erosion,

slope, exposure, grazing use, animal disturbance and other appropriate notes.

Both understory and overstory cover were recorded. Overstory was that cover above each quadrat that was over breast-height (bh).

## Woody Species Density

Density of woody plant species were recorded using the point quarter distance method and by using belt transects. In the point quarter method, the aforementioned regular points were placed on the sample sites and delineated into four quarters. The distances to the nearest woody plant species were then recorded in each quarter. The average point-to-individual distance was equal to the square root of the mean area per individual.

## Sample Adequacy

Sampling adequacy for woody species density and cover was achieved using formulas from "Statistical Methods" (Snedocor and Cochran 1980), with the goal that at least 80% of the samples were within 10% of the true mean for the plant communities of the area. The formula used is given below.

$$nmin = \left[\frac{1.28\ (s)}{x\ (.1)}\right]^2$$

where,

nmin = minimum adequate sample
s = standard deviation
x = sample mean
.1 = confidence interval

Photographs

Color photographs of the sample area were taken at the time of sampling and were submitted with this report.

Raw Data

The raw data were also submitted with this report which would facilitate future scrutiny of the data and further statistical testing if desired.

## RESULTS

Reference (Comparison) Areas

*Drill Sites*

As a precautionary measure to avoid possible delays of the

drilling program due to lack of appropriate data, a reference (comparison) area was selected and sampled at each site of proposed disturbance. It was believed that when the data were analyzed, some of the reference areas may be similar enough in cover, composition and woody species density to drop others from the report. This was true for only 2 of the reference areas. The remaining sites were dissimilar enough in cover or woody species density (composition and diversity were also compared) that they needed to be reported in an attempt to most closely represent the area to be disturbed. Consequently, to simplify the report, all the reference areas were reported. Therefore, there were 7 drill sites and 7 reference areas sampled.

*Access Roads*

All access roads were also represented by one of the 7 reference areas as a standard for revegetation success. The following is a list of the drill site access roads, followed by the number of reference area assigned to it.

| **Drill Site No. Access Road** | **Reference Area Assigned** |
|---|---|
| TMTN: 9 | TMTN: 9 |
| TMTN: 10 | TMTN: 10 |
| TMTN: 11 | TMTN: 11 |
| TMTN: 12 | TMTN: 11 |
| TMTN: 13 | TMTN: 15 |
| TMTN: 14 | TMTN: 14 |
| TMTN: 15 | TMTN: 15 |

Another reason that all the reference areas were reported is that they will also be used for additional drill sites that are proposed for future disturbance. These sites were sampled at a later date and will be reported in a subsequent report.

*Comparison Figures*

The following figures (Fig.'s 1-6) provide a quick comparison of each area including cover, composition and woody species density.

*Tables*

Summaries of the sampling and analyses for all the proposed disturbance sites are shown on Tables 1-21. The references area summaries are shown on Tables 22-42.

*Color Photographs*

Color photographs have been included in this report in "Appendix A".

*Raw Data*

Raw data have also been included in this report as "Appendix B".

FIG. 1: 1993 - Understory Cover for the Proposed Disturbed Areas

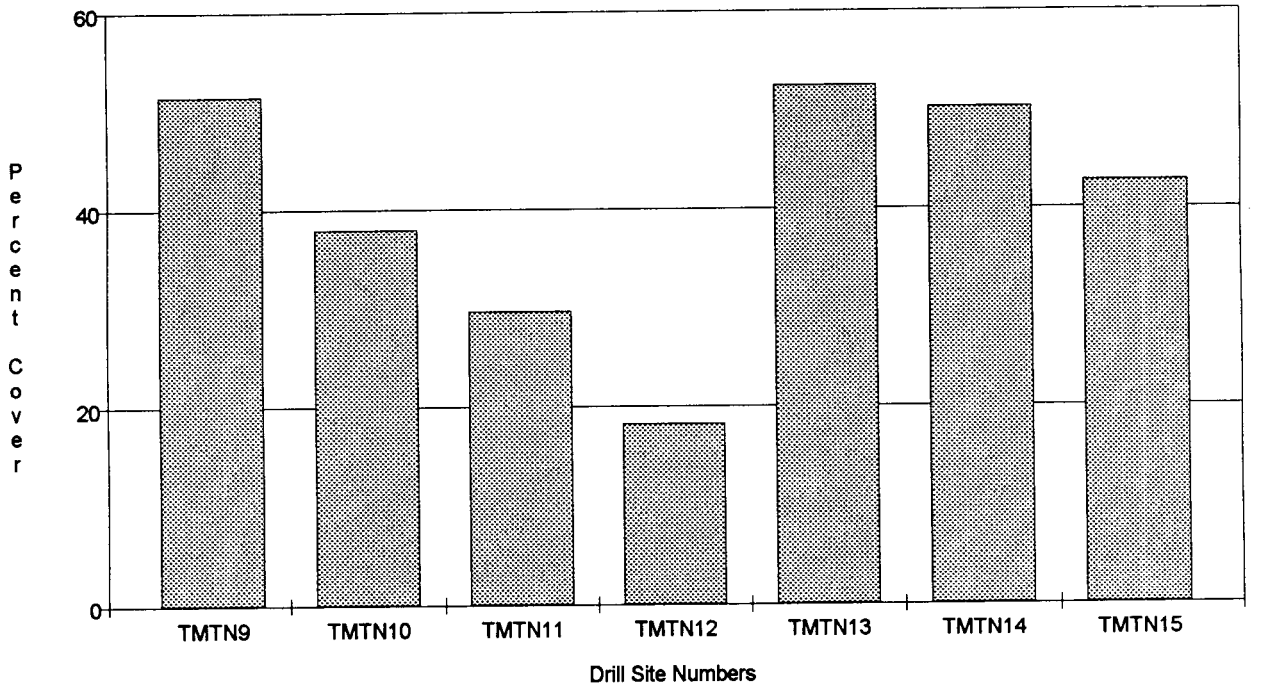


FIG. 2: 1993 - Understory Cover for the Reference Areas

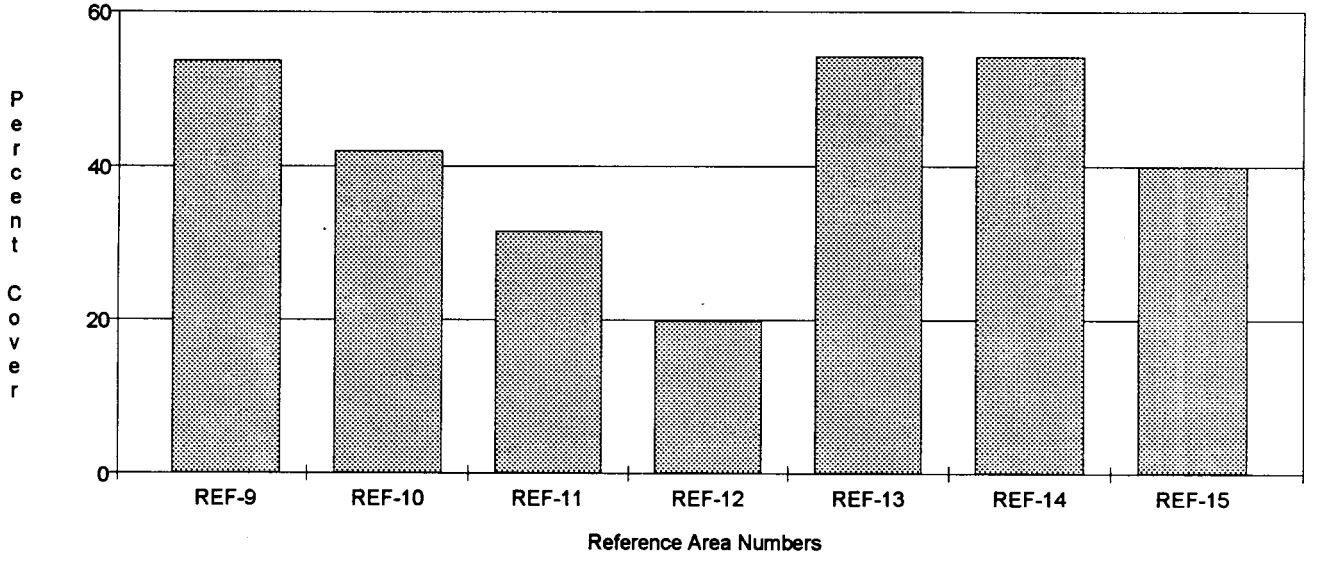


FIG. 3: 1993 - Lifeform Composition for the Proposed Disturbed Sites

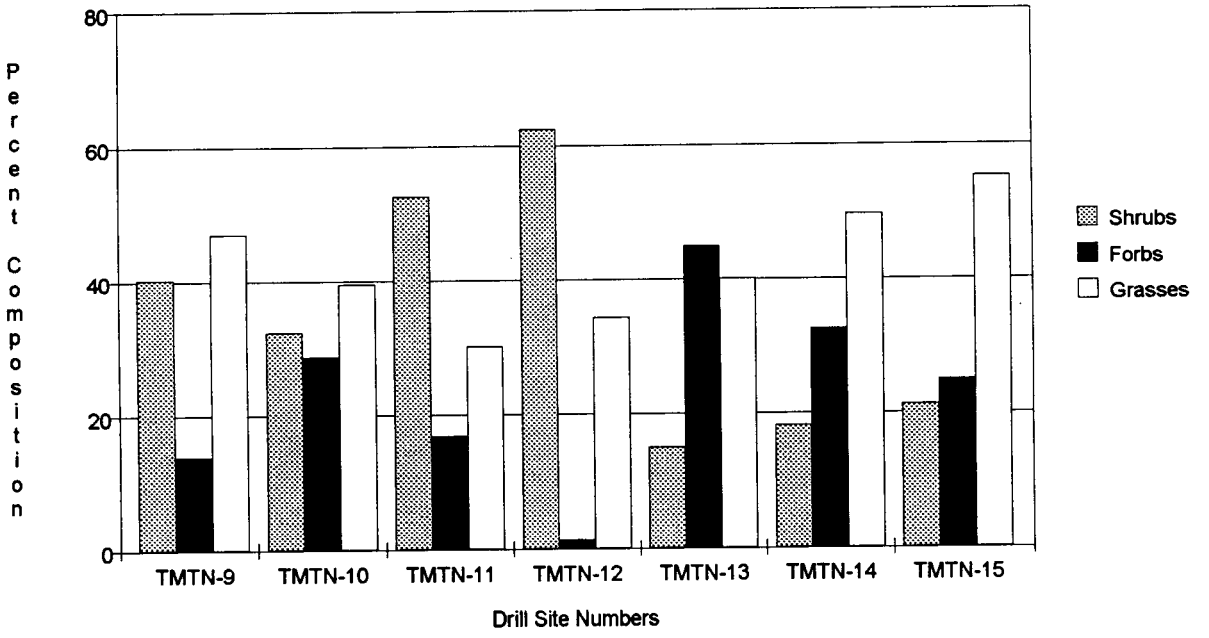


FIG. 4: 1993 - Lifeform Composition for the Reference Areas

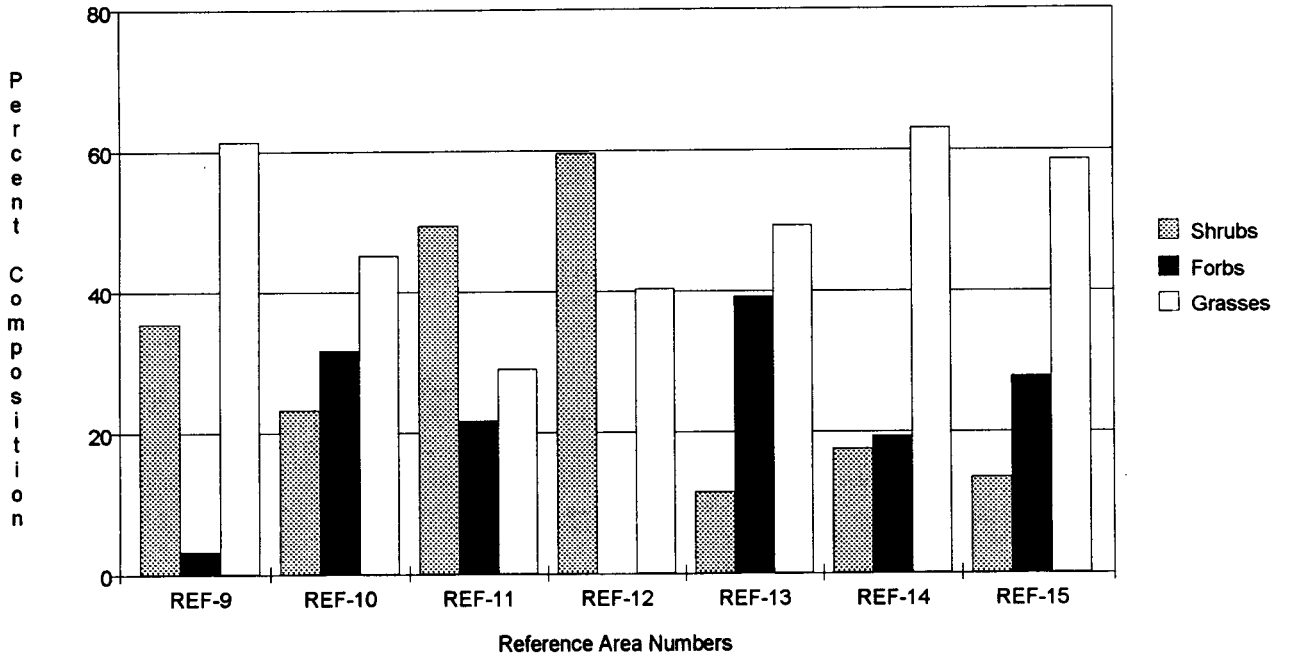


FIG. 5: 1993 - Woody Species Density for the Proposed Disturbed Areas

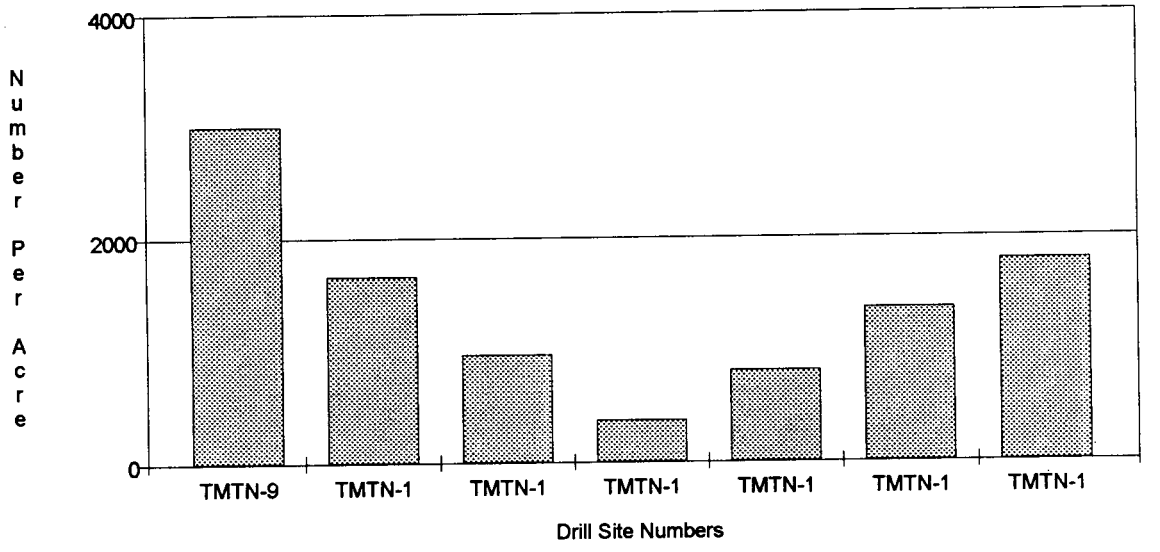
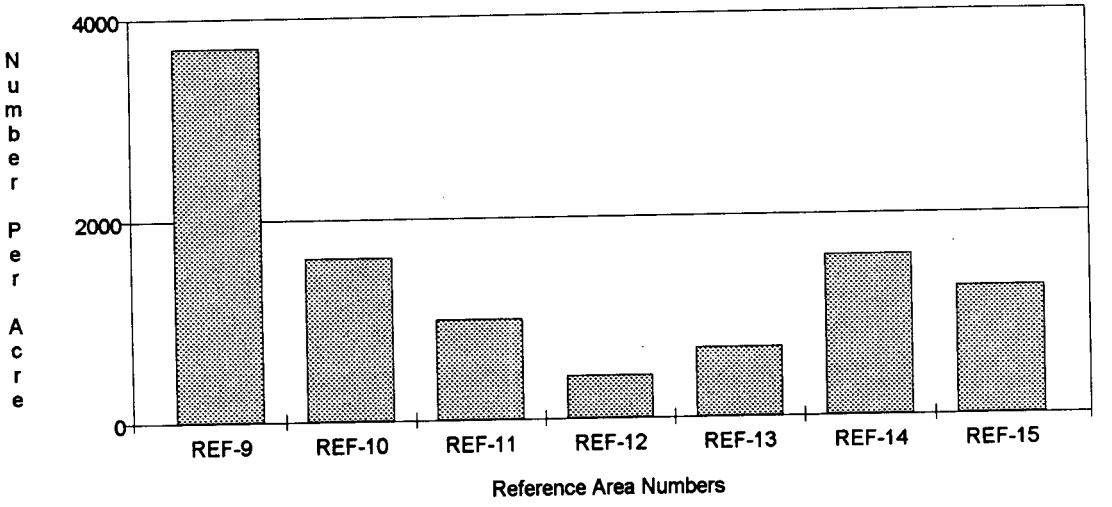


FIG. 6: 1993 - Woody Species Density for the Reference Areas



Listed below are each of the proposed disturbed drill sites and reference areas. Listed with each are the locations in the report for summary tables, photographs and raw data. Statistical comparisons of the proposed disturbed drill sites versus the reference areas are shown on Table 42.

Drill Site TMTN-9

Cover & Composition: See Table 1

Cover by Species: See Table 2

Woody Species Density: See Table 3

Photograph: See Appendix A

Raw Data: See Appendix B

Notes: The area has been previously *"altered"* by contour furrowing (see "General Site Description" above). These furrows seem to be older and not as deep as others on the study site.

Drill Site TMTN-10:

Cover & Composition: See Table 4

Cover by Species: See Table 5

Woody Species Density: See Table 6

Photograph: See Appendix A

Raw Data: See Appendix B

Notes: The area has been previously *"altered"* fairly recently by large contour furrows (see "General Site Description" above). Area also looks as though it has been "chained" or the larger woody species otherwise controlled.

Drill Site TMTN-11:

Cover & Composition: See Table 7

Cover by Species: See Table 8

Woody Species Density: See Table 9

Photograph: See Appendix A

Raw Data: See Appendix B

Notes: The area was on the border of what has been previously *"altered"* fairly recently by contour furrows and woody species control (see "General Site Description" above).

Drill Site TMTN-12:

Cover & Composition: See Table 10

Cover by Species: See Table 11

Woody Species Density: See Table 12

Photograph: See Appendix A

Raw Data: See Appendix B

Notes: An undisturbed, very mature pinyon/juniper community.

Drill Site TMTN-13:

Cover & Composition: See Table 13

Cover by Species: See Table 14

Woody Species Density: See Table 15

Photograph: See Appendix A

Raw Data: See Appendix B

Notes: This site was relatively undisturbed by previous rangeland techniques.

Drill Site TMTN-14:

Cover & Composition: See Table 16

Cover by Species: See Table 17

Woody Species Density: See Table 18

Photograph: See Appendix A

Raw Data: See Appendix B

Notes: The area has been previously *"altered"* by contour furrowing (see "General Site Description" above). These rangeland techniques seemed to have been done in the more recent past.

Drill Site TMTN-15:

Cover & Composition: See Table 19

Cover by Species: See Table 20

Woody Species Density: See Table 21

Photograph: See Appendix A

Raw Data: See Appendix B

Notes: The area has been previously *"altered"* by contour furrowing (see "General Site Description" above). These furrows seem to be older and not as deep as others on the study site.

Reference Area TMTN-9:

Cover & Composition: See Table 22

Cover by Species: See Table 23

Woody Species Density: See Table 24

Photograph: See Appendix A

Raw Data: See Appendix B

Notes: The area has been previously *"altered"* by contour furrowing (see "General Site Description" above). These furrows seem to be older and not as deep as others on the study site.

Reference Area TMTN-10:

Cover & Composition: See Table 25

Cover by Species: See Table 26

Woody Species Density: See Table 27

Photograph: See Appendix A

Raw Data: See Appendix B

Notes: The area has been previously *"altered"* fairly recently by large contour furrows (see "General Site Description" above). Area also looks as though it has been "chained" or the larger woody species otherwise controlled.

Reference Area TMTN-11:

Cover & Composition: See Table 28

Cover by Species: See Table 29

Woody Species Density: See Table 30

Photograph: See Appendix A

Raw Data: See Appendix B

Notes: The area was on the border of what has been previously *"altered"* fairly recently by contour furrows and woody species control (see "General

Site Description" above).

Reference Area TMTN-12:

Cover & Composition: See Table 31

Cover by Species: See Table 32

Woody Species Density: See Table 33

Photograph: See Appendix A

Raw Data: See Appendix B

Notes: An undisturbed, very mature pinyon/juniper community.

Reference Area TMTN-13:

Cover & Composition: See Table 34

Cover by Species: See Table 35

Woody Species Density: See Table 36

Photograph: See Appendix A

Raw Data: See Appendix B

Notes: This site was relatively undisturbed by previous rangeland techniques.

Reference Area TMTN-14:

Cover & Composition: See Table 37

Cover by Species: See Table 38

Woody Species Density: See Table 39

Photograph: See Appendix A

Raw Data: See Appendix B

Notes: The area has been previously *"altered"* by contour furrowing (see "General Site Description" above). These rangeland techniques seemed to have been done in the more recent past.

Reference Area TMTN-15:

Cover & Composition: See Table 40

Cover by Species: See Table 41

Woody Species Density: See Table 42

Photograph: See Appendix A

Raw Data: See Appendix B

Notes: The area has been previously *"altered"* by contour furrowing (see "General Site Description" above). These furrows seem to be older and not as deep as others on the study site.

TABLE 1: Total cover and composition summary for Trail Mountain Drill Site: TMTN-9.

| TOTAL COVER | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE |
|---|---|---|---|
| Living Cover | 51.50 | 8.67 | 20 |
| Litter | 12.50 | 5.12 | 20 |
| Bareground | 28.25 | 10.52 | 20 |
| Rock | 7.75 | 4.60 | 20 |
| **COMPOSITION** | | | |
| Shrubs | 40.29 | 20.03 | 20 |
| Forbs | 13.95 | 12.87 | 20 |
| Grasses | 46.99 | 20.33 | 20 |

TABLE 2: Species cover and frequency summary for Trail Mountain Drill Site: TMTN-9.

| SPECIES | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE | RELATIVE FREQ. |
|---|---|---|---|---|
| TREES & SHRUBS | | | | |
| *Amalanchier utahensis* | 1.50 | 4.77 | 20 | 10.00 |
| *Artemisia tridentata* | 13.75 | 10.35 | 20 | 95.00 |
| *Chrysothamnus depressus* | 1.25 | 2.17 | 20 | 25.00 |
| *Chrysothamnus nauseosus* | 0.50 | 1.50 | 20 | 10.00 |
| *Symphoricarpos oreophilus* | 3.75 | 5.21 | 20 | 40.00 |
| FORBS | | | | |
| *Arenaria fendleri* | 0.50 | 1.50 | 20 | 10.00 |
| *Astragalus tenellus* | 0.50 | 2.18 | 20 | 5.00 |
| *Eriogonum umbellatum* | 2.25 | 3.34 | 20 | 35.00 |
| *Hymenoxys richardsonii* | 0.50 | 2.18 | 20 | 5.00 |
| *Leptodactylon pungens* | | | | |
| *Lupinus argenteus* | 0.25 | 1.09 | 20 | 5.00 |
| *Penstemon caespitosa* | 2.75 | 5.58 | 20 | 25.00 |
| GRASSES | | | | |
| *Bromus inermis* | 14.00 | 9.95 | 20 | 90.00 |
| *Elymus salinus* | 3.25 | 8.55 | 20 | 20.00 |
| *Elymus spicatus* | 2.00 | 4.30 | 20 | 20.00 |
| *Koelaria micrantha* | 4.00 | 6.63 | 20 | 35.00 |
| *Sitanion hystrix* | 0.50 | 2.18 | 20 | 5.00 |
| *Stipa comata* | 0.25 | 1.09 | 20 | 5.00 |

TABLE 3: Woody species densities of Trail Mountain Drill Site: TMTN-9.

| | NUMBER/ACRE |
|---|---|
| *Amalanchier utahensis* | 37.51 |
| *Artemisia tridentata* | 2263.53 |
| *Gutierrezia sarothrae* | 37.51 |
| *Symphoricarpos oreophilis* | 262.60 |
| TOTAL | 3001.16 |

TABLE 4: Total cover and composition summary for Trail Mountain Drill Site: TMTN-10.

| TOTAL COVER | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE |
|---|---|---|---|
| Living Cover | 38.00 | 9.00 | 20 |
| Litter | 20.65 | 14.49 | 20 |
| Bareground | 32.50 | 11.66 | 20 |
| Rock | 8.85 | 6.37 | 20 |
| **COMPOSITION** | | | |
| Shrubs | 32.24 | 29.76 | 20 |
| Forbs | 28.63 | 19.30 | 20 |
| Grasses | 39.45 | 25.14 | 20 |

TABLE 5: Species cover and frequency summary for Trail Mountain Drill Site: TMTN-10.

| SPECIES | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE | RELATIVE FREQ. |
|---|---|---|---|---|
| TREES & SHRUBS | | | | |
| *Amalanchier utahensis* | 1.00 | 2.55 | 20 | 15.00 |
| *Artemisia tridentata* | 8.50 | 11.95 | 20 | 55.00 |
| *Chrysothamnus depressus* | 1.00 | 2.55 | 20 | 15.00 |
| *Chrysothamnus viscidiflorus* | 0.25 | 1.09 | 20 | 5.00 |
| *Symphoricarpos oreophilus* | 1.50 | 6.54 | 20 | 5.00 |
| FORBS | | | | |
| *Arenaria fendleri* | 3.35 | 4.87 | 20 | 40.00 |
| *Astragalus tenellus* | 2.25 | 4.60 | 20 | 30.00 |
| *Calochortis nuttalli* | 0.25 | 1.09 | 20 | 5.00 |
| *Castelleja linariifolia* | 1.40 | 2.69 | 20 | 25.00 |
| *Chaenactis douglasii* | 0.50 | 1.50 | 20 | 10.00 |
| *Eriogonum umbellatum* | 0.25 | 1.09 | 20 | 5.00 |
| *Gilia aggregata* | 0.25 | 1.09 | 20 | 5.00 |
| *Hedysarum boreale* | 0.35 | 1.53 | 20 | 5.00 |
| *Hymenopapppus filifolius* | .25 | 1.09 | 20 | 5.00 |
| *Leptodactylon pungens* | 1.00 | 2.00 | 20 | 20.00 |
| *Machaeranthera grindelioides* | 0.50 | 1.50 | 20 | 10.00 |
| *Penstemon pachyphyllus* | 0.25 | 1.09 | 20 | 5.00 |
| GRASSES | | | | |
| *Agropyron cristatum* | 3.25 | 6.76 | 20 | 35.00 |
| *Bromus inermis* | 2.65 | 6.78 | 20 | 30.00 |
| *Elymus salinus* | 9.00 | 8.60 | 20 | 75.00 |
| *Koelaria macrantha* | 0.25 | 1.09 | 20 | 5.00 |

TABLE 6: Woody species densities of Trail Mountain Drill Site: TMTN-10.

| | NUMBER/ACRE |
|---|---|
| *Amalanchier utahensis* | 121.14 |
| *Artemisia tridentata* | 1332.53 |
| *Chrysothamnus viscidiflorus* | 69.22 |
| *Ceratoides lanata* | 69.22 |
| *Symphoricarpos oreophilis* | 69.22 |
| TOTAL | 1661.33 |

TABLE 7: Total cover and composition summary for Trail Mountain Drill Site: TMTN-11.

| TOTAL COVER | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE |
|---|---|---|---|
| Overstory Cover | 8.50 | 13.14 | 20 |
| Understory Cover | 29.75 | 9.81 | 20 |
| Litter | 11.20 | 10.15 | 20 |
| Bareground | 26.35 | 17.52 | 20 |
| Rock | 24.20 | 19.76 | 20 |
| **COMPOSITION** | | | |
| Shrubs | 52.54 | 34.42 | 20 |
| Forbs | 16.86 | 21.39 | 20 |
| Grasses | 30.05 | 24.03 | 20 |

TABLE 8: Species cover and frequency summary for Trail Mountain Drill Site: TMTN-11.

| SPECIES | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE | RELATIVE FREQ. |
|---|---|---|---|---|
| TREES & SHRUBS | | | | |
| *Artemisia nova* | 1.25 | 3.49 | 20 | 15.00 |
| *Artemisia tridentata* | 0.50 | 2.18 | 20 | 5.00 |
| *Chrysothamnus viscidiflorus* | 0.25 | 1.09 | 20 | 5.00 |
| *Gutierrezia sarothrae* | 1.50 | 3.57 | 20 | 20.00 |
| *Opuntia polyacantha* | 0.25 | 1.09 | 20 | 5.00 |
| *Pinus edulis* | 16.00 | 19.72 | 20 | 50.00 |
| *Purshia tridentata* | 1.75 | 5.76 | 20 | 10.00 |
| FORBS | | | | |
| *Astragalus tenellus* | 3.75 | 8.10 | 20 | 35.00 |
| *Leptodactylon pungens* | 0.75 | 1.79 | 20 | 15.00 |
| *Machaeranthera grindelioides* | 1.25 | 3.49 | 20 | 15.00 |
| GRASSES | | | | |
| *Elymus salinus* | 9.50 | 9.07 | 20 | 65.00 |
| *Stipa hymenoides* | 1.25 | 3.11 | 20 | 15.00 |

TABLE 9: Woody species densities of Trail Mountain Drill Site: TMTN-11.

| | NUMBER/ACRE |
|---|---|
| *Amalanchier utahensis* | |
| *Artemisia nova* | 140.61 |
| *Artemisia tridentata* | 150.65 |
| *Chrysothamnus viscidiflorus* | 20.09 |
| *Gutierrezia sarothrae* | 100.44 |
| *Juniperus ostersperma* | 10.04 |
| *Pinus edulis* | 482.09 |
| *Purhia tridentata* | 60.26 |
| TOTAL | 964.18 |

TABLE 10: Total cover and composition summary for Trail Mountain Drill Site: TMTN-12.

| TOTAL COVER | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE |
|---|---|---|---|
| Overstory Cover | 22.52 | 19.92 | 25 |
| Understory Cover | 18.28 | 10.82 | 25 |
| Litter | 27.76 | 16.99 | 25 |
| Bareground | 21.20 | 23.05 | 25 |
| Rock | 10.24 | 11.78 | 25 |
| **COMPOSITION** | | | |
| Shrubs | 62.50 | 38.67 | 25 |
| Forbs | 1.39 | 4.26 | 25 |
| Grasses | 34.21 | 37.80 | 25 |

TABLE 11: Species cover and frequency summary for Trail Mountain Drill Site: TMTN-12.

| SPECIES | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE | RELATIVE FREQ. |
|---|---|---|---|---|
| TREES & SHRUBS | | | | |
| *Ceratoides lanata* | 5.76 | 13.34 | 25 | 20.00 |
| *Juniperus osteosperma* | 5.00 | 14.56 | 25 | 12.00 |
| *Pinus edulis* | 17.28 | 22.08 | 25 | 44.00 |
| *Purshia tridentata* | 1.00 | 4.90 | 25 | 20.00 |
| FORBS | | | | |
| *Chenopodium fremontii* | 0.08 | 0.27 | 25 | 8.00 |
| *Leptodactylon pungens* | 0.40 | 1.36 | 25 | 8.00 |
| GRASSES | | | | |
| *Elymus salinus* | 7.88 | 7.85 | 25 | 64.00 |
| *Stipa hymenoides* | 2.80 | 6.65 | 25 | 20.00 |

TABLE 12: Woody species densities of Trail Mountain Drill Site: TMTN-12.

| | NUMBER/ACRE |
|---|---|
| *Amalanchier utahensis* | 3.94 |
| *Ceratoides lanata* | 78.87 |
| *Juniperus osteosperma* | 63.09 |
| *Opuntia polyacantha* | 11.83 |
| *Pinus edulis* | 205.06 |
| *Purhia tridentata* | 15.77 |
| TOTAL | 378.57 |

TABLE 13: Total cover and composition summary for Trail Mountain Drill Site: TMTN-13.

| TOTAL COVER | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE |
|---|---|---|---|
| Living Cover | 52.50 | 11.78 | 20 |
| Litter | 14.05 | 7.89 | 20 |
| Bareground | 24.30 | 12.57 | 20 |
| Rock | 9.15 | 6.99 | 20 |
| **COMPOSITION** | | | |
| Shrubs | 15.03 | 23.02 | 20 |
| Forbs | 44.90 | 22.73 | 20 |
| Grasses | 40.07 | 21.38 | 20 |

TABLE 14: Species cover and frequency summary for Trail Mountain Drill Site: TMTN-13.

| SPECIES | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE | RELATIVE FREQ. |
|---|---|---|---|---|
| TREES & SHRUBS | | | | |
| *Amalanchier utahensis* | 1.25 | 3.11 | 20 | 15.00 |
| *Artemisia tridentata* | 1.00 | 2.55 | 20 | 15.00 |
| *Ceratoides lanata* | 0.50 | 1.50 | 20 | 10.00 |
| *Pinus edulis* | 6.75 | 17.41 | 20 | 20.00 |
| FORBS | | | | |
| *Arenaria fendleri* | 7.00 | 5.57 | 20 | 75.00 |
| *Astragalus lancearius* | 2.75 | 4.87 | 20 | 25.00 |
| *Astragalus megacarpos* | 0.25 | 1.09 | 20 | 5.00 |
| *Astragalus tenellus* | 5.00 | 6.71 | 20 | 55.00 |
| *Calochortus nuttallii* | 0.65 | 1.58 | 20 | 15.00 |
| *Erigeron sp.* | 2.00 | 4.00 | 20 | 25.00 |
| *Hymenoxys richardsonii* | 1.25 | 2.17 | 20 | 25.00 |
| *Leptodactylon pungens* | 1.75 | 2.86 | 20 | 30.00 |
| *Orthocarpos tolmiei* | 0.25 | 1.09 | 20 | 5.00 |
| *Penstemon pachyphyllus* | 1.00 | 2.00 | 20 | 20.00 |
| GRASSES | | | | |
| *Elymus salinus* | 12.35 | 9.82 | 20 | 75.00 |
| *Festuca ovina* | 2.25 | 7.82 | 20 | 10.00 |
| *Koelaria macrantha* | 6.50 | 15.82 | 20 | 15.00 |

TABLE 15: Woody species densities of Trail Mountain Drill Site: TMTN-13.

| | NUMBER/ACRE |
|---|---|
| *Amalanchier utahensis* | 17.04 |
| *Artemisia tridentata* | 485.63 |
| *Ceratoides lanata* | 68.16 |
| *Pinus edulis* | 247.07 |
| TOTAL | 817.90 |

TABLE 16: Total cover and composition summary for Trail Mountain Drill Site: TMTN-14.

| TOTAL COVER | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE |
|---|---|---|---|
| Living Cover | 50.25 | 10.06 | 20 |
| Litter | 9.85 | 6.50 | 20 |
| Bareground | 34.30 | 14.00 | 20 |
| Rock | 5.50 | 6.94 | 20 |
| **COMPOSITION** | | | |
| Shrubs | 18.91 | 17.77 | 20 |
| Forbs | 32.47 | 23.03 | 20 |
| Grasses | 49.65 | 25.08 | 20 |

TABLE 17: Species cover and frequency summary for Trail Mountain Drill Site: TMTN-14.

| SPECIES | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE | RELATIVE FREQ. |
|---|---|---|---|---|
| TREES & SHRUBS | | | | |
| *Artemisia nova* | 0.75 | 2.38 | 20 | 10.00 |
| *Artemisia tridentata* | 2.25 | 6.80 | 20 | 10.00 |
| *Chrysothamnus depressus* | 0.50 | 1.50 | 20 | 10.00 |
| *Chrysothamnus nauseosus* | 1.25 | 2.68 | 20 | 20.00 |
| *Chrysothamnus viscidiflorus* | 2.00 | 2.92 | 20 | 35.00 |
| *Pinus edulis* | 1.00 | 4.36 | 20 | 5.00 |
| *Purshia tridentata* | 1.75 | 6.57 | 20 | 10.00 |
| FORBS | | | | |
| *Arenaria fendleri* | 4.25 | 4.26 | 20 | 60.00 |
| *Astragalus megacarpos* | 0.50 | 1.50 | 20 | 10.00 |
| *Astragalus tenellus* | 4.25 | 10.03 | 20 | 30.00 |
| *Erigeron sp.* | 0.50 | 1.50 | 20 | 10.00 |
| *Hymenopappus filifolius* | 0.25 | 1.09 | 20 | 5.00 |
| *Hymenoxys richardsonii* | 1.50 | 3.20 | 20 | 20.00 |
| *Leptodactylon pungens* | 0.25 | 1.09 | 20 | 5.00 |
| *Machaeranthera canescens* | .25 | 1.09 | 20 | 5.00 |
| *Orthocarpos tolmiei* | 4.00 | 4.36 | 20 | 50.00 |
| *Penstemon caespitosus* | 0.25 | 1.09 | 20 | 5.00 |
| GRASSES | | | | |
| *Bromus inermis* | 1.25 | 3.11 | 20 | 15.00 |
| *Elymus salinus* | 17.75 | 14.10 | 20 | 75.00 |
| *Koelaria macrantha* | 5.50 | 12.74 | 20 | 20.00 |
| *Stipa comata* | 0.25 | 1.09 | 20 | 5.00 |

TABLE 18: Woody species densities of Trail Mountain Drill Site: TMTN-14.

| | NUMBER/ACRE |
|---|---|
| *Artemisia nova* | 152.46 |
| *Artemisia tridentata* | 272.25 |
| *Chrysothamnus viscidiflorus* | 860.31 |
| *Purhia tridentata* | 76.23 |
| *Juniperus osteosperma* | 10.89 |
| TOTAL | 1372.14 |

TABLE 19: Total cover and composition summary for Trail Mountain Drill Site: TMTN-15.

| TOTAL COVER | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE |
|---|---|---|---|
| Living Cover | 42.75 | 8.29 | 20 |
| Litter | 14.25 | 6.38 | 20 |
| Bareground | 28.75 | 11.71 | 20 |
| Rock | 14.25 | 11.76 | 20 |
| **COMPOSITION** | | | |
| Shrubs | 21.29 | 17.98 | 20 |
| Forbs | 24.89 | 19.66 | 20 |
| Grasses | 55.23 | 23.33 | 20 |

TABLE 20: Species cover and frequency summary for Trail Mountain Drill Site: TMTN-15.

| SPECIES | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE | RELATIVE FREQ. |
|---|---|---|---|---|
| TREES & SHRUBS | | | | |
| *Artemisia tridentata* | 3.25 | 4.26 | 20 | 45.00 |
| *Artemisia nova* | 0.25 | 1.09 | 20 | 5.00 |
| *Chrysothamnus depressus* | 1.25 | 2.17 | 20 | 25.00 |
| *Chrysothamnus viscidiflorus* | 0.85 | 2.06 | 20 | 15.00 |
| *Ephedra viridus* | 0.75 | 3.27 | 20 | 5.00 |
| *Purshia tridentata* | 2.50 | 7.66 | 20 | 10.00 |
| FORBS | | | | |
| *Arenaria fendleri* | 1.50 | 3.20 | 20 | 20.00 |
| *Astragalus tenellus* | 5.75 | 5.31 | 20 | 65.00 |
| *Castelleja linariifolia* | 0.25 | 1.09 | 20 | 5.00 |
| *Erigeron* sp. | 0.25 | 1.09 | 20 | 5.00 |
| *Leptodactylon pungens* | 0.25 | 1.09 | 20 | 5.00 |
| *Machaeranthera grindelioides* | 1.75 | 3.63 | 20 | 25.00 |
| *Medicago sativa* | 0.50 | 1.50 | 20 | 10.00 |
| GRASSES | | | | |
| *Bromus inermis* | 0.75 | 2.38 | 20 | 10.00 |
| *Elymus salinus* | 22.15 | 10.69 | 20 | 95.00 |
| *Stipa hymenoides* | 0.50 | 2.18 | 20 | 5.00 |

TABLE 21: Woody species densities of Trail Mountain Drill Site: TMTN-15.

| | NUMBER/ACRE |
|---|---|
| *Amalanchier utahensis* | 37.40 |
| *Artemisia nova* | 93.49 |
| *Artemisia tridentata* | 691.82 |
| *Chrysothamnus depressus* | 243.07 |
| *Chrysothamnus viscidiflorus* | 243.07 |
| *Ceratoides lanata* | 112.19 |
| *Ephedra viridis* | 149.58 |
| *Gutierrezia sarothrae* | 37.40 |
| *Pinus edulis* | 130.89 |
| *Purhia tridentata* | 56.09 |
| TOTAL | 1795.00 |

TABLE 22: Total cover and composition summary for the reference area of Trail Mountain Drill Site: TMTN-9.

| TOTAL COVER | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE |
|---|---|---|---|
| Living Cover | 53.75 | 7.89 | 20 |
| Litter | 11.40 | 5.62 | 20 |
| Bareground | 29.75 | 10.89 | 20 |
| Rock | 5.10 | 2.02 | 20 |
| **COMPOSITION** | | | |
| Shrubs | 35.40 | 22.68 | 20 |
| Forbs | 3.20 | 5.95 | 20 |
| Grasses | 61.41 | 22.99 | 20 |

TABLE 23: Species cover and frequency summary for the reference area of Trail Mountain Drill Site: TMTN-9.

| SPECIES | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE | RELATIVE FREQ. |
|---|---|---|---|---|
| TREES & SHRUBS | | | | |
| *Artemisia tridentata* | 13.50 | 9.10 | 20 | 95.00 |
| *Symphoricarpos oreophilus* | 6.50 | 10.01 | 20 | 40.00 |
| FORBS | | | | |
| *Arenaria fendleri* | 0.25 | 1.09 | 20 | 5.0 |
| *Eriogonum umbellatum* | 0.50 | 2.18 | 20 | 5.00 |
| *Hymenoxys richardsonii* | 0.50 | 1.50 | 20 | 10.00 |
| *Trifolium repens* | 0.50 | 2.18 | 20 | 5.00 |
| GRASSES | | | | |
| *Bromus inermis* | 18.25 | 13.06 | 20 | 80.00 |
| *Elymus salinus* | 3.25 | 8.70 | 20 | 10.00 |
| *Elymus spicatus* | 4.00 | 8.60 | 20 | 20.00 |
| *Koelaria micrantha* | 6.50 | 8.82 | 20 | 40.00 |

TABLE 24: Woody species densities of the reference area of Trail Mountain Drill Site: TMTN-9.

| | NUMBER/ACRE |
|---|---|
| *Artemisia tridentata* | 2897.74 |
| *Pinus edulis* | 42.61 |
| *Symphoricarpos oreophilis* | 468.75 |
| TOTAL | 3409.10 |

TABLE 25: Total cover and composition summary for the reference area of Trail Mountain Drill Site: TMTN-10.

| TOTAL COVER | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE |
|---|---|---|---|
| Living Cover | 42.00 | 9.41 | 20 |
| Litter | 15.50 | 8.65 | 20 |
| Bareground | 30.25 | 15.93 | 20 |
| Rock | 12.25 | 9.68 | 20 |
| **COMPOSITION** | | | |
| Shrubs | 23.21 | 17.74 | 20 |
| Forbs | 31.60 | 23.87 | 20 |
| Grasses | 45.19 | 24.20 | 20 |

TABLE 26: Species cover and frequency summary for the reference area of Trail Mountain Drill Site: TMTN-10.

| SPECIES | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE | RELATIVE FREQ. |
|---|---|---|---|---|
| TREES & SHRUBS | | | | |
| *Amalanchier utahensis* | 1.50 | 3.57 | 20 | 15.00 |
| *Artemisia nova* | 0.50 | 2.18 | 20 | 5.00 |
| *Artemisia tridentata* | 5.75 | 6.57 | 20 | 60.00 |
| *Chrysothamnus depressus* | 0.25 | 1.09 | 20 | 5.00 |
| *Chrysothamnus viscidiflorus* | 0.75 | 1.79 | 20 | 15.00 |
| *Pinus edulis* | 0.25 | 1.09 | 20 | 5.00 |
| *Symphoricarpos oreophilus* | .75 | 3.27 | 20 | 5.00 |
| FORBS | | | | |
| *Arenaria fendleri* | 4.50 | 6.50 | 20 | 45.00 |
| *Astragalus tenellus* | 4.25 | 6.38 | 20 | 45.00 |
| *Castelleja linariifolia* | 3.05 | 3.28 | 20 | 55.00 |
| *Leptodactylon pungens* | 1.00 | 2.00 | 20 | 20.00 |
| *Machaeranthera grindelioides* | 0.50 | 1.50 | 20 | 10.00 |
| *Orthocarpos tolmiei* | 0.15 | 0.65 | 20 | 5.00 |
| *Penstemon pachyphyllus* | 0.25 | 1.09 | 20 | 5.00 |
| *Stanleya pinnata* | 0.50 | 2.18 | 20 | 5.00 |
| GRASSES | | | | |
| *Bromus inermis* | 0.75 | 3.27 | 20 | 5.00 |
| *Elymus salinus* | 17.30 | 9.31 | 20 | 95.00 |

TABLE 27: Woody species densities of Trail Mountain Drill Site: TMTN-10.

| | NUMBER/ACRE |
|---|---|
| *Amalanchier utahensis* | 218.07 |
| *Artemisia nova* | 100.65 |
| *Artemisia tridentata* | 1023.27 |
| *Ceratoides lanata* | 83.88 |
| *Chrysothamnus viscidiflorus* | 100.65 |
| *Juniperus communis* | 16.78 |
| *Pinus edulis* | 50.32 |
| *Symphoricarpos oreophilis* | 16.78 |
| TOTAL | 1610.39 |

TABLE 28: Total cover and composition summary for the reference area of Trail Mountain Drill Site: TMTN-11.

| TOTAL COVER | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE |
|---|---|---|---|
| Overstory Cover | 10.50 | 16.58 | 20 |
| Understory Cover | 31.50 | 13.05 | 20 |
| Litter | 11.75 | 12.38 | 20 |
| Bareground | 36.50 | 17.40 | 20 |
| Rock | 9.75 | 8.14 | 20 |
| **COMPOSITION** | | | |
| Shrubs | 49.33 | 32.32 | 20 |
| Forbs | 21.69 | 24.40 | 20 |
| Grasses | 28.98 | 24.41 | 20 |

TABLE 29: Species cover and frequency summary for the reference area of Trail Mountain Drill Site: TMTN-11.

| SPECIES | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE | RELATIVE FREQ. |
|---|---|---|---|---|
| TREES & SHRUBS | | | | |
| *Artemisia nova* | 2.00 | 4.58 | 20 | 25.00 |
| *Artemisia tridentata* | 2.25 | 7.66 | 20 | 15.00 |
| *Chrysothamnus depressus* | 3.25 | 4.82 | 20 | 40.00 |
| *Chrysothamnus viscidiflorus* | 0.50 | 1.50 | 20 | 10.00 |
| *Ephedra viridis* | 0.50 | 2.18 | 20 | 5.00 |
| *Juniperus osteosperma* | 1.25 | 5.45 | 20 | 5.00 |
| *Pinus edulis* | 11.50 | 17.54 | 20 | 40.00 |
| *Purshia tridentata* | 0.25 | 1.09 | 20 | 5.00 |
| FORBS | | | | |
| *Astragalus megacarpos* | 1.25 | 2.68 | 20 | 20.00 |
| *Astragalus tenellus* | 4.25 | 6.76 | 20 | 35.00 |
| *Castelleja liniaefolia* | 0.50 | 1.50 | 20 | 10.00 |
| *Erigeron* sp. | 0.75 | 1.79 | 20 | 15.00 |
| *Leptodactylon pungens* | 0.75 | 3.27 | 20 | 5.00 |
| *Machaeranthera grindelioides* | 0.75 | 1.79 | 20 | 15.00 |
| GRASSES | | | | |
| *Elymus salinus* | 10.50 | 12.24 | 20 | 75.00 |
| *Elymus spicatus* | 0.75 | 2.38 | 20 | 10.00 |
| *Stipa hymenoides* | 1.00 | 2.55 | 20 | 15.00 |

TABLE 30: Woody species densities of the reference area of Trail Mountain Drill Site: TMTN-11.

| | NUMBER/ACRE |
|---|---|
| *Artemisia nova* | 154.43 |
| *Artemisia tridentata* | 432.40 |
| *Chrysothamnus viscidiflorus* | 10.30 |
| *Ephedra viridis* | 10.30 |
| *Gutierrezia sarothrae* | 20.59 |
| *Juniperus ostersperma* | 20.59 |
| *Pinus edulis* | 319.15 |
| *Purhia tridentata* | 20.59 |
| TOTAL | 988.33 |

TABLE 31: Total cover and composition summary for the reference area of Trail Mountain Drill Site: TMTN-12.

| TOTAL COVER | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE |
|---|---|---|---|
| Overstory Cover | 20.23 | 21.13 | 22 |
| Understory Cover | 19.77 | 10.92 | 22 |
| Litter | 23.86 | 14.92 | 22 |
| Bareground | 18.86 | 20.27 | 22 |
| Rock | 17.27 | 19.55 | 22 |
| **COMPOSITION** | | | |
| Shrubs | 59.69 | 35.62 | 22 |
| Forbs | -- | -- | 22 |
| Grasses | 40.31 | 35.62 | 22 |

TABLE 32: Species cover and frequency summary for the reference area of Trail Mountain Drill Site: TMTN-12.

| SPECIES | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE | RELATIVE FREQ. |
|---|---|---|---|---|
| TREES & SHRUBS | | | | |
| *Ceratoides lanata* | 0.23 | 1.04 | 22 | 4.55 |
| *Juniperus osteosperma* | 7.50 | 15.79 | 22 | 22.73 |
| *Pinus edulis* | 14.55 | 19.71 | 22 | 40.91 |
| *Purshia tridentata* | 2.95 | 7.64 | 22 | 13.64 |
| *Pseudotsuga menziesii* | 1.36 | 6.25 | 22 | 4.55 |
| GRASSES | | | | |
| *Elymus salinus* | 10.00 | 10.00 | 22 | 72.73 |
| *Stipa hymenoides* | 3.41 | 7.13 | 22 | 31.82 |

TABLE 33: Woody species densities of the reference area of Trail Mountain Drill Site: TMTN-12.

| | NUMBER/ACRE |
|---|---|
| *Artemisia tridenta* | 4.42 |
| *Ceratoides lanata* | 66.24 |
| *Juniperus osteosperma* | 83.91 |
| *Pinus edulis* | 172.23 |
| *Purhia tridentata* | 97.16 |
| TOTAL | 423.95 |

TABLE 34: Total cover and composition summary for the reference area of Trail Mountain Drill Site: TMTN-13.

| TOTAL COVER | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE |
|---|---|---|---|
| Living Cover | 54.25 | 12.58 | 20 |
| Litter | 14.25 | 7.95 | 20 |
| Bareground | 17.80 | 11.46 | 20 |
| Rock | 13.70 | 8.94 | 20 |
| **COMPOSITION** | | | |
| Shrubs | 11.56 | 21.88 | 20 |
| Forbs | 39.17 | 28.79 | 20 |
| Grasses | 49.27 | 24.91 | 20 |

TABLE 35: Species cover and frequency summary for the reference area of Trail Mountain Drill Site: TMTN-13.

| SPECIES | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE | RELATIVE FREQ. |
|---|---|---|---|---|
| TREES & SHRUBS | | | | |
| *Artemisia tridentata* | 2.75 | 7.98 | 20 | 10.00 |
| *Pinus edulis* | 5.50 | 15.07 | 20 | 15.00 |
| FORBS | | | | |
| *Arenaria fendleri* | 6.75 | 6.57 | 20 | 65.00 |
| *Astragalus lancearius* | 1.75 | 4.26 | 20 | 15.00 |
| *Astragalus megacarpos* | 0.75 | 1.79 | 20 | 15.00 |
| *Astragalus mollissimus* | 0.25 | 1.09 | 20 | 5.00 |
| *Astragalus tenellus* | 4.25 | 5.76 | 20 | 40.00 |
| *Calochortus nuttallii* | 0.50 | 1.50 | 20 | 10.00 |
| *Castelleja liniaefolia* | 0.25 | 1.09 | 20 | 5.00 |
| *Hymenoxys richardsonii* | 3.25 | 3.96 | 20 | 45.00 |
| *Leptodactylon pungens* | 1.25 | 2.17 | 20 | 25.00 |
| *Machaeranthera grindelioides* | 1.00 | 2.00 | 20 | 20.00 |
| GRASSES | | | | |
| *Elymus salinus* | 18.25 | 14.25 | 20 | 70.00 |
| *Koelaria macrantha* | 7.50 | 15.45 | 20 | 30.00 |
| *Stipa hymenoides* | 0.25 | 1.09 | 20 | 5.00 |

TABLE 36: Woody species densities of the reference area of Trail Mountain Drill Site: TMTN-13.

| | NUMBER/ACRE |
|---|---|
| *Amalanchier utahensis* | 7.08 |
| *Artemisia tridentata* | 417.41 |
| *Juniperus osteosperma* | 7.08 |
| *Pinus edulis* | 247.61 |
| TOTAL | 679.17 |

TABLE 37: Total cover and composition summary for the reference area of Trail Mountain Drill Site: TMTN-14.

| TOTAL COVER | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE |
|---|---|---|---|
| Living Cover | 54.25 | 9.26 | 20 |
| Litter | 12.10 | 5.58 | 20 |
| Bareground | 29.20 | 10.89 | 20 |
| Rock | 4.45 | 1.32 | 20 |
| **COMPOSITION** | | | |
| Shrubs | 17.56 | 12.31 | 20 |
| Forbs | 19.38 | 12.65 | 20 |
| Grasses | 63.06 | 17.35 | 20 |

TABLE 38: Species cover and frequency summary for the reference area of Trail Mountain Drill Site: TMTN-14.

| SPECIES | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE | RELATIVE FREQ. |
|---|---|---|---|---|
| TREES & SHRUBS | | | | |
| *Chrysothamnus depressus* | 4.00 | 3.74 | 20 | 60.00 |
| *Chrysothamnus nauseosus* | 0.50 | 2.18 | 20 | 5.00 |
| *Pinus edulis* | 5.25 | 7.98 | 20 | 40.00 |
| FORBS | | | | |
| *Arenaria fendleri* | 3.25 | 4.26 | 20 | 45.00 |
| *Astragalus tenellus* | 1.00 | 2.55 | 20 | 15.00 |
| *Erigeron sp.* | 1.00 | 2.00 | 20 | 20.00 |
| *Hymenoxys richardsonii* | 0.75 | 1.79 | 20 | 15.00 |
| *Medicago sativa* | 1.25 | 3.83 | 20 | 10.00 |
| *Melilotus officinalis* | 0.25 | 1.09 | 20 | 5.00 |
| *Orthocarpos tolmiei* | 2.50 | 3.35 | 20 | 40.00 |
| GRASSES | | | | |
| *Agropyron cristatum* | 2.50 | 7.50 | 20 | 10.00 |
| *Bromus inermis* | 1.00 | 3.00 | 20 | 10.00 |
| *Elymus salinus* | 12.75 | 14.10 | 20 | 60.00 |
| *Elymus spicatus* | 1.25 | 5.45 | 20 | 5.00 |
| *Koelaria macrantha* | 15.75 | 13.72 | 20 | 70.00 |
| *Stipa comata* | 1.00 | 3.00 | 20 | 10.00 |
| *Stipa hymenoides* | 0.25 | 1.09 | 20 | 5.00 |

TABLE 39: Woody species densities of the reference area of Trail Mountain Drill Site: TMTN-14.

| | NUMBER/ACRE |
|---|---|
| *Artemisia nova* | 250.47 |
| *Artemisia tridentata* | 698.96 |
| *Chrysothamnus viscidiflorus* | 632.62 |
| TOTAL | 1579.05 |

TABLE 40: Total cover and composition summary for the reference area of Trail Mountain Drill Site: TMTN-15.

| TOTAL COVER | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE |
|---|---|---|---|
| Living Cover | 40.00 | 8.94 | 20 |
| Litter | 10.00 | 5.24 | 20 |
| Bareground | 22.25 | 10.78 | 20 |
| Rock | 27.75 | 15.29 | 20 |
| **COMPOSITION** | | | |
| Shrubs | 13.57 | 22.20 | 20 |
| Forbs | 27.75 | 16.33 | 20 |
| Grasses | 58.67 | 19.08 | 20 |

TABLE 41: Species cover and frequency summary for the reference area of Trail Mountain Drill Site: TMTN-15.

| SPECIES | % MEAN COVER | STANDARD DEVIATION | SAMPLE SIZE | RELATIVE FREQ. |
|---|---|---|---|---|
| TREES & SHRUBS | | | | |
| *Amalanchier utahensis* | 0.50 | 2.18 | 20 | 5.00 |
| *Artemisia tridentata* | 1.25 | 2.68 | 20 | 20.00 |
| *Artemisia nova* | 1.25 | 3.49 | 20 | 10.00 |
| *Ceratoides lanata* | 0.25 | 1.09 | 20 | 5.0 |
| *Pinus edulis* | 1.90 | 8.28 | 20 | 5.00 |
| FORBS | | | | |
| *Arenaria fendleri* | 1.50 | 3.91 | 20 | 20.00 |
| *Astragalus tenellus* | 4.75 | 6.22 | 20 | 55.00 |
| *Castelleja linariifolia* | 0.50 | 2.18 | 20 | 5.00 |
| *Erigeron* sp. | 0.25 | 1.09 | 20 | 5.00 |
| *Hymenoxys richardsonii* | 0.50 | 1.50 | 20 | 5.00 |
| *Leptodactylon pungens* | 0.25 | 1.09 | 20 | 5.00 |
| *Machaeranthera grindelioides* | 3.10 | 3.62 | 20 | 50.00 |
| *Medicago sativa* | 0.25 | 1.09 | 20 | 5.00 |
| GRASSES | | | | |
| *Agropyron cristatum* | 0.25 | 1.09 | 20 | 5.00 |
| *Bromus inermis* | 0.50 | 2.18 | 20 | 5.00 |
| *Elymus salinus* | 17.50 | 12.09 | 20 | 85.00 |
| *Stipa hymenoides* | 5.50 | 7.89 | 20 | 40.00 |

TABLE 42: Woody species densities of the reference area of Trail Mountain Drill Site: TMTN-15.

| | NUMBER/ACRE |
|---|---|
| *Amalanchier utahensis* | 52.35 |
| *Artemisia nova* | 248.67 |
| *Artemisia tridentata* | 536.60 |
| *Ceratoides lanata* | 78.53 |
| *Ephedra viridis* | 65.44 |
| *Gutierrezia sarothrae* | 52.35 |
| *Juniperus communis* | 26.18 |
| *Juniperus osteosperma* | 13.09 |
| *Pinus edulis* | 183.23 |
| TOTAL | 1256.42 |

TABLE 43: Statistical summary sheet for the Proposed Disturbed and Reference Areas on Trail Mountain.

| | | | |
|---|---|---|---|
| DRILL SITE: TMTN-9 | | | |
| Living Cover** | x=51.50 | s=8.67 | n=20 |
| Density | x=2090.07* | s=568.64 | n=20 |
| REFERENCE AREA: TMTN-9 | | | |
| Understory Cover | x=53.75 | s=7.89 | n=20 |
| Density | x=1838.97 | s=431.92 | n=20 |
| STATISTICAL ANALYSES | | | |
| Cover | t=0.858 | df=38 | SL=N.S. |
| Density | t=1.573 | df=38 | SL=N.S. |
| DRILL SITE: TMTN-10 | | | |
| Living Cover** | x=38.00 | s=9.00 | n=20 |
| Density | x=3775.68* | s=2568.91 | n=24 |
| REFERENCE AREA: TMTN-10 | | | |
| Understory Cover | x=42.00 | s=9.41 | n=20 |
| Density | x=3895.10 | s=3041.99 | n=24 |
| STATISTICAL ANALYSES | | | |
| Cover | t=1.374 | df=38 | SL=N.S. |
| Density | t=-0.147 | df=46 | SL=N.S. |
| DRILL SITE: TMTN-11 | | | |
| Living Cover** | x=29.75 | s=9.81 | n=20 |
| Density | x=6505.69* | s=2216.63 | n=24 |
| REFERENCE AREA: TMTN-11 | | | |
| Understory Cover | x=31.50 | s=13.05 | n=20 |
| Density | x=6346.70 | s=2163.34 | n=24 |
| STATISTICAL ANALYSES | | | |
| Cover | t=-0.479 | df=38 | SL=N.S. |
| Density | t=0.251 | df=46 | SL=N.S. |
| DRILL SITE: TMTN-12 | | | |
| Living Cover** | x=18.28 | s=10.81 | n=25 |
| Density | x= 16569.53* | s=4554.97 | n=24 |
| REFERENCE AREA: TMTN-12 | | | |
| Understory Cover | x=19.77 | s=10.92 | n=22 |
| Density | x=14795.64 | s=4120.86 | n=24 |
| STATISTICAL ANALYSES | | | |
| Cover | t=-0.469 | df=45 | SL=N.S. |
| Density | t=1.415 | df=46 | SL=N.S. |

TABLE 43: (continued)

| | | | |
|---|---|---|---|
| DRILL SITE: TMTN-13 | | | |
| Living Cover** | x=52.50 | s=11.78 | n=20 |
| Density | x=7669.21* | s=3619.02 | n=24 |
| REFERENCE AREA: TMTN-13 | | | |
| Understory Cover | x=54.25 | s=12.58 | n=20 |
| Density | x=9235.77 | s=3454.44 | n=24 |
| STATISTICAL ANALYSES | | | |
| Cover | t=-0.454 | df=38 | SL=N.S. |
| Density | t=-1.534 | df=46 | SL=N.S. |
| DRILL SITE: TMTN-14 | | | |
| Living Cover** | x=50.25 | s=10.60 | n=20 |
| Density | x=7.88*** | s=1.78 | n=16 |
| REFERENCE AREA: TMTN-14 | | | |
| Understory Cover | x=54.25 | s=9.26 | n=20 |
| Density | x=9.06*** | s=2.67 | n=16 |
| STATISTICAL ANALYSES | | | |
| Cover | t=-1.928 | df=38 | SL=p<.05 |
| Density | t=-1.471 | df=30 | SL=N.S. |
| DRILL SITE: TMTN-15 | | | |
| Living Cover** | x=42.75 | s=8.29 | n=20 |
| Density | x= 3494.51* | s=1033.79 | n=24 |
| REFERENCE AREA: TMTN-15 | | | |
| Understory Cover | x=40.00 | s=8.94 | n=20 |
| Density | x=4992.47 | s=1506.27 | n=24 |
| STATISTICAL ANALYSES | | | |
| Cover | t=1.009 | df=38 | SL=N.S. |
| Density | t=-4.017 | df=46 | SL=p<.005 |

x = sample mean, s = sample standard deviation,
n = sample size, N.S. = nonsignificant,
* average distance squared in inches at each sample location.
** represents understory cover only.
*** average number in belt transects.

# *APPENDIX A:*

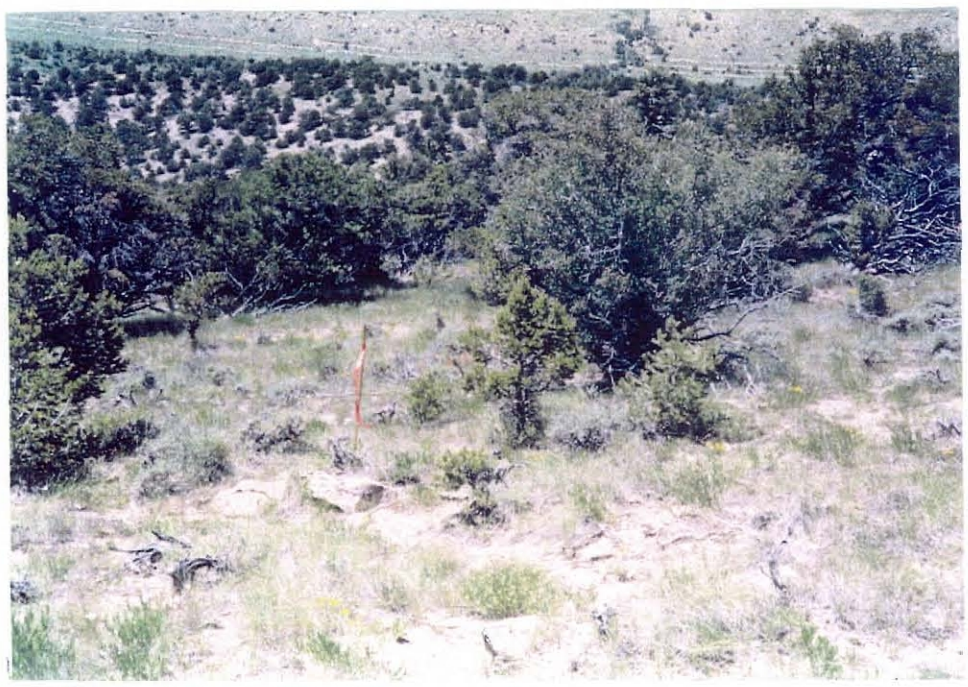
# *COLOR PHOTOGRAPHS*

Drill Site: TMTN - 9

Drill Site: TMTN - 10

Drill Site: TMTN - 11

Drill Site: TMTN - 12



Drill Site: TMTN - 13

Drill Site: TMTN - 14

Drill Site: TMTN - 15

Ref. Area: TMTN - 9

Ref. Area: TMTN - 10

Ref. Area: TMTN - 11

Ref. Area: TMTN - 12

Ref. Area: TMTN - 13

Ref. Area: TMTN - 14

Ref. Area: TMTN - 15

# ***APPENDIX B:***

## ***RAW DATA***

UP&L - TRAIL MOUNTAIN
Site B TMTN/-9
"B" - Pad and Road
Sage/Grass/PJ
Exposure: SW
Slope: 5 deg.

| Sample Date: 31 July 1993 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|
| TREES & SHRUBS | | | | | | | | |
| Artemisia tridentata | 10.00 | 0.00 | 10.00 | 25.00 | 20.00 | 10.00 | 5.00 | 25.00 |
| Chrysothamnus depressus | 5.00 | 0.00 | 5.00 | 0.00 | 0.00 | 5.00 | 0.00 | 5.00 |
| Chrysothamnus nauseosus | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Amalanchier utahensis | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Symphoricarpos oreophilus | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 15.00 | 0.00 | 5.00 |
| FORBS | | | | | | | | |
| Hymenoxys richardsonii | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lupinus argenteus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Astragalus tenellus | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Eriogonum umbellatum | 0.00 | 5.00 | 0.00 | 0.00 | 10.00 | 0.00 | 5.00 | 0.00 |
| Arenaria fendleri | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Penstemon caespitosa | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 10.00 | 15.00 | 5.00 |
| GRASSES | | | | | | | | |
| Sitanion hystrix | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Koelaria macrantha | 0.00 | 0.00 | 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| Elymus salinus | 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stipa comata | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Bromus inermis | 10.00 | 30.00 | 5.00 | 20.00 | 0.00 | 10.00 | 20.00 | 10.00 |
| Elymus spicatus | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 10.00 |
| COVER | | | | | | | | |
| Total Living Cover | 40.00 | 45.00 | 40.00 | 60.00 | 45.00 | 50.00 | 45.00 | 60.00 |
| Litter | 15.00 | 15.00 | 10.00 | 20.00 | 10.00 | 10.00 | 20.00 | 10.00 |
| Bareground | 35.00 | 35.00 | 45.00 | 15.00 | 35.00 | 30.00 | 25.00 | 5.00 |
| Rock | 10.00 | 5.00 | 5.00 | 5.00 | 10.00 | 10.00 | 10.00 | 25.00 |
| % COMPOSITION | | | | | | | | |
| Shrubs | 37.50 | 11.11 | 62.50 | 58.33 | 44.44 | 60.00 | 11.11 | 58.33 |
| Forbs | 25.00 | 11.11 | 12.50 | 0.00 | 33.33 | 20.00 | 44.44 | 8.33 |
| Grasses | 37.50 | 77.78 | 25.00 | 41.67 | 22.22 | 20.00 | 44.44 | 33.33 |

| 9.00 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 20.00 | 10.00 | 15.00 | 20.00 | 35.00 | 5.00 | 5.00 | 35.00 | 15.00 | 0.00 | 0.00 | 10.00 |
| 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 20.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 15.00 | 5.00 | 0.00 | 0.00 | 5.00 | 10.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 10.00 | 5.00 | 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 20.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 10.00 | 25.00 | 10.00 | 15.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 35.00 | 20.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15.00 | 40.00 | 0.00 | 5.00 | 15.00 | 10.00 | 15.00 | 15.00 | 15.00 | 30.00 | 5.00 | 10.00 |
| 0.00 | 0.00 | 15.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 45.00 | 70.00 | 50.00 | 60.00 | 70.00 | 45.00 | 50.00 | 60.00 | 50.00 | 50.00 | 45.00 | 50.00 |
| 20.00 | 20.00 | 5.00 | 10.00 | 5.00 | 10.00 | 10.00 | 10.00 | 10.00 | 15.00 | 20.00 | 5.00 |
| 30.00 | 5.00 | 40.00 | 25.00 | 20.00 | 40.00 | 30.00 | 25.00 | 30.00 | 25.00 | 30.00 | 40.00 |
| 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 10.00 | 5.00 | 10.00 | 10.00 | 5.00 | 5.00 |
| 55.56 | 42.86 | 50.00 | 33.33 | 57.14 | 11.11 | 40.00 | 66.67 | 30.00 | 0.00 | 11.11 | 40.00 |
| 11.11 | 0.00 | 0.00 | 16.67 | 7.14 | 11.11 | 10.00 | 8.33 | 40.00 | 20.00 | 0.00 | 0.00 |
| 33.33 | 57.14 | 50.00 | 50.00 | 35.71 | 77.78 | 50.00 | 25.00 | 30.00 | 80.00 | 88.89 | 60.00 |

UP&L - TRAIL MOUNTAIN
Site B TMTN-9
"B" - Pad and Road
Sage/Grass/PJ
Exposure: SW
Slope: 5 deg.
Sample Date: 31 July 1993

| Mean | SDev | Freq | |
|---|---|---|---|
| | | | TREES & SHRUBS |
| 13.75 | 10.35 | 85.00 | Artemisia tridentata |
| 1.25 | 2.17 | 25.00 | Chrysothamnus depressus |
| 0.50 | 1.50 | 10.00 | Chrysothamnus nauseosus |
| 1.50 | 4.77 | 10.00 | Amalanchier utahensis |
| 3.75 | 5.21 | 40.00 | Symphoricarpos oreophilus |
| | | | FORBS |
| 0.50 | 2.18 | 5.00 | Hymenoxys richardsonii |
| 0.25 | 1.09 | 5.00 | Lupinus argenteus |
| 0.50 | 2.18 | 5.00 | Astragalus tenellus |
| 2.25 | 3.34 | 35.00 | Eriogonum umbellatum |
| 0.50 | 1.50 | 10.00 | Arenaria fendleri |
| 2.75 | 5.58 | 25.00 | Penstemon caespitosa |
| | | | GRASSES |
| 0.50 | 2.18 | 5.00 | Sitanion hystrix |
| 4.00 | 6.63 | 35.00 | Koelaria macrantha |
| 3.25 | 8.55 | 20.00 | Elymus salinus |
| 0.25 | 1.09 | 5.00 | Stipa comata |
| 14.00 | 9.95 | 90.00 | Bromus inermis |
| 2.00 | 4.30 | 20.00 | Elymus spicatus |

| | | |
|---|---|---|
| | | COVER |
| 51.50 | 8.67 | Total Living Cover |
| 12.50 | 5.12 | Litter |
| 28.25 | 10.52 | Bareground |
| 7.75 | 4.60 | Rock |
| | | % COMPOSITION |
| 40.29 | 20.03 | Shrubs |
| 13.95 | 12.87 | Forbs |
| 46.99 | 20.33 | Grasses |

uP&L - TRAIL MOUNTAIN
Site C TMTN-10
"C" - Pad and Road
Sage/Grass/PJ
Exposure: S SW
Slope: 7 deg.

| Sample Date: 15 July 1993 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|
| TREES & SHRUBS | | | | | | | | |
| Artemisia tridentata | 25.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Amalanchier utahensis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Symphoricarpos oreophilus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Chrysothamnus depressus | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 |
| Chrysothamnus viscidiflor | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FORBS | | | | | | | | |
| Hedysarum boreale | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.00 | 0.00 |
| Chaenactus douglasii | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 |
| Leptodactylon pungens | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 5.00 |
| Penstemon pachyphyllus | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| Calochortus nuttallii | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| stelleja linariaefolia | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 5.00 | 10.00 |
| stragalus tenellus | 5.00 | 20.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 5.00 |
| Eriogonum umbellatum | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| Machaeranthera grindelioi | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 5.00 |
| Gilia aggregata | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 |
| Arenaria fendleri | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 10.00 | 0.00 |
| Hymenopappus filifolius | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| GRASSES | | | | | | | | |
| Koeleria macrantha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 |
| Agropyron cristatum | 0.00 | 5.00 | 0.00 | 10.00 | 0.00 | 0.00 | 5.00 | 5.00 |
| Bromus inermis | 0.00 | 5.00 | 0.00 | 30.00 | 0.00 | 0.00 | 3.00 | 0.00 |
| Elymus salinus | 5.00 | 0.00 | 10.00 | 0.00 | 20.00 | 5.00 | 10.00 | 15.00 |
| COVER | | | | | | | | |
| Total Living Cover | 35.00 | 40.00 | 25.00 | 45.00 | 35.00 | 30.00 | 45.00 | 45.00 |
| Litter | 5.00 | 10.00 | 20.00 | 25.00 | 10.00 | 10.00 | 15.00 | 25.00 |
| Bareground | 50.00 | 40.00 | 30.00 | 25.00 | 45.00 | 50.00 | 30.00 | 25.00 |
| Rock | 10.00 | 10.00 | 25.00 | 5.00 | 10.00 | 10.00 | 10.00 | 5.00 |
| % COMPOSITION | | | | | | | | |
| Shrubs | 71.43 | 25.00 | 20.00 | 0.00 | 0.00 | 0.00 | 11.11 | 0.00 |
| Forbs | 14.29 | 50.00 | 40.00 | 11.11 | 42.86 | 66.67 | 48.89 | 55.56 |
| asses | 14.29 | 25.00 | 40.00 | 88.89 | 57.14 | 33.33 | 40.00 | 44.44 |

| 9.00 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.00 | 5.00 | 0.00 | 45.00 | 10.00 | 25.00 | 10.00 | 5.00 | 0.00 | 5.00 | 25.00 | 0.00 |
| 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 30.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 3.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 5.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 7.00 | 0.00 | 0.00 | 15.00 | 15.00 | 5.00 | 5.00 | 0.00 | 5.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 30.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 5.00 | 0.00 |
| 0.00 | 5.00 | 5.00 | 5.00 | 20.00 | 15.00 | 10.00 | 10.00 | 0.00 | 10.00 | 0.00 | 35.00 |
| 25.00 | 30.00 | 40.00 | 55.00 | 50.00 | 55.00 | 35.00 | 30.00 | 40.00 | 25.00 | 35.00 | 40.00 |
| 73.00 | 10.00 | 25.00 | 10.00 | 5.00 | 20.00 | 20.00 | 30.00 | 20.00 | 25.00 | 35.00 | 20.00 |
| 1.00 | 45.00 | 30.00 | 25.00 | 20.00 | 20.00 | 40.00 | 35.00 | 35.00 | 45.00 | 29.00 | 30.00 |
| 1.00 | 15.00 | 5.00 | 10.00 | 25.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 1.00 | 10.00 |
| 80.00 | 16.67 | 75.00 | 81.82 | 30.00 | 45.45 | 57.14 | 33.33 | 0.00 | 20.00 | 71.43 | 0.00 |
| 0.00 | 50.00 | 12.50 | 9.09 | 30.00 | 27.27 | 14.29 | 33.33 | 0.00 | 40.00 | 14.29 | 12.50 |
| 20.00 | 33.33 | 12.50 | 9.09 | 40.00 | 27.27 | 28.57 | 33.33 | 100.00 | 40.00 | 14.29 | 87.50 |

UP&L - TRAIL MOUNTAIN
Site C TMTN-10
"C" - Pad and Road
Sage/Grass/PJ
Exposure: S SW
Slope: 7 deg.
Sample Date: 15 July 1993

| Mean | SDev | Freq | |
|---|---|---|---|
| | | | TREES & SHRUBS |
| 8.50 | 11.95 | 55.00 | Artemisia tridentata |
| 1.00 | 2.55 | 15.00 | Amalanchier utahensis |
| 1.50 | 6.54 | 5.00 | Symphoricarpos oreophilus |
| 1.00 | 2.55 | 15.00 | Chrysothamnus depressus |
| 0.25 | 1.09 | 5.00 | Chrysothamnus viscidiflorus |
| | | | FORBS |
| 0.35 | 1.53 | 5.00 | Hedysarum boreale |
| 0.50 | 1.50 | 10.00 | Chaenactus douglasii |
| 1.00 | 2.00 | 20.00 | Leptodactylon pungens |
| 0.25 | 1.09 | 5.00 | Penstemon pachyphyllus |
| 0.25 | 1.09 | 5.00 | Calochortus nuttallii |
| 1.40 | 2.69 | 25.00 | Castelleja linariaefolia |
| 2.25 | 4.60 | 30.00 | Astragalus tenellus |
| 0.25 | 1.09 | 5.00 | Eriogonum umbellatum |
| 0.50 | 1.50 | 10.00 | Machaeranthera grindelioides |
| 0.25 | 1.09 | 5.00 | Gilia aggregata |
| 3.35 | 4.87 | 40.00 | Arenaria fendleri |
| 0.25 | 1.09 | 5.00 | Hymenopappus filifolius |
| | | | GRASSES |
| 0.25 | 1.09 | 5.00 | Koeleria macrantha |
| 3.25 | 6.76 | 35.00 | Agropyron cristatum |
| 2.65 | 6.78 | 36.00 | Bromus inermis |
| 9.00 | 8.60 | 75.00 | Elymus salinus |

| | | |
|---|---|---|
| | | COVER |
| 38.00 | 9.00 | Total Living Cover |
| 20.65 | 14.49 | Litter |
| 32.50 | 11.66 | Bareground |
| 8.85 | 6.37 | Rock |
| | | % COMPOSITION |
| 32.24 | 29.76 | Shrubs |
| 28.63 | 19.30 | Forbs |
| 39.45 | 25.14 | Grasses |

UP&L - TRAIL MOUNTAIN
Site D TMTN - 11
"D" - Pad and Road
PJ
Exposure: S SW
Slope: 2 - 6 deg.

| Sample Date: 1 Aug 1993 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|
| TREES & SHRUBS | | | | | | | | |
| Artemisia tridentata | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pinus edulis | 0.00 | 10.00 | 0.00 | 40.00 | 55.00 | 0.00 | 20.00 | 25.00 |
| Chrysothamnus viscidiflor | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Gutierrezia sarothae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15.00 | 0.00 | 0.00 |
| Artemisia nova | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 |
| Opuntia polyacantha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Purshia tridentata | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FORBS | | | | | | | | |
| Leptodactylon pungens | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Machaeranthera grindelioi | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15.00 | 0.00 |
| Astragalus tenellus | 0.00 | 0.00 | 25.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 |
| GRASSES | | | | | | | | |
| Elymus salinus | 20.00 | 10.00 | 0.00 | 0.00 | 0.00 | 10.00 | 5.00 | 0.00 |
| Stipa hymenoides | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| COVER | | | | | | | | |
| Overstory | 0.00 | 0.00 | 0.00 | 25.00 | 35.00 | 0.00 | 25.00 | 25.00 |
| Understory | 35.00 | 25.00 | 35.00 | 20.00 | 20.00 | 25.00 | 25.00 | 5.00 |
| Litter | 5.00 | 5.00 | 10.00 | 5.00 | 5.00 | 5.00 | 5.00 | 10.00 |
| Bareground | 10.00 | 25.00 | 35.00 | 40.00 | 30.00 | 10.00 | 25.00 | 20.00 |
| Rock | 50.00 | 45.00 | 20.00 | 10.00 | 10.00 | 60.00 | 20.00 | 40.00 |
| % COMPOSITION | | | | | | | | |
| Shrubs | 28.57 | 40.00 | 0.00 | 100.00 | 100.00 | 60.00 | 40.00 | 100.00 |
| Forbs | 14.29 | 20.00 | 71.43 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| Grasses | 57.14 | 40.00 | 28.57 | 0.00 | 0.00 | 40.00 | 10.00 | 0.00 |

| 9.00 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10.00 | 0.00 | 0.00 | 25.00 | 0.00 | 35.00 | 0.00 | 60.00 | 0.00 | 40.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 5.00 | 5.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15.00 | 0.00 | 0.00 | 5.00 |
| 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 25.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 5.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 10.00 | 5.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 5.00 | 10.00 |
| 25.00 | 5.00 | 20.00 | 20.00 | 20.00 | 0.00 | 10.00 | 0.00 | 0.00 | 5.00 | 15.00 | 25.00 |
| 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 40.00 | 0.00 | 10.00 | 0.00 | 0.00 |
| 40.00 | 25.00 | 40.00 | 45.00 | 30.00 | 35.00 | 35.00 | 20.00 | 25.00 | 40.00 | 25.00 | 45.00 |
| 40.00 | 10.00 | 20.00 | 10.00 | 10.00 | 1.00 | 10.00 | 38.00 | 5.00 | 15.00 | 5.00 | 10.00 |
| 5.00 | 10.00 | 20.00 | 40.00 | 50.00 | 1.00 | 45.00 | 1.00 | 60.00 | 10.00 | 50.00 | 40.00 |
| 5.00 | 55.00 | 20.00 | 5.00 | 10.00 | 63.00 | 10.00 | 1.00 | 10.00 | 25.00 | 20.00 | 5.00 |
| 30.00 | 20.00 | 37.50 | 55.56 | 16.67 | 100.00 | 71.43 | 100.00 | 60.00 | 80.00 | 0.00 | 11.11 |
| 0.00 | 60.00 | 12.50 | 0.00 | 16.67 | 0.00 | 0.00 | 0.00 | 20.00 | 10.00 | 40.00 | 22.22 |
| 70.00 | 20.00 | 50.00 | 44.44 | 66.67 | 0.00 | 28.57 | 0.00 | 20.00 | 10.00 | 60.00 | 55.56 |

UP&L - TRAIL MOUNTAIN
Site D - TMTN - 11
"D" - Pad and Road
PJ
Exposure: S SW
Slope: 2 - 6 deg.
Sample Date: 1 Aug 1993

| Mean | SDev | Freq | |
|---|---|---|---|
| | | | TREES & SHRUBS |
| 0.50 | 2.18 | 5.00 | Artemisia tridentata |
| 16.00 | 19.72 | 50.00 | Pinus edulis |
| 0.25 | 1.09 | 5.00 | Chrysothamnus viscidiflorus |
| 1.50 | 3.57 | 20.00 | Gutierrezia sarothae |
| 1.25 | 3.49 | 15.00 | Artemisia nova |
| 0.25 | 1.09 | 5.00 | Opuntia polyacantha |
| 1.75 | 5.76 | 10.00 | Purshia tridentata |
| | | | FORBS |
| 0.75 | 1.79 | 15.00 | Leptodactylon pungens |
| 1.25 | 3.49 | 16.00 | Machaeranthera grindelioides |
| 3.75 | 6.10 | 35.00 | Astragalus tenellus |
| | | | GRASSES |
| 9.50 | 9.07 | 65.00 | Elymus salinus |
| 1.25 | 3.11 | 15.00 | Stipa hymenoides |
| | | | COVER |
| 8.50 | 13.14 | | Overstory |
| 29.75 | 9.81 | | Understory |
| 11.20 | 10.15 | | Litter |
| 26.35 | 17.52 | | Bareground |
| 24.20 | 19.76 | | Rock |
| | | | % COMPOSITION |
| 52.54 | 34.42 | | Shrubs |
| 16.86 | 21.39 | | Forbs |
| 30.05 | 24.03 | | Grasses |

UP&L - TRAIL MOUNTAIN
Site E - T MTN - 12
"E" - Pad and Road - Proposed
PJ
Exposure: Var.
Slope: 2 - 6 deg.

| Sample Date: 1 Aug 1993 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|
| TREES & SHRUBS | | | | | | | | |
| Pinus edulis | 0.00 | 25.00 | 0.00 | 0.00 | 0.00 | 20.00 | 0.00 | 23.00 |
| Ceratoides lanata | 45.00 | 0.00 | 0.00 | 45.00 | 25.00 | 0.00 | 0.00 | 0.00 |
| Juniperus osteosperma | 0.00 | 20.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Purshia tridentata | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FORBS | | | | | | | | |
| Chenopodium fremontii | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Leptodactylon pungens | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| GRASSES | | | | | | | | |
| Elymus salinus | 5.00 | 5.00 | 0.00 | 5.00 | 5.00 | 5.00 | 0.00 | 2.00 |
| Stipa hymenoides | 0.00 | 0.00 | 20.00 | 0.00 | 0.00 | 0.00 | 25.00 | 0.00 |
| COVER | | | | | | | | |
| Overstory | 45.00 | 25.00 | 0.00 | 50.00 | 30.00 | 25.00 | 0.00 | 0.00 |
| Understory | 5.00 | 25.00 | 20.00 | 5.00 | 5.00 | 5.00 | 25.00 | 25.00 |
| Litter | 40.00 | 25.00 | 5.00 | 43.00 | 60.00 | 50.00 | 30.00 | 5.00 |
| Bareground | 5.00 | 5.00 | 35.00 | 1.00 | 4.00 | 15.00 | 35.00 | 50.00 |
| Rock | 5.00 | 20.00 | 40.00 | 1.00 | 1.00 | 5.00 | 10.00 | 20.00 |
| % COMPOSITION | | | | | | | | |
| Shrubs | 90.00 | 90.00 | 0.00 | 81.82 | 71.43 | 66.67 | 0.00 | 92.00 |
| Forbs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grasses | 10.00 | 10.00 | 100.00 | 9.09 | 14.29 | 16.67 | 100.00 | 8.00 |

| 9.00 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 50.00 | 0.00 | 65.00 | 45.00 | 64.00 | 0.00 | 30.00 | 35.00 | 0.00 | 0.00 | 25.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 24.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 55.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20.00 | 5.00 | 35.00 | 0.00 | 10.00 | 0.00 | 0.00 | 10.00 | 25.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 |
| 0.00 | 30.00 | 0.00 | 35.00 | 30.00 | 64.00 | 0.00 | 10.00 | 40.00 | 30.00 | 24.00 | 25.00 |
| 20.00 | 30.00 | 35.00 | 30.00 | 25.00 | 1.00 | 25.00 | 30.00 | 20.00 | 25.00 | 1.00 | 5.00 |
| 9.00 | 34.00 | 43.00 | 33.00 | 43.00 | 31.00 | 10.00 | 30.00 | 38.00 | 35.00 | 25.00 | 60.00 |
| 70.00 | 5.00 | 20.00 | 1.00 | 1.00 | 2.00 | 55.00 | 5.00 | 1.00 | 5.00 | 10.00 | 5.00 |
| 1.00 | 1.00 | 2.00 | 1.00 | 1.00 | 2.00 | 10.00 | 25.00 | 1.00 | 5.00 | 40.00 | 5.00 |
| 0.00 | 83.33 | 0.00 | 100.00 | 81.82 | 98.46 | 20.00 | 75.00 | 58.33 | 100.00 | 96.00 | 83.33 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.54 | 20.00 | 0.00 | 0.00 | 0.00 | 4.00 | 0.00 |
| 100.00 | 16.67 | 100.00 | 0.00 | 18.18 | 0.00 | 60.00 | 25.00 | 41.67 | 0.00 | 0.00 | 16.67 |

UP&L - TRAIL MOUNTAIN
Site E TMTN-12
"E" - Pad and Road - Proposed
PJ
Exposure: Var.
Slope: 2 - 6 deg.
Sample Date: 1 Aug 1993

| 21.00 | 22.00 | 23.00 | 24.00 | 25.00 | Mean | SDev | Freq | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | TREES & SHRUBS |
| 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 17.28 | 22.08 | 44.00 | Pinus edulis |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.76 | 13.34 | 20.00 | Ceratoides lanata |
| 0.00 | 0.00 | 50.00 | 0.00 | 0.00 | 5.00 | 14.56 | 12.00 | Juniperus osteosperma |
| 25.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 4.90 | 20.00 | Purshia tridentata |
| | | | | | | | | FORBS |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.27 | 8.00 | Chenopodium fremontii |
| 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.40 | 1.36 | 8.00 | Leptodactylon pungens |
| | | | | | | | | GRASSES |
| 0.00 | 25.00 | 10.00 | 25.00 | 5.00 | 7.88 | 9.85 | 64.00 | Elymus salinus |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.80 | 6.65 | 20.00 | Stipa hymenoides |
| | | | | | | | | COVER |
| 0.00 | 0.00 | 50.00 | 0.00 | 50.00 | 22.52 | 19.92 | | Overstory |
| 25.00 | 25.00 | 10.00 | 30.00 | 5.00 | 18.28 | 10.81 | | Understory |
| 15.00 | 5.00 | 10.00 | 5.00 | 10.00 | 27.76 | 16.99 | | Litter |
| 50.00 | 65.00 | 20.00 | 60.00 | 5.00 | 21.20 | 23.05 | | Bareground |
| 10.00 | 5.00 | 10.00 | 5.00 | 30.00 | 10.24 | 11.78 | | Rock |
| | | | | | | | | % COMPOSITION |
| 100.00 | 0.00 | 83.33 | 0.00 | 90.91 | 62.50 | 38.67 | | Shrubs |
| 0.00 | 0.00 | 0.00 | 0.00 | 9.09 | 1.39 | 4.26 | | Forbs |
| 0.00 | 100.00 | 16.67 | 83.33 | 9.09 | 34.21 | 37.80 | | Grasses |

UP&L - TRAIL MOUNTAIN
Site F TMTN-13
"F" - Drill Pad & Access Road
PJ
Exposure: SW
Slope: 12 deg.

| Sample Date: 14 July 1993 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|
| TREES & SHRUBS | | | | | | | | |
| Artemisia tridentata | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pinus edulis | 0.00 | 0.00 | 30.00 | 15.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ceratoides lanata | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 |
| Amalanchier utahensis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FORBS | | | | | | | | |
| Orthocarpos tolmiei | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Erigeron sp. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Calochortus nuttallii | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Leptodactylon pungens | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| stragalus megacarpos | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 |
| Penstemon pachyphyllus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 |
| Arenaria fendleri | 15.00 | 10.00 | 0.00 | 5.00 | 0.00 | 5.00 | 10.00 | 20.00 |
| Hymenoxys richardsonii | 0.00 | 5.00 | 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| Astragalus tenellus | 0.00 | 5.00 | 0.00 | 5.00 | 0.00 | 0.00 | 5.00 | 5.00 |
| Astragalus lancearius | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 |
| GRASSES | | | | | | | | |
| Elymus salinus | 20.00 | 15.00 | 0.00 | 25.00 | 0.00 | 0.00 | 25.00 | 15.00 |
| Koelaria macrantha | 0.00 | 0.00 | 35.00 | 0.00 | 55.00 | 40.00 | 0.00 | 0.00 |
| Festuca ovina | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| COVER | | | | | | | | |
| Total Living Cover | 40.00 | 35.00 | 65.00 | 65.00 | 70.00 | 55.00 | 40.00 | 45.00 |
| Litter | 15.00 | 10.00 | 33.00 | 30.00 | 5.00 | 5.00 | 10.00 | 10.00 |
| Bareground | 35.00 | 45.00 | 1.00 | 4.00 | 5.00 | 35.00 | 25.00 | 40.00 |
| Rock | 10.00 | 10.00 | 1.00 | 1.00 | 20.00 | 5.00 | 25.00 | 5.00 |
| % COMPOSITION | | | | | | | | |
| Shrubs | 12.50 | 0.00 | 46.15 | 23.08 | 0.00 | 0.00 | 0.00 | 11.11 |
| Forbs | 37.50 | 57.14 | 0.00 | 23.08 | 21.43 | 27.27 | 37.50 | 55.56 |
| Grasses | 50.00 | 42.86 | 53.85 | 53.85 | 78.57 | 72.73 | 62.50 | 33.33 |

| 9.00 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 |
| 15.00 | 0.00 | 0.00 | 75.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 5.00 | 0.00 | 15.00 | 0.00 |
| 0.00 | 3.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 |
| 0.00 | 5.00 | 0.00 | 0.00 | 5.00 | 5.00 | 10.00 | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 |
| 5.00 | 5.00 | 10.00 | 0.00 | 10.00 | 5.00 | 10.00 | 15.00 | 5.00 | 10.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 0.00 | 0.00 | 0.00 | 5.00 | 20.00 | 10.00 | 10.00 | 5.00 | 0.00 | 0.00 | 25.00 |
| 10.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 15.00 | 0.00 | 0.00 |
| 0.00 | 27.00 | 10.00 | 0.00 | 20.00 | 15.00 | 5.00 | 15.00 | 5.00 | 15.00 | 30.00 | 5.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75.00 | 50.00 | 50.00 | 75.00 | 45.00 | 55.00 | 60.00 | 45.00 | 45.00 | 40.00 | 50.00 | 45.00 |
| 23.00 | 20.00 | 10.00 | 5.00 | 15.00 | 10.00 | 5.00 | 20.00 | 10.00 | 15.00 | 20.00 | 10.00 |
| 1.00 | 25.00 | 35.00 | 15.00 | 35.00 | 30.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 30.00 |
| 1.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 10.00 | 10.00 | 20.00 | 20.00 | 5.00 | 15.00 |
| 26.67 | 10.00 | 10.00 | 100.00 | 0.00 | 0.00 | 16.67 | 0.00 | 22.22 | 0.00 | 0.00 | 22.22 |
| 26.67 | 36.00 | 70.00 | 0.00 | 55.56 | 72.73 | 75.00 | 66.67 | 66.67 | 62.50 | 40.00 | 66.67 |
| 46.67 | 54.00 | 20.00 | 0.00 | 44.44 | 27.27 | 8.33 | 33.33 | 11.11 | 37.50 | 60.00 | 11.11 |

UP&L - TRAIL MOUNTAIN
Site F TMTN -13
"F" - Drill Pad & Access Road
PJ
Exposure: SW
Slope: 12 deg.
Sample Date: 14 July 1993

| Mean | SDev | Freq | |
|---|---|---|---|
| | | | TREES & SHRUBS |
| 1.00 | 2.55 | 15.00 | Artemisia tridentata |
| 6.75 | 17.41 | 20.00 | Pinus edulis |
| 0.50 | 1.50 | 10.00 | Ceratoides lanata |
| 1.25 | 3.11 | 15.00 | Amalanchier utahensis |
| | | | FORBS |
| 0.25 | 1.09 | 5.00 | Orthocarpos tolmiei |
| 2.00 | 4.00 | 25.00 | Erigeron sp. |
| 0.65 | 1.59 | 15.00 | Calochortus nuttallii |
| 1.75 | 2.86 | 30.00 | Leptodactylon pungens |
| 0.25 | 1.09 | 5.00 | Astragalus megacarpos |
| 1.00 | 2.00 | 20.00 | Penstemon pachyphyllus |
| 7.00 | 5.57 | 75.00 | Arenaria fendleri |
| 1.25 | 2.17 | 25.00 | Hymenoxys richardsonii |
| 5.00 | 6.71 | 55.00 | Astragalus tenellus |
| 2.75 | 4.87 | 25.00 | Astragalus lancearius |
| | | | GRASSES |
| 12.35 | 9.82 | 75.00 | Elymus salinus |
| 6.50 | 15.82 | 15.00 | Koelaria macrantha |
| 2.25 | 7.82 | 10.00 | Festuca ovina |
| | | | COVER |
| 52.50 | 11.78 | | Total Living Cover |
| 14.05 | 7.89 | | Litter |
| 24.30 | 12.57 | | Bareground |
| 9.15 | 6.99 | | Rock |
| | | | % COMPOSITION |
| 15.03 | 23.02 | | Shrubs |
| 44.90 | 22.73 | | Forbs |
| 40.07 | 21.38 | | Grasses |

UP&L - TRAIL MOUNTAIN
Site G TMTD -14
"G" - Proposed Disturbed Pad and Road
Sage/Grass/PJ
Exposure: SW
Slope: 5 deg.

| Sample Date: 31 July 1993 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|
| TREES & SHRUBS | | | | | | | | |
| Chrysothamnus depressus | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pinus edulis | 0.00 | 20.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Artemisia nova | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| Chrysothamnus nauseosus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 |
| Artemisia tridentata | 25.00 | 0.00 | 0.00 | 20.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Chrysothamnus viscidiflor | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 |
| Purshia tridentata | 30.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FORBS | | | | | | | | |
| Hymenopappus filifolius | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Machaeranthera canescens | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Astragalus tenellus | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 5.00 | 0.00 |
| Penstemon caespitosus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| thocarpos tolmiei | 5.00 | 0.00 | 10.00 | 5.00 | 0.00 | 10.00 | 0.00 | 0.00 |
| ymenoxys richardsonii | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 |
| Arenaria fendleri | 0.00 | 0.00 | 0.00 | 5.00 | 5.00 | 5.00 | 5.00 | 15.00 |
| Leptodactylon pungens | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Erigeron sp. | 0.00 | 5.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| Astragalus megacarpos | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 |
| GRASSES | | | | | | | | |
| Elymus salinus | 5.00 | 20.00 | 15.00 | 15.00 | 50.00 | 35.00 | 30.00 | 0.00 |
| Bromus inermis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Koelaria macrantha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 |
| Stipa comata | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| COVER | | | | | | | | |
| Total Living Cover | 70.00 | 50.00 | 45.00 | 55.00 | 65.00 | 55.00 | 45.00 | 30.00 |
| Litter | 4.00 | 10.00 | 15.00 | 10.00 | 10.00 | 20.00 | 10.00 | 5.00 |
| Bareground | 25.00 | 38.00 | 35.00 | 30.00 | 23.00 | 20.00 | 40.00 | 60.00 |
| Rock | 1.00 | 2.00 | 5.00 | 5.00 | 2.00 | 5.00 | 5.00 | 5.00 |
| % COMPOSITION | | | | | | | | |
| Shrubs | 78.57 | 40.00 | 22.22 | 36.36 | 7.69 | 9.09 | 0.00 | 16.67 |
| orbs | 7.14 | 20.00 | 44.44 | 36.36 | 15.38 | 27.27 | 22.22 | 83.33 |
| asses | 14.29 | 40.00 | 33.33 | 27.27 | 76.92 | 63.64 | 77.78 | 0.00 |

| 9.00 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 |
| 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 0.00 | 0.00 | 5.00 | 0.00 | 5.00 | 0.00 | 0.00 | 10.00 | 5.00 | 5.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 10.00 | 45.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 0.00 | 10.00 | 0.00 | 0.00 | 10.00 | 10.00 | 10.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 5.00 | 0.00 | 5.00 | 0.00 | 10.00 | 5.00 | 0.00 | 0.00 | 10.00 | 5.00 | 10.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15.00 | 0.00 | 15.00 | 0.00 | 30.00 | 30.00 | 25.00 | 10.00 | 30.00 | 0.00 | 0.00 | 30.00 |
| 5.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 40.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 25.00 | 40.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35.00 | 50.00 | 40.00 | 65.00 | 45.00 | 65.00 | 50.00 | 40.00 | 50.00 | 50.00 | 50.00 | 50.00 |
| 5.00 | 25.00 | 5.00 | 5.00 | 25.00 | 10.00 | 10.00 | 3.00 | 4.00 | 3.00 | 10.00 | 10.00 |
| 55.00 | 20.00 | 50.00 | 25.00 | 25.00 | 20.00 | 35.00 | 55.00 | 45.00 | 45.00 | 5.00 | 35.00 |
| 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 2.00 | 1.00 | 2.00 | 35.00 | 5.00 |
| 14.29 | 10.00 | 12.50 | 7.69 | 0.00 | 7.69 | 0.00 | 25.00 | 30.00 | 10.00 | 10.00 | 20.00 |
| 28.57 | 10.00 | 50.00 | 92.31 | 11.11 | 46.15 | 50.00 | 25.00 | 10.00 | 40.00 | 10.00 | 20.00 |
| 57.14 | 80.00 | 37.50 | 0.00 | 88.89 | 46.15 | 50.00 | 50.00 | 60.00 | 50.00 | 80.00 | 60.00 |

UP&L - TRAIL MOUNTAIN
Site G TMTN-H
"G" - Proposed Disturbed Pad and Road
Sage/Grass/PJ
Exposure: SW
Slope: 5 deg.
Sample Date: 31 July 1993

| Mean | SDev | Freq | |
|---|---|---|---|
| | | | TREES & SHRUBS |
| 0.50 | 1.50 | 10.00 | Chrysothamnus depressus |
| 1.00 | 4.36 | 5.00 | Pinus edulis |
| 0.75 | 2.38 | 10.00 | Artemisia nova |
| 1.25 | 2.68 | 20.00 | Chrysothamnus nauseosus |
| 2.25 | 6.80 | 10.00 | Artemisia tridentata |
| 2.00 | 2.92 | 35.00 | Chrysothamnus viscidiflorus |
| 1.75 | 6.57 | 10.00 | Purshia tridentata |
| | | | FORBS |
| 0.25 | 1.09 | 5.00 | Hymenopappus filifolius |
| 0.25 | 1.09 | 5.00 | Machaeranthera canescens |
| 4.25 | 10.03 | 30.00 | Astragalus tenellus |
| 0.25 | 1.09 | 5.00 | Penstemon caespitosus |
| 4.00 | 4.36 | 50.00 | Orthocarpos tolmiei |
| 1.50 | 3.20 | 20.00 | Hymenoxys richardsonii |
| 4.25 | 4.26 | 60.00 | Arenaria fendleri |
| 0.25 | 1.09 | 5.00 | Leptodactylon pungens |
| 0.50 | 1.50 | 10.00 | Erigeron sp. |
| 0.50 | 1.50 | 10.00 | Astragalus megacarpos |
| | | | GRASSES |
| 17.75 | 14.10 | 75.00 | Elymus salinus |
| 1.25 | 3.11 | 15.00 | Bromus inermis |
| 5.50 | 12.74 | 20.00 | Koelaria macrantha |
| 0.25 | 1.09 | 5.00 | Stipa comata |

| | | |
|---|---|---|
| | | COVER |
| 50.25 | 10.06 | Total Living Cover |
| 9.95 | 6.50 | Litter |
| 34.30 | 14.00 | Bareground |
| 5.50 | 6.94 | Rock |
| | | % COMPOSITION |
| 18.91 | 17.77 | Shrubs |
| 32.47 | 23.03 | Forbs |
| 49.65 | 25.08 | Grasses |

UP&L - TRAIL MOUNTAIN
Site A TMTN-15
"A" - Pad and Road
Sage/Grass/PJ
Exposure: S SW
Slope: 11 deg.

| Sample Date: 31 July 1993 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|
| TREES & SHRUBS | | | | | | | | |
| Chrysothamnus viscidiflor | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ephedra viridis | 0.00 | 15.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Artemisia tridentata | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 5.00 | 0.00 |
| Purshia tridentata | 20.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Artemisia nova | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Chrysothamnus depressus | 0.00 | 0.00 | 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| Gutierrezia sarothae | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| FORBS | | | | | | | | |
| Astragalus tenellus | 5.00 | 10.00 | 0.00 | 5.00 | 10.00 | 5.00 | 15.00 | 0.00 |
| Castelleja linariifolia | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Leptodactylon pungens | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Machaeranthera grindelioi | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 |
| Arenaria fendleri | 0.00 | 0.00 | 0.00 | 5.00 | 10.00 | 0.00 | 10.00 | 0.00 |
| rigeron sp. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Medicago sativa | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| GRASSES | | | | | | | | |
| Elymus salinus | 15.00 | 10.00 | 25.00 | 25.00 | 5.00 | 30.00 | 25.00 | 40.00 |
| Stipa hymenoides | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Bromus inermis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| COVER | | | | | | | | |
| Total Living Cover | 50.00 | 45.00 | 35.00 | 40.00 | 35.00 | 50.00 | 55.00 | 40.00 |
| Litter | 20.00 | 10.00 | 5.00 | 5.00 | 10.00 | 15.00 | 15.00 | 15.00 |
| Bareground | 25.00 | 35.00 | 40.00 | 30.00 | 30.00 | 20.00 | 10.00 | 40.00 |
| Rock | 5.00 | 10.00 | 20.00 | 25.00 | 25.00 | 15.00 | 20.00 | 5.00 |
| % COMPOSITION | | | | | | | | |
| Shrubs | 60.00 | 44.44 | 0.00 | 12.50 | 28.57 | 20.00 | 9.09 | 0.00 |
| Forbs | 10.00 | 33.33 | 28.57 | 25.00 | 57.14 | 20.00 | 45.45 | 0.00 |
| Grasses | 30.00 | 22.22 | 71.43 | 62.50 | 14.29 | 60.00 | 45.45 | 100.00 |

| 9.00 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 7.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 5.00 | 0.00 | 5.00 | 5.00 | 5.00 | 0.00 | 15.00 | 0.00 | 0.00 | 5.00 |
| 0.00 | 30.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 5.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 5.00 | 10.00 | 15.00 | 5.00 | 0.00 | 15.00 | 10.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 5.00 | 0.00 | 15.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 5.00 |
| 40.00 | 25.00 | 25.00 | 25.00 | 30.00 | 18.00 | 40.00 | 15.00 | 15.00 | 20.00 | 0.00 | 15.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 5.00 |
| 40.00 | 65.00 | 40.00 | 45.00 | 40.00 | 40.00 | 55.00 | 35.00 | 40.00 | 35.00 | 30.00 | 40.00 |
| 25.00 | 15.00 | 5.00 | 15.00 | 20.00 | 15.00 | 5.00 | 25.00 | 25.00 | 10.00 | 15.00 | 15.00 |
| 30.00 | 15.00 | 50.00 | 25.00 | 30.00 | 40.00 | 35.00 | 30.00 | 30.00 | 45.00 | 5.00 | 10.00 |
| 5.00 | 5.00 | 5.00 | 15.00 | 10.00 | 5.00 | 5.00 | 10.00 | 5.00 | 10.00 | 50.00 | 35.00 |
| 0.00 | 46.15 | 25.00 | 11.11 | 25.00 | 30.00 | 9.09 | 0.00 | 50.00 | 14.29 | 0.00 | 12.50 |
| 0.00 | 15.38 | 12.50 | 33.33 | 0.00 | 25.00 | 18.18 | 57.14 | 12.50 | 0.00 | 66.67 | 37.50 |
| 100.00 | 38.46 | 62.50 | 55.56 | 75.00 | 45.00 | 72.73 | 42.86 | 37.50 | 85.71 | 33.33 | 50.00 |

UP&L - TRAIL MOUNTAIN
Site A - TMTN-15
"A" - Pad and Road
Sage/Grass/PJ
Exposure: S SW
Slope: 11 deg.
Sample Date: 31 July 1993

| Mean | SDev | Freq | |
|---|---|---|---|
| | | | TREES & SHRUBS |
| 0.85 | 2.06 | 15.00 | Chrysothamnus viscidiflorus |
| 0.75 | 3.27 | 5.00 | Ephedra viridis |
| 3.25 | 4.26 | 45.00 | Artemisia tridentata |
| 2.50 | 7.66 | 10.00 | Purshia tridentata |
| 0.25 | 1.09 | 5.00 | Artemisia nova |
| 1.25 | 2.17 | 25.00 | Chrysothamnus depressus |
| 0.25 | 1.09 | 5.00 | Gutierrezia sarothae |
| | | | FORBS |
| 5.75 | 5.31 | 65.00 | Astragalus tenellus |
| 0.25 | 1.09 | 5.00 | Castelleja linariifolia |
| 0.25 | 1.09 | 5.00 | Leptodactylon pungens |
| 1.75 | 3.63 | 25.00 | Machaeranthera grindelioides |
| 1.50 | 3.20 | 20.00 | Arenaria fendleri |
| 0.25 | 1.09 | 5.00 | Erigeron sp. |
| 0.50 | 1.50 | 10.00 | Medicago sativa |
| | | | GRASSES |
| 22.15 | 10.69 | 95.00 | Elymus salinus |
| 0.50 | 2.18 | 5.00 | Stipa hymenoides |
| 0.75 | 2.38 | 10.00 | Bromus inermis |
| | | | COVER |
| 42.75 | 8.29 | | Total Living Cover |
| 14.25 | 6.38 | | Litter |
| 28.75 | 11.71 | | Bareground |
| 14.25 | 11.76 | | Rock |
| | | | % COMPOSITION |
| 21.29 | 17.98 | | Shrubs |
| 24.89 | 19.66 | | Forbs |
| 55.23 | 23.33 | | Grasses |

UP&L - TRAIL MOUNTAIN
Reference Area TMTN-9
"B" - Pad and Road
Sage/Grass/PJ
Exposure: SW
Slope: 5 deg.

| Sample Date: 31 July 1993 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|
| TREES & SHRUBS | | | | | | | | |
| Artemisia tridentata | 30.00 | 10.00 | 5.00 | 10.00 | 15.00 | 20.00 | 10.00 | 15.00 |
| Symphoricarpos oreophilus | 0.00 | 30.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FORBS | | | | | | | | |
| Trifolium repens | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 |
| Hymenoxys richardsonii | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 5.00 |
| Eriogonum umbellatum | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Arenaria fendleri | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ASSES | | | | | | | | |
| Elymus spicatus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Koelaria macrantha | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 25.00 | 5.00 | 15.00 |
| Bromus inermis | 20.00 | 15.00 | 30.00 | 40.00 | 25.00 | 20.00 | 25.00 | 25.00 |
| Elymus salinus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| COVER | | | | | | | | |
| Total Living Cover | 50.00 | 65.00 | 45.00 | 50.00 | 55.00 | 65.00 | 50.00 | 60.00 |
| Litter | 25.00 | 20.00 | 10.00 | 10.00 | 10.00 | 10.00 | 4.00 | 4.00 |
| Bareground | 20.00 | 10.00 | 35.00 | 35.00 | 30.00 | 20.00 | 45.00 | 35.00 |
| Rock | 5.00 | 5.00 | 10.00 | 5.00 | 5.00 | 5.00 | 1.00 | 1.00 |
| % COMPOSITION | | | | | | | | |
| Shrubs | 60.00 | 61.54 | 22.22 | 20.00 | 27.27 | 30.77 | 20.00 | 25.00 |
| Forbs | 0.00 | 15.38 | 11.11 | 0.00 | 9.09 | 0.00 | 20.00 | 8.33 |
| Grasses | 40.00 | 23.08 | 66.67 | 80.00 | 63.64 | 69.23 | 60.00 | 66.67 |

| 9.00 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.00 | 10.00 | 5.00 | 0.00 | 15.00 | 15.00 | 10.00 | 35.00 | 5.00 | 25.00 | 25.00 | 5.00 |
| 15.00 | 0.00 | 0.00 | 0.00 | 25.00 | 0.00 | 0.00 | 0.00 | 5.00 | 25.00 | 20.00 | 5.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20.00 | 0.00 | 0.00 | 30.00 | 0.00 | 0.00 | 0.00 | 20.00 | 0.00 | 10.00 | 0.00 | 0.00 |
| 0.00 | 30.00 | 10.00 | 0.00 | 10.00 | 0.00 | 15.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 |
| 10.00 | 10.00 | 25.00 | 10.00 | 10.00 | 0.00 | 20.00 | 0.00 | 45.00 | 0.00 | 0.00 | 35.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 35.00 | 0.00 | 0.00 | 0.00 | 0.00 | 20.00 | 10.00 |
| 50.00 | 50.00 | 40.00 | 40.00 | 60.00 | 50.00 | 45.00 | 55.00 | 65.00 | 60.00 | 65.00 | 55.00 |
| 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 5.00 | 10.00 | 10.00 | 10.00 | 25.00 | 15.00 | 10.00 |
| 35.00 | 35.00 | 45.00 | 45.00 | 25.00 | 40.00 | 40.00 | 30.00 | 20.00 | 10.00 | 15.00 | 25.00 |
| 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 10.00 |
| 40.00 | 20.00 | 12.50 | 0.00 | 66.67 | 30.00 | 22.22 | 63.64 | 15.38 | 83.33 | 69.23 | 18.18 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60.00 | 80.00 | 87.50 | 100.00 | 33.33 | 70.00 | 77.78 | 36.36 | 84.62 | 16.67 | 30.77 | 81.82 |

UP&L - TRAIL MOUNTAIN
Reference Area TMTN - 9
"B" - Pad and Road
Sage/Grass/PJ
Exposure: SW
Slope: 5 deg.
Sample Date: 31 July 1993

| Mean | SDev | Freq | |
|---|---|---|---|
| | | | TREES & SHRUBS |
| 13.50 | 9.10 | 95.00 | Artemisia tridentata |
| 6.50 | 10.01 | 40.00 | Symphoricarpos oreophilus |
| | | | FORBS |
| 0.50 | 2.18 | 5.00 | Trifolium repens |
| 0.50 | 1.50 | 10.00 | Hymenoxys richardsonii |
| 0.50 | 2.18 | 5.00 | Eriogonum umbellatum |
| 0.25 | 1.09 | 5.00 | Arenaria fendleri |
| | | | GRASSES |
| 4.00 | 8.60 | 20.00 | Elymus spicatus |
| 6.50 | 8.82 | 40.00 | Koelaria macrantha |
| 18.25 | 13.06 | 80.00 | Bromus inermis |
| 3.25 | 8.70 | 10.00 | Elymus salinus |
| | | | COVER |
| 53.75 | 7.89 | | Total Living Cover |
| 11.40 | 5.62 | | Litter |
| 29.75 | 10.89 | | Bareground |
| 5.10 | 2.02 | | Rock |
| | | | % COMPOSITION |
| 35.40 | 22.68 | | Shrubs |
| 3.20 | 5.95 | | Forbs |
| 61.41 | 22.99 | | Grasses |

UP&L - TRAIL MOUNTAIN
Reference Area
"C" - Pad TMTN-10
Sage/Grass/PJ
Exposure: S SW
Slope: 7 deg.

| Sample Date: 15 July 1993 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|
| TREES & SHRUBS | | | | | | | | |
| Artemisia tridentata | 5.00 | 0.00 | 5.00 | 0.00 | 0.00 | 10.00 | 0.00 | 5.00 |
| Amalanchier utahensis | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Symphoricarpos oreophilus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15.00 | 0.00 | 0.00 |
| Chrysothamnus depressus | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Chrysothamnus viscidiflor | 5.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| Artemisia nova | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pinus edulis | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FORBS | | | | | | | | |
| Orthocarpos tolmiei | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Leptodactylon pungens | 5.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| Penstemon pachyphyllus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Castelleja linariifolia | 0.00 | 0.00 | 1.00 | 5.00 | 0.00 | 5.00 | 10.00 | 0.00 |
| Astragalus tenellus | 5.00 | 0.00 | 0.00 | 0.00 | 15.00 | 5.00 | 5.00 | 5.00 |
| Stanleya pinnata | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ıchaeranthera grindelioi | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ʌntenaria fendleri | 10.00 | 0.00 | 5.00 | 15.00 | 0.00 | 0.00 | 5.00 | 0.00 |
| GRASSES | | | | | | | | |
| Bromus inermis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Elymus salinus | 0.00 | 25.00 | 14.00 | 20.00 | 15.00 | 20.00 | 15.00 | 25.00 |
| COVER | | | | | | | | |
| Total Living Cover | 40.00 | 25.00 | 35.00 | 45.00 | 40.00 | 55.00 | 35.00 | 35.00 |
| Litter | 15.00 | 10.00 | 40.00 | 15.00 | 10.00 | 25.00 | 10.00 | 5.00 |
| Bareground | 40.00 | 55.00 | 20.00 | 10.00 | 30.00 | 15.00 | 25.00 | 50.00 |
| Rock | 5.00 | 10.00 | 5.00 | 30.00 | 20.00 | 5.00 | 30.00 | 10.00 |
| % COMPOSITION | | | | | | | | |
| Shrubs | 50.00 | 0.00 | 42.86 | 0.00 | 12.50 | 45.45 | 0.00 | 14.29 |
| Forbs | 50.00 | 0.00 | 17.14 | 55.56 | 50.00 | 18.18 | 57.14 | 14.29 |
| Grasses | 0.00 | 100.00 | 40.00 | 44.44 | 37.50 | 36.36 | 42.86 | 71.43 |

| 9.00 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.00 | 0.00 | 5.00 | 0.00 | 5.00 | 5.00 | 25.00 | 0.00 | 10.00 | 15.00 | 15.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 3.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 10.00 | 0.00 | 5.00 | 5.00 | 5.00 | 5.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 10.00 | 10.00 | 0.00 | 0.00 | 5.00 | 25.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10.00 | 25.00 | 10.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15.00 | 0.00 |
| 15.00 | 7.00 | 25.00 | 30.00 | 30.00 | 5.00 | 5.00 | 30.00 | 15.00 | 15.00 | 5.00 | 30.00 |
| 45.00 | 55.00 | 55.00 | 50.00 | 50.00 | 30.00 | 60.00 | 40.00 | 40.00 | 30.00 | 35.00 | 40.00 |
| 20.00 | 10.00 | 10.00 | 25.00 | 25.00 | 10.00 | 10.00 | 5.00 | 20.00 | 25.00 | 10.00 | 10.00 |
| 15.00 | 0.00 | 25.00 | 15.00 | 20.00 | 55.00 | 25.00 | 50.00 | 35.00 | 25.00 | 50.00 | 45.00 |
| 20.00 | 35.00 | 10.00 | 10.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 20.00 | 5.00 | 5.00 |
| 22.22 | 0.00 | 9.09 | 20.00 | 30.00 | 33.33 | 41.67 | 0.00 | 25.00 | 50.00 | 42.86 | 25.00 |
| 44.44 | 87.27 | 45.45 | 20.00 | 10.00 | 50.00 | 50.00 | 25.00 | 37.50 | 0.00 | 0.00 | 0.00 |
| 33.33 | 12.73 | 45.45 | 60.00 | 60.00 | 16.67 | 8.33 | 75.00 | 37.50 | 50.00 | 57.14 | 75.00 |

UP&L - TRAIL MOUNTAIN
Reference Area
"C" - Pad TMTN - 10
Sage/Grass/PJ
Exposure: S SW
Slope: 7 deg.
Sample Date: 15 July 1993

| Mean | SDev | Freq | |
|---|---|---|---|
| | | | TREES & SHRUBS |
| 5.75 | 6.57 | 60.00 | Artemisia tridentata |
| 1.50 | 3.57 | 15.00 | Amalanchier utahensis |
| 0.75 | 3.27 | 5.00 | Symphoricarpos oreophilus |
| 0.25 | 1.09 | 5.00 | Chrysothamnus depressus |
| 0.75 | 1.79 | 15.00 | Chrysothamnus viscidiflorus |
| 0.50 | 2.18 | 5.00 | Artemisia nova |
| 0.25 | 1.09 | 5.00 | Pinus edulis |
| | | | FORBS |
| 0.15 | 0.65 | 5.00 | Orthocarpos tolmiei |
| 1.00 | 2.00 | 20.00 | Leptodactylon pungens |
| 0.25 | 1.09 | 5.00 | Penstemon pachyphyllus |
| 3.05 | 3.28 | 55.00 | Castelleja linariifolia |
| 4.25 | 6.38 | 45.00 | Astragalus tenellus |
| 0.50 | 2.18 | 5.00 | Stanleya pinnata |
| 0.50 | 1.50 | 10.00 | Machaeranthera grindelioides |
| 4.50 | 6.50 | 45.00 | Antenaria fendleri |
| | | | GRASSES |
| 0.75 | 3.[illegible]7 | 5.00 | Bromus inermis |
| 17.30 | 9.31 | 95.00 | Elymus salinus |

| | | |
|---|---|---|
| | | COVER |
| 42.00 | 9.41 | Total Living Cover |
| 15.50 | 8.65 | Litter |
| 30.25 | 15.93 | Bareground |
| 12.25 | 9.68 | Rock |
| | | % COMPOSITION |
| 23.21 | 17.74 | Shrubs |
| 31.60 | 23.87 | Forbs |
| 45.19 | 24.20 | Grasses |

UP&L - TRAIL MOUNTAIN
Reference Area
"D" - TMTN-11
PJ
Exposure: SW
Slope: 6 deg.

| Sample Date: 1 Aug 1993 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|
| TREES & SHRUBS | | | | | | | | |
| Pinus edulis | 0.00 | 20.00 | 0.00 | 0.00 | 45.00 | 40.00 | 40.00 | 0.00 |
| Artmesia tridentata | 5.00 | 0.00 | 0.00 | 35.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Chrysothamnus viscidiflor | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ephedra viridis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 |
| Artemisia nova | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Chrysothamnus depressus | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 10.00 |
| Purshia tridentata | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Juniperus osteosperma | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FORBS | | | | | | | | |
| Astragalus megacarpos | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Astragalus tenellus | 10.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 |
| Machaeranthera grindelioi | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Erigeron sp. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 |
| Leptodactylon pungens | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15.00 |
| astelleja liniaefolia | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| GRASSES | | | | | | | | |
| Stipa hymenoides | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Elymus salinus | 15.00 | 25.00 | 25.00 | 5.00 | 0.00 | 10.00 | 0.00 | 0.00 |
| Elymus spicatus | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 |
| COVER | | | | | | | | |
| Overstory | 0.00 | 35.00 | 0.00 | 0.00 | 40.00 | 45.00 | 25.00 | 0.00 |
| Understory | 35.00 | 20.00 | 40.00 | 40.00 | 10.00 | 5.00 | 25.00 | 45.00 |
| Litter | 5.00 | 10.00 | 5.00 | 5.00 | 40.00 | 40.00 | 40.00 | 5.00 |
| Bareground | 50.00 | 30.00 | 45.00 | 40.00 | 5.00 | 5.00 | 5.00 | 45.00 |
| Rock | 10.00 | 5.00 | 10.00 | 15.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| % COMPOSITION | | | | | | | | |
| Shrubs | 28.57 | 36.36 | 0.00 | 87.50 | 100.00 | 80.00 | 100.00 | 22.22 |
| Forbs | 28.57 | 0.00 | 37.50 | 0.00 | 0.00 | 0.00 | 0.00 | 55.56 |
| Grasses | 42.86 | 63.64 | 62.50 | 12.50 | 0.00 | 20.00 | 0.00 | 22.22 |

| 9.00 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 5.00 | 0.00 | 25.00 | 0.00 | 0.00 | 50.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 5.00 | 5.00 | 0.00 | 20.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15.00 | 5.00 | 0.00 | 5.00 | 5.00 | 5.00 | 0.00 | 0.00 | 15.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 25.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 10.00 | 5.00 | 0.00 | 5.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| 20.00 | 0.00 | 20.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 5.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 10.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 5.00 | 5.00 | 5.00 | 25.00 | 5.00 | 5.00 | 15.00 | 10.00 | 5.00 | 50.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 25.00 | 0.00 | 0.00 | 0.00 | 40.00 | 0.00 |
| 45.00 | 25.00 | 40.00 | 25.00 | 40.00 | 40.00 | 15.00 | 40.00 | 40.00 | 30.00 | 15.00 | 55.00 |
| 5.00 | 5.00 | 20.00 | 5.00 | 10.00 | 10.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 10.00 | 60.00 | 35.00 | 65.00 | 40.00 | 45.00 | 35.00 | 40.00 | 50.00 | 55.00 | 35.00 | 35.00 |
| 40.00 | 10.00 | 5.00 | 5.00 | 10.00 | 5.00 | 20.00 | 15.00 | 5.00 | 10.00 | 5.00 | 5.00 |
| 44.44 | 60.00 | 12.50 | 40.00 | 62.50 | 25.00 | 75.00 | 75.00 | 37.50 | 0.00 | 90.91 | 9.09 |
| 55.56 | 0.00 | 75.00 | 40.00 | 12.50 | 12.50 | 12.50 | 12.50 | 25.00 | 66.67 | 0.00 | 0.00 |
| 0.00 | 40.00 | 12.50 | 20.00 | 25.00 | 62.50 | 12.50 | 12.50 | 37.50 | 33.33 | 9.09 | 90.91 |

UP&L - TRAIL MOUNTAIN
Reference Area
"D" - TMTN - 11
PJ
Exposure: SW
Slope: 6 deg.
Sample Date: 1 Aug 1993

| Mean | SDev | Freq | |
|---|---|---|---|
| | | | TREES & SHRUBS |
| 11.50 | 17.54 | 40.00 | Pinus edulis |
| 2.25 | 7.66 | 15.00 | Artmesia tridentata |
| 0.50 | 1.50 | 10.00 | Chrysothamnus viscidiflorus |
| 0.50 | 2.18 | 5.00 | Ephedra viridis |
| 2.00 | 4.58 | 25.00 | Artemisia nova |
| 3.25 | 4.82 | 40.00 | Chrysothamnus depressus |
| 0.25 | 1.09 | 5.00 | Purshia tridentata |
| 1.25 | 5.45 | 5.00 | Juniperus osteosperma |
| | | | FORBS |
| 1.25 | 2.68 | 20.00 | Astragalus megacarpos |
| 4.25 | 6.76 | 35.00 | Astragalus tenellus |
| 0.75 | 1.79 | 15.00 | Machaeranthera grindelioides |
| 0.75 | 1.79 | 15.00 | Erigeron sp. |
| 0.75 | 3.27 | 5.00 | Leptodactylon pungens |
| 0.50 | 1.50 | 10.00 | Castelleja liniaefolia |
| | | | GRASSES |
| 1.00 | 2.55 | 15.00 | Stipa hymenoides |
| 10.50 | 12.24 | 76.00 | Elymus salinus |
| 0.75 | 2.38 | 10.00 | Elymus spicatus |

| | | |
|---|---|---|
| | | COVER |
| 10.50 | 16.58 | Overstory |
| 31.50 | 13.05 | Understory |
| 11.75 | 12.38 | Litter |
| 36.50 | 17.40 | Bareground |
| 9.75 | 8.14 | Rock |
| | | % COMPOSITION |
| 49.33 | 32.32 | Shrubs |
| 21.69 | 24.40 | Forbs |
| 28.98 | 24.41 | Grasses |

UP&L - TRAIL MOUNTAIN
Reference Area
"E" Site TMTN-12
PJ
Exposure: Var.
Slope: 2 - 6 deg.

| Sample Date: 1 Aug 1993 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|
| TREES & SHRUBS | | | | | | | | |
| Juniperus osteosperma | 20.00 | 0.00 | 20.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pinus edulis | 0.00 | 10.00 | 0.00 | 0.00 | 45.00 | 0.00 | 0.00 | 20.00 |
| Pseudotsuga menziesii | 30.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Purshia tridentata | 0.00 | 0.00 | 0.00 | 25.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ceratoides lanata | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FORBS | | | | | | | | |
| GRASSES | | | | | | | | |
| Elymus salinus | 5.00 | 15.00 | 15.00 | 5.00 | 5.00 | 20.00 | 0.00 | 5.00 |
| Stipa hymenoides | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 5.00 | 25.00 | 0.00 |
| COVER | | | | | | | | |
| Over Story | 30.00 | 0.00 | 20.00 | 0.00 | 45.00 | 0.00 | 0.00 | 20.00 |
| Understory | 25.00 | 25.00 | 15.00 | 35.00 | 5.00 | 25.00 | 25.00 | 5.00 |
| Litter | 40.00 | 30.00 | 10.00 | 30.00 | 35.00 | 5.00 | 5.00 | 5.00 |
| Bareground | 1.00 | 20.00 | 15.00 | 25.00 | 10.00 | 10.00 | 10.00 | 65.00 |
| Rock | 4.00 | 25.00 | 40.00 | 10.00 | 5.00 | 60.00 | 60.00 | 5.00 |
| % COMPOSITION | | | | | | | | |
| Shrubs | 90.91 | 40.00 | 57.14 | 71.43 | 90.00 | 0.00 | 0.00 | 80.00 |
| Forbs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Grasses | 9.09 | 60.00 | 42.86 | 28.57 | 10.00 | 100.00 | 100.00 | 20.00 |

| 9.00 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 55.00 | 50.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 20.00 |
| 35.00 | 30.00 | 0.00 | 0.00 | 0.00 | 0.00 | 30.00 | 40.00 | 55.00 | 55.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 25.00 | 15.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25.00 | 5.00 | 0.00 | 0.00 | 10.00 | 10.00 | 10.00 | 5.00 | 0.00 | 0.00 | 0.00 | 25.00 |
| 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 5.00 | 25.00 | 0.00 |
| 30.00 | 25.00 | 0.00 | 0.00 | 55.00 | 50.00 | 0.00 | 40.00 | 55.00 | 55.00 | 0.00 | 20.00 |
| 30.00 | 10.00 | 25.00 | 25.00 | 10.00 | 10.00 | 40.00 | 5.00 | 5.00 | 5.00 | 25.00 | 25.00 |
| 35.00 | 55.00 | 25.00 | 5.00 | 25.00 | 30.00 | 45.00 | 40.00 | 30.00 | 25.00 | 5.00 | 30.00 |
| 1.00 | 5.00 | 30.00 | 55.00 | 5.00 | 5.00 | 10.00 | 5.00 | 5.00 | 5.00 | 5.00 | 13.00 |
| 4.00 | 5.00 | 20.00 | 15.00 | 5.00 | 5.00 | 5.00 | 10.00 | 5.00 | 10.00 | 65.00 | 12.00 |
| 58.33 | 85.71 | 100.00 | 80.00 | 84.62 | 83.33 | 75.00 | 88.89 | 91.67 | 91.67 | 0.00 | 44.44 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 41.67 | 14.29 | 0.00 | 20.00 | 15.38 | 16.67 | 25.00 | 11.11 | 8.33 | 8.33 | 100.00 | 55.56 |

UP&L - TRAIL MOUNTAIN
Reference Area
"E" Site TMTN-12
PJ
Exposure: Var.
Slope: 2 - 6 deg.
Sample Date: 1 Aug 1993

| 21.00 | 22.00 | Mean | SDev | Freq | |
|---|---|---|---|---|---|
| | | | | | TREES & SHRUBS |
| 0.00 | 0.00 | 7.50 | 15.79 | 22.73 | Juniperus osteosperma |
| 0.00 | 0.00 | 14.55 | 19.71 | 40.91 | Pinus edulis |
| 0.00 | 0.00 | 1.36 | 6.25 | 4.55 | Pseudotsuga menziesii |
| 0.00 | 0.00 | 2.95 | 7.64 | 13.64 | Purshia tridentata |
| 0.00 | 0.00 | 0.23 | 1.04 | 4.55 | Ceratoides lanata |
| | | | | | FORBS |
| | | | | | GRASSES |
| 35.00 | 25.00 | 10.00 | 10.00 | 72.73 | Elymus salinus |
| 0.00 | 0.00 | 3.41 | 7.13 | 31.82 | Stipa hymenoides |
| | | | | | COVER |
| 0.00 | 0.00 | 20.23 | 21.13 | | Over Story |
| 35.00 | 25.00 | 19.77 | 10.92 | | Understory |
| 10.00 | 5.00 | 23.86 | 14.92 | | Litter |
| 50.00 | 65.00 | 18.86 | 20.27 | | Bareground |
| 5.00 | 5.00 | 17.27 | 19.55 | | Rock |
| | | | | | % COMPOSITION |
| 0.00 | 0.00 | 59.69 | 35.62 | | Shrubs |
| 0.00 | 0.00 | 0.00 | 0.00 | | Forbs |
| 100.00 | 100.00 | 40.31 | 35.62 | | Grasses |

UP&L - TRAIL MOUNTAIN
Reference Area
"F" - Drill Pad & Access Road
PJ TMTN - 13
Exposure: SW
Slope: 12 deg.

| Sample Date: 14 July 1993 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|
| TREES & SHRUBS | | | | | | | | |
| Artemisia tridentata | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pinus edulis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FORBS | | | | | | | | |
| Leptodactyon pungens | 0.00 | 0.00 | 0.00 | 5.00 | 5.00 | 0.00 | 5.00 | 0.00 |
| Castelleja liniaefolia | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 |
| Arenaria fendleri | 20.00 | 5.00 | 10.00 | 5.00 | 5.00 | 0.00 | 10.00 | 15.00 |
| Astragalus lancearius | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 |
| Astragalus tenellus | 5.00 | 0.00 | 15.00 | 5.00 | 0.00 | 0.00 | 0.00 | 10.00 |
| Astragalus mollissimus | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hymenoxys richarsonii | 0.00 | 5.00 | 0.00 | 0.00 | 10.00 | 0.00 | 5.00 | 5.00 |
| Astragalus megacarpos | 0.00 | 0.00 | 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| Machaeranthera grindelioi | 5.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 |
| Lochortus nuttallii | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| GRASSES | | | | | | | | |
| Koelaria macrantha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 20.00 |
| Elymus salinus | 10.00 | 30.00 | 0.00 | 35.00 | 35.00 | 35.00 | 20.00 | 0.00 |
| Stipa hymenoides | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| COVER | | | | | | | | |
| Total Living Cover | 40.00 | 45.00 | 40.00 | 55.00 | 70.00 | 35.00 | 50.00 | 50.00 |
| Litter | 5.00 | 10.00 | 10.00 | 15.00 | 10.00 | 25.00 | 25.00 | 10.00 |
| Bareground | 25.00 | 20.00 | 20.00 | 25.00 | 5.00 | 35.00 | 10.00 | 25.00 |
| Rock | 30.00 | 25.00 | 30.00 | 5.00 | 15.00 | 5.00 | 15.00 | 15.00 |
| % COMPOSITION | | | | | | | | |
| Shrubs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Forbs | 75.00 | 33.33 | 87.50 | 36.36 | 50.00 | 0.00 | 60.00 | 60.00 |
| Grasses | 25.00 | 66.67 | 12.50 | 63.64 | 50.00 | 100.00 | 40.00 | 40.00 |

| 9.00 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 35.00 |
| 0.00 | 0.00 | 0.00 | 55.00 | 0.00 | 10.00 | 45.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 5.00 | 15.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 10.00 | 20.00 | 10.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 10.00 | 15.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 10.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15.00 | 15.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 10.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 10.00 | 5.00 | 5.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 60.00 | 30.00 | 30.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35.00 | 25.00 | 0.00 | 10.00 | 15.00 | 0.00 | 0.00 | 0.00 | 35.00 | 20.00 | 25.00 | 35.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35.00 | 65.00 | 45.00 | 75.00 | 50.00 | 70.00 | 75.00 | 55.00 | 50.00 | 60.00 | 50.00 | 70.00 |
| 30.00 | 20.00 | 5.00 | 20.00 | 5.00 | 25.00 | 10.00 | 10.00 | 5.00 | 10.00 | 10.00 | 25.00 |
| 10.00 | 5.00 | 25.00 | 2.00 | 40.00 | 2.00 | 5.00 | 25.00 | 25.00 | 20.00 | 30.00 | 2.00 |
| 25.00 | 10.00 | 25.00 | 3.00 | 5.00 | 3.00 | 10.00 | 10.00 | 20.00 | 10.00 | 10.00 | 3.00 |
| 0.00 | 15.38 | 0.00 | 73.33 | 0.00 | 14.29 | 60.00 | 18.18 | 0.00 | 0.00 | 0.00 | 50.00 |
| 0.00 | 46.15 | 77.78 | 13.33 | 70.00 | 0.00 | 0.00 | 27.27 | 30.00 | 66.67 | 50.00 | 0.00 |
| 100.00 | 38.46 | 22.22 | 13.33 | 30.00 | 85.71 | 40.00 | 54.55 | 70.00 | 33.33 | 50.00 | 50.00 |

UP&L - TRAIL MOUNTAIN
Reference Area
"F" - Drill Pad & Access Road
PJ - TMTN - 13
Exposure: SW
Slope: 12 deg.
Sample Date: 14 July 1993

| Mean | SDev | Freq | |
|---|---|---|---|
| | | | TREES & SHRUBS |
| 2.75 | 7.98 | 10.00 | Artemisia tridentata |
| 5.50 | 15.07 | 15.00 | Pinus edulis |
| | | | FORBS |
| 1.25 | 2.17 | 25.00 | Leptodactyon pungens |
| 0.25 | 1.09 | 5.00 | Castelleja liniaefolia |
| 6.75 | 6.57 | 65.00 | Arenaria fendleri |
| 1.75 | 4.26 | 15.00 | Astragalus lancearius |
| 4.25 | 5.76 | 40.00 | Astragalus tenellus |
| 0.25 | 1.09 | 5.00 | Astragalus mollissimus |
| 3.25 | 3.96 | 45.00 | Hymenoxys richarsonii |
| 0.75 | 1.79 | 15.00 | Astragalus megacarpos |
| 1.00 | 2.00 | 20.00 | Machaeranthera grindelioides |
| 0.50 | 1.50 | 10.00 | Calochortus nuttallii |
| | | | GRASSES |
| 7.50 | 15.45 | 30.00 | Koelaria macrantha |
| 18.25 | 14.25 | 70.00 | Elymus salinus |
| 0.25 | 1.09 | 5.00 | Stipa hymenoides |

| | | |
|---|---|---|
| | | COVER |
| 54.25 | 12.58 | Total Living Cover |
| 14.25 | 7.95 | Litter |
| 17.80 | 11.46 | Bareground |
| 13.70 | 8.94 | Rock |
| | | % COMPOSITION |
| 11.56 | 21.88 | Shrubs |
| 39.17 | 28.79 | Forbs |
| 49.27 | 24.91 | Grasses |

UP&L - TRAIL MOUNTAIN
Reference Area
Site "G" TMTN-14
Sage/Grass/PJ
Exposure: S
Slope: 5 deg.

| Sample Date: 31 July 1993 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|
| TREES & SHRUBS | | | | | | | | |
| Pinus edulis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 |
| Chrysothamnus nauseosus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Chrysothamnus depressus | 5.00 | 5.00 | 5.00 | 10.00 | 10.00 | 0.00 | 0.00 | 10.00 |
| FORBS | | | | | | | | |
| Astragalus tenellus | 0.00 | 5.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 |
| Orthocarpos tolmiei | 0.00 | 5.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 5.00 |
| Hymenoxys richardsonii | 0.00 | 5.00 | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Melilotus officinalis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Arenaria fendleri | 0.00 | 5.00 | 10.00 | 5.00 | 0.00 | 5.00 | 5.00 | 10.00 |
| Erigeron sp. | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 |
| Medicago sativa | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| GRASSES | | | | | | | | |
| Agropyron cristatum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stipa comata | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Elymus salinus | 0.00 | 5.00 | 5.00 | 0.00 | 5.00 | 40.00 | 0.00 | 0.00 |
| Bromus inermis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 |
| Koelaria macrantha | 50.00 | 15.00 | 20.00 | 25.00 | 30.00 | 0.00 | 20.00 | 25.00 |
| Stipa hymenoides | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 |
| Elymus spicatus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| COVER | | | | | | | | |
| Total Living Cover | 55.00 | 45.00 | 50.00 | 45.00 | 60.00 | 60.00 | 35.00 | 50.00 |
| Litter | 10.00 | 5.00 | 5.00 | 10.00 | 10.00 | 20.00 | 10.00 | 10.00 |
| Bareground | 30.00 | 45.00 | 40.00 | 40.00 | 25.00 | 15.00 | 50.00 | 35.00 |
| Rock | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| % COMPOSITION | | | | | | | | |
| Shrubs | 9.09 | 11.11 | 10.00 | 22.22 | 16.67 | 0.00 | 14.29 | 20.00 |
| Forbs | 0.00 | 44.44 | 40.00 | 22.22 | 25.00 | 8.33 | 28.57 | 30.00 |
| Grasses | 90.91 | 44.44 | 50.00 | 55.56 | 58.33 | 91.67 | 57.14 | 50.00 |

| 9.00 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 25.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 20.00 | 0.00 | 10.00 | 5.00 | 15.00 | 20.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 5.00 | 5.00 | 0.00 | 10.00 | 5.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 5.00 | 15.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 10.00 | 15.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 25.00 | 25.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 25.00 | 30.00 | 35.00 | 0.00 | 25.00 | 0.00 | 35.00 | 25.00 | 10.00 | 0.00 | 15.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30.00 | 30.00 | 0.00 | 0.00 | 0.00 | 5.00 | 30.00 | 10.00 | 5.00 | 10.00 | 0.00 | 10.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 25.00 | 0.00 |
| 70.00 | 60.00 | 35.00 | 70.00 | 55.00 | 55.00 | 65.00 | 60.00 | 55.00 | 50.00 | 55.00 | 55.00 |
| 8.00 | 20.00 | 20.00 | 19.00 | 20.00 | 10.00 | 10.00 | 20.00 | 5.00 | 10.00 | 15.00 | 5.00 |
| 20.00 | 15.00 | 40.00 | 10.00 | 24.00 | 30.00 | 20.00 | 15.00 | 35.00 | 35.00 | 25.00 | 35.00 |
| 2.00 | 5.00 | 5.00 | 1.00 | 1.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 35.71 | 8.33 | 0.00 | 0.00 | 9.09 | 18.18 | 30.77 | 16.67 | 27.27 | 20.00 | 36.36 | 45.45 |
| 7.14 | 0.00 | 14.29 | 14.29 | 27.27 | 9.09 | 23.08 | 8.33 | 18.18 | 40.00 | 18.18 | 9.09 |
| 57.14 | 91.67 | 85.71 | 85.71 | 63.64 | 72.73 | 46.15 | 75.00 | 54.55 | 40.00 | 45.45 | 45.45 |

UP&L - TRAIL MOUNTAIN
Reference Area
Site "G" TMTN-14
Sage/Grass/PJ
Exposure: S
Slope: 5 deg.
Sample Date: 31 July 1993

| Mean | SDev | Freq | |
|---|---|---|---|
| | | | TREES & SHRUBS |
| 5.25 | 7.98 | 40.00 | Pinus edulis |
| 0.50 | 2.18 | 5.00 | Chrysothamnus nauseosus |
| 4.00 | 3.74 | 60.00 | Chrysothamnus depressus |
| | | | FORBS |
| 1.00 | 2.55 | 15.00 | Astragalus tenellus |
| 2.50 | 3.35 | 40.00 | Orthocarpos tolmiei |
| 0.75 | 1.79 | 15.00 | Hymenoxys richardsonii |
| 0.25 | 1.09 | 5.00 | Melilotus officinalis |
| 3.25 | 4.26 | 45.00 | Arenaria fendleri |
| 1.00 | 2.00 | 20.00 | Erigeron sp. |
| 1.25 | 3.83 | 10.00 | Medicago sativa |
| | | | GRASSES |
| 2.50 | 7.50 | 10.00 | Agropyron cristatum |
| 1.00 | 3.00 | 10.00 | Stipa comata |
| 12.75 | 14.10 | 60.00 | Elymus salinus |
| 1.00 | 3.00 | 10.00 | Bromus inermis |
| 15.75 | 13.72 | 70.00 | Koelaria macrantha |
| 0.25 | 1.09 | 5.00 | Stipa hymenoides |
| 1.25 | 5.45 | 5.00 | Elymus spicatus |

| | | |
|---|---|---|
| | | COVER |
| 54.25 | 9.26 | Total Living Cover |
| 12.10 | 5.58 | Litter |
| 29.20 | 10.89 | Bareground |
| 4.45 | 1.32 | Rock |
| | | % COMPOSITION |
| 17.56 | 12.31 | Shrubs |
| 19.38 | 12.65 | Forbs |
| 63.06 | 17.35 | Grasses |

UP&L - TRAIL MOUNTAIN
Reference Area TMTN-15
"A" - Pad and Road
Sage/Grass/PJ
Exposure: S SW
Slope: 11 deg.

| Sample Date: 31 July 1993 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|
| TREES & SHRUBS | | | | | | | | |
| Pinus edulis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ceratoides lanata | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Artemisia tridentata | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 10.00 | 5.00 |
| Amalanchier utahensis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Artemisia nova | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 |
| FORBS | | | | | | | | |
| Hymenoxys richardsonii | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Astragalus tenellus | 0.00 | 0.00 | 5.00 | 5.00 | 0.00 | 15.00 | 5.00 | 5.00 |
| Castelleja linariifolia | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Leptodactylon pungens | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 |
| Machaeranthera grindelioi | 5.00 | 5.00 | 10.00 | 5.00 | 10.00 | 0.00 | 0.00 | 5.00 |
| Arenaria fendleri | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| [illegible]igeron sp. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| [illegible]edicago sativa | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 |
| GRASSES | | | | | | | | |
| Elymus salinus | 25.00 | 15.00 | 25.00 | 0.00 | 35.00 | 20.00 | 0.00 | 30.00 |
| Stipa hymenoides | 0.00 | 0.00 | 0.00 | 25.00 | 0.00 | 5.00 | 10.00 | 0.00 |
| Bromus inermis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 |
| Agropyron cristatum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 |
| COVER | | | | | | | | |
| Total Living Cover | 35.00 | 25.00 | 40.00 | 35.00 | 50.00 | 50.00 | 45.00 | 45.00 |
| Litter | 5.00 | 5.00 | 5.00 | 5.00 | 10.00 | 15.00 | 10.00 | 10.00 |
| Bareground | 40.00 | 10.00 | 15.00 | 35.00 | 10.00 | 20.00 | 25.00 | 10.00 |
| Rock | 20.00 | 60.00 | 40.00 | 25.00 | 30.00 | 15.00 | 20.00 | 35.00 |
| % COMPOSITION | | | | | | | | |
| Shrubs | 14.29 | 0.00 | 0.00 | 0.00 | 10.00 | 10.00 | 22.22 | 11.11 |
| Forbs | 14.29 | 40.00 | 37.50 | 28.57 | 20.00 | 40.00 | 22.22 | 22.22 |
| Grasses | 71.43 | 60.00 | 62.50 | 71.43 | 70.00 | 50.00 | 55.56 | 66.67 |

| 9.00 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 38.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 5.00 | 10.00 | 5.00 | 0.00 | 25.00 | 0.00 |
| 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 2.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 15.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 10.00 | 10.00 | 20.00 | 40.00 | 35.00 | 15.00 | 15.00 | 5.00 | 5.00 | 30.00 | 15.00 |
| 15.00 | 0.00 | 20.00 | 0.00 | 0.00 | 0.00 | 15.00 | 15.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35.00 | 50.00 | 45.00 | 35.00 | 40.00 | 45.00 | 35.00 | 50.00 | 30.00 | 20.00 | 55.00 | 35.00 |
| 5.00 | 10.00 | 10.00 | 10.00 | 25.00 | 15.00 | 15.00 | 15.00 | 5.00 | 5.00 | 15.00 | 5.00 |
| 35.00 | 5.00 | 25.00 | 25.00 | 30.00 | 25.00 | 25.00 | 10.00 | 35.00 | 5.00 | 25.00 | 35.00 |
| 25.00 | 35.00 | 20.00 | 30.00 | 5.00 | 15.00 | 25.00 | 25.00 | 30.00 | 70.00 | 5.00 | 25.00 |
| 28.57 | 76.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 75.00 | 0.00 | 14.29 |
| 28.57 | 4.00 | 33.33 | 42.86 | 0.00 | 22.22 | 14.29 | 30.00 | 66.67 | 0.00 | 45.45 | 42.86 |
| 42.86 | 20.00 | 66.67 | 57.14 | 100.00 | 77.78 | 85.71 | 60.00 | 33.33 | 25.00 | 54.55 | 42.86 |

UP&L - TRAIL MOUNTAIN
Reference Area TMTN-15
"A" - Pad and Road
Sage/Grass/PJ
Exposure: S SW
Slope: 11 deg.
Sample Date: 31 July 1993

| Mean | SDev | Freq | |
|---|---|---|---|
| | | | TREES & SHRUBS |
| 1.90 | 8.28 | 5.00 | Pinus edulis |
| 0.25 | 1.09 | 5.00 | Ceratoides lanata |
| 1.25 | 2.68 | 20.00 | Artemisia tridentata |
| 0.50 | 2.18 | 5.00 | Amalanchier utahensis |
| 1.25 | 3.49 | 10.00 | Artemisia nova |
| | | | FORBS |
| 0.50 | 1.50 | 5.00 | Hymenoxys richardsonii |
| 4.75 | 6.22 | 55.00 | Astragalus tenellus |
| 0.50 | 2.18 | 5.00 | Castelleja linariifolia |
| 0.25 | 1.09 | 5.00 | Leptodactylon pungens |
| 3.10 | 3.62 | 50.00 | Machaeranthera grindelioides |
| 1.50 | 3.91 | 15.00 | Arenaria fendleri |
| 0.25 | 1.09 | 5.00 | Erigeron sp. |
| 0.25 | 1.09 | 5.00 | Medicago sativa |
| | | | GRASSES |
| 17.50 | 12.09 | 85.00 | Elymus salinus |
| 5.50 | 7.89 | 40.00 | Stipa hymenoides |
| 0.50 | 2.18 | 5.00 | Bromus inermis |
| 0.25 | 1.09 | 5.00 | Agropyron cristatum |
| | | | COVER |
| 40.00 | 8.94 | | Total Living Cover |
| 10.00 | 5.24 | | Litter |
| 22.25 | 10.78 | | Bareground |
| 27.75 | 15.29 | | Rock |
| | | | % COMPOSITION |
| 13.57 | 22.20 | | Shrubs |
| 27.75 | 16.33 | | Forbs |
| 58.67 | 19.08 | | Grasses |

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

April 20, 1994

Mr. Val Payne
Sr. Environmental Engineer
PacifiCorp
P.O. Box 1005
Huntington, UT 84528

Re: Approval of Amendment to Relocate Water Treatment Plant, ROM Transfer, and Tipple Electrical Facility, PacifiCorp, Trail Mountain Mine, ACT/015/009-94A, Folder #3, Emery County, Utah

Dear Mr. Payne:

The above-noted amendment has been reviewed and is approved. Please submit six finalized copies of the text by May 13, 1994.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

March 16, 1994

Mr. Val Payne,
Sr. Environmental Engineer
PacifiCorp
P.O. Box 1005
Huntington, Utah 84528

Re: Relocation of Water Treatment Plant, ROM Transfer and Tipple Electrical Facility, PacifiCorp, Trail Mountain Mine, ACT/015/009-94A, Folder #2, Emery County, Utah

Dear Mr. Payne:

The Division received the proposed permit change, Relocation of Water Treatment Plant, ROM Transfer and Tipple Electrical Facility, on March 14, 1994 and has determined the application complete. This amendment has been assigned permit change number ACT/015/009-94A.

Completion of this review is aniticpated by April 22, 1994. If you have any questions or concerns, please call Daron Haddock.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor