Stand Alone Report 6

2012 Baseline Vegetation Assessment Upton Plant Site

Rare Element Resources, Inc. 2012 Baseline Vegetation Assessment Bear Lodge Project – Upton Plant Site

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D8-2.1 INTRODUCTION

Rare Element Resources, Inc. (RER) proposes to mine and recover rare earth elements (REE) in the Bear Lodge Mountains of northeastern Wyoming. The proposed Bear Lodge Project consists of the Bull Hill Mine and Upton Plant Site. The proposed Bull Hill Mine, located approximately 12 miles north of Sundance, Wyoming, in central Crook County, will consist of an open-pit mining operation and Physical Upgrading (PUG) Plant for REE mineral preconcentration. REE mineral pre-concentrate produced at the PUG plant will be transported to the proposed Upton Plant Site which will consist of a Hydrometallurgical Plant and Tailings Storage Pond. The proposed Upton Plant Site Permit Area is located approximately 40 miles south of the proposed Bull Hill Mine approximately two miles northwest of Upton, Wyoming, in northcentral Weston County.

The Upton Plant Site Permit Area proposed by RER for the Wyoming Mine Permit Application includes approximately 831.85 acres of the initial 856.20 acre permit area (referenced within this report as the proposed Upton Plant Site Permit Area). Baseline vegetation assessments were completed prior to revision of the proposed permit area. As a result, the entire 856.20 acre permit area was evaluated during baseline vegetation assessments (referenced within this report as the Upton Plant Site Permit Area). Addendum D8-2-F contains a map of the Bear Lodge Project –Upton Plant Site Permit Area evaluated during baseline vegetation assessments.

The Upton Plant Site Permit Area are location in all or portions of:

- S ¹/₂ Section 28 T48N R65W
- SE ¹/₄ Section 29 T48N R65W
- NE ¹/₄ NE ¹/₄ Section 32 T48N R65W
- Section 33 T48N R65W

This report presents baseline information on the vegetation communities occurring within the approximately 831.85 acre proposed Upton Plant Site Permit Area.

D8-2.2 METHODOLOGY

All sampling procedures were designed according to the Wyoming Department of Environmental Quality – Land Quality Division (WDEQ) Rules and Regulations for Non-Coal Permitting, Guideline 2 (November 1997) and July 2012 consultation with the WDEQ. Baseline vegetation sampling methods for the Upton Plant Site Permit Area were derived by BKS Environmental Associates, Inc. (BKS), of Gillette, Wyoming, in July 2012. WDEQ approved the baseline vegetation sampling methodology derived by BKS on July 19, 2012. BKS conducted the baseline vegetation assessment fieldwork July 30-August 2, 2012. All sampling procedures outlined in the approved WDEQ baseline vegetation sampling methodology were executed as approved.

D8-2.2.1 Vegetation Community Mapping

Six vegetation communities were identified within the Upton Plant Site Permit Area: Big Sagebrush Shrubland, Greasewood Shrubland, Meadow Grassland, Mixed Shrubland, Reclaimed Grassland, and Upland Grassland. Vegetation communities were mapped using U.S. Department of Agriculture (USDA) National Agricultural Imagery Program (NAIP) true color ortho aerial imagery and verified through field surveys. Extent and number of vegetation communities throughout the Upton Plant Site Permit Area were agreed upon by WDEQ, RER, and BKS personnel during the July 17, 2012, site visit. Disturbed areas within the Upton Plant Site Permit Area were identified and mapped, based on the scale of the available mapping.

All areas within $\frac{1}{2}$ mile of the Upton Plant Site Permit Area were mapped based on review of 2011 USDA NAIP true color ortho aerial imagery within the Upton Plant Site Permit Area. Field verification of the vegetation communities within the $\frac{1}{2}$ mile buffer was not necessary, and vegetation sampling was not conducted within the $\frac{1}{2}$ mile buffer.

D8-2.2.2 Selection of Sample Point Locations

A computerized systematic grid (through ArcGIS) was used to randomly locate 50 sample points within each vegetation community occurring within the Upton Plant Site Permit Area. These computer generated random locations were uploaded to a hand-held Global Positioning System (GPS) unit for actual location in the field. Sample points were sampled in numerical order until the minimum sample size was attained and then, until either sample adequacy was met or the required maximum number of samples had been collected. Disturbed areas were excluded from quantitative vegetation sampling.

D8-2.2.3 Sample Intensity

A total of 150 sample points were sampled within the Upton Plant Permit Area. Thirty-six sample points were sampled within the Big Sagebrush Shrubland vegetation community. Twenty-nine sample points were sampled within the Greasewood Shrubland vegetation community. Twenty-four sample points were sampled within the Meadow Grassland vegetation community. Twenty-two sample points were sampled withing the Reclaimed Grassland vegetation community. Twenty sample points were sampled within the Mixed Shrubland vegetation community. Nineteen sample points were sampled within the Upland Grassland vegetation community.

D8-2.2.4 Cover Sampling of Vegetation Communities

Line-transect point-intercept methods were used to collect percent absolute cover data within the Big Sagebrush Shrubland, Greasewood Shrubland, Meadow Grassland, Mixed Shrubland, Reclaimed Grassland, and Upland Grassland vegetation communities. Percent cover measurements were taken from point-intercepts at 1-meter intervals along a 50-meter cover transect using a laser point device at each sample location. Each 50-meter cover transect began at its specified random origin point and extended in a random compass direction. Transects that exceed the boundaries of the vegetation community being sampled were redirected back into its vegetation community at a 90 degree angle from the original transect direction at the point of intercept. In instances where a 90 degree angle of reflection did not place the transect within the sampled vegetation community, a 45 degree angle of reflection was used.

Each 50-meter cover transect represented a single sample point within the given vegetation community. Each point-intercept represented 2% of the cover measurement. Percent cover measurements recorded "first-hit" point-intercepts by live foliar vegetation species, litter, rock, or bare ground. "Second-hits" on vegetation were recorded, but used only for the purpose of constructing a plant species list for each vegetation community.

Percent vegetation cover is the vertical projection of the general outline of plants to the ground surface. All "first-hit" point-intercepts of living vegetation and growth, produced during the current growing season, were counted toward total vegetation cover. Lichen and moss were not included in total vegetation cover. Total vegetation cover data was summarized by computing absolute (mean) cover, relative cover (% of total vegetation cover), frequency, and relative frequency (% of total plot occurrences for each plant species).

Total ground cover equals the sum of cover values for percent vegetation, percent litter, percent cryptograms, and percent rock. Litter included all nonliving organic material that was recognizable. Rock fragments were recorded when equal to or greater than two centimeters in size (i.e., sheet flow, minimum non-erodible particle size). Total ground cover measurements were expressed in absolute percentages for each sample point.

D8-2.2.5 Shrub and Tree Density

Although shrub density sampling is not required for non-coal sites, this data was collected in conjunction with the cover sampling. Shrub density sampling was accomplished by counting each individual full, half-, and sub-shrub species within a 2-meter wide belt transect centered over the 50-meter cover

transect, yielding a $100\text{-}m^2$ belt transect. The number of individual shrub occurrences was recorded by species. The number shrub density belt transects equaled the number of 50-meter cover transects within each vegetation community. Data was tabulated by computing the mean density per m² and mean density per acre. Sample adequacy was not calculated for shrub density transects. General approximations of shrub heights were recorded; however, shrub height measurements were not summarized for purposes of this report.

Trees occurring within the Upton Plant Site Permit Area were direct counted, by species, at the time of cover sampling.

D8-2.2.6 Species Diversity and Composition

Species diversity was assessed by recording all plant species observed within the same 100-m² belt transect used for determining shrub density. These observations provide a measurement of the total species diversity for each vegetation community. Species diversity data was reported as the average numbers of species per 100-m² belt transect and total number of species within each vegetation community, based on the comprehensive plant species list of sampled and observed plant species. Species diversity calculations did not include Species Lacking Credible Value (SLCV): halogeton (*Halogeton glomeratus*), Japanese brome (*Bromus japonicus*), cheatgrass (*Bromus tectorum*), summer cypress (*Bassia sieversiana*), and Russian thistle (*Salsola tragus*), State Designated Noxious Weeds or Weston County Declared Weeds. The number of species diversity belt transects equaled the number of 50-meter cover transects within each vegetation community.

Based on the cover transect data, the total number of plant species, by lifeform, and the total number of plant species with greater than 2% relative vegetation cover, by lifeform, was also determined for each vegetation community.

A comprehensive plant species list of all species encountered during 2012 baseline vegetation assessment was compiled. Plant species encountered during other site assessments conducted on May 30, June 28, July 30-31, August 1-2, and August 9 2012 were also included in the species list. Plant species were compiled by lifeform and vegetation community. Scientific nomenclature follows the Rocky Mountain Vascular Plants of Wyoming (Dorn 2001).

D8-2.2.7 Sample Adequacy

Sample adequacy for absolute total vegetation cover and total ground cover was tested for each of the sampled vegetation communities, using the following formula as outlined in WDEQ Guideline 2:

$$n_{\min} = \frac{2(sz)^2}{(dx)^2}$$

Where n_{min} = the number of sample points needed in a given vegetation community

- s = sample standard deviation
- z = 1.28
- d = 0.1
- x = sample mean for absolute total vegetation cover or total ground cover

Confidence levels were determined as outlined in WDEQ Guideline 2.

D8-2.2.8 Extended Reference Area

For the purposes of this permit Extended Reference Area (EXREFA) means a native land unit which will be used to evaluate revegetation success for each of the same native vegetation communities which were affected by the proposed activities. All Big Sagebrush Shrubland, Greasewood Shrubland, Meadow Grassland, Mixed Shrubland, Reclaimed Grassland, and Upland Grassland vegetation communities unaffected by the proposed activities within the proposed Upton Plant Site Permit Area will serve as the EXREFA. The EXREFA will remain unaffected over the course of the project and will be as large as practical, at least two acres, considering land ownership patterns and land management history.

D8-2.2.9 Cropland and Hayland Productivity

No prime farmland or agricultural land of state wide importance occurs within the Upton Plant Site Permit Area or proposed Upton Plant Site Permit Area (NRCS 2013).

D8-2.3 RESULTS

Tables are located in Addendum D8-2-A. Refer to Addendum D8-2-B for the comprehensive plant species list. Refer to Addendum D8-2-C for the cover raw data and cover summaries. Refer to Addendum D8-2-D for the shrub density summaries. Refer to Addendum D8-2-E for photographs. Refer to Addendum D8-2-F for maps illustrating the vegetation communities, sample locations, and weeds present within the proposed Upton Plant Site Permit Area.

D8-2.3.1 Vegetation Community Mapping

The Upton Plant Site Permit Area is approximately 831.85 acres (Table D8-2.1). Of these acres, the Big Sagebrush Shrubland vegetation community occupied approximately 138.78 acres (16.68%), the Greasewood Shrubland vegetation community occupied approximately 153.30 acres (18.43%), the Meadow

Grassland vegetation community occupied approximately 36.16 acres (4.35%), the Mixed Shrubland vegetation community occupied approximately 334.76 acres (40.24%), the Reclaimed Grassland vegetation community occupied approximately 45.80 acres (5.51%), and the Upland Grassland vegetation community occupied approximately 116.24 acres (13.97%). Disturbed areas, defined as lands disturbed by human activities, encompassed approximately 3.90 acres (0.47%), and water covered approximately 2.91 acres (0.35%).

D8-2.3.2 Big Sagebrush Shrubland

This vegetation community comprised 138.78 of the 831.85 acre (16.68%) Upton Plant Site Permit Area and was characterized by greater than 20% big sagebrush (*Artemisia tridentata*) canopy cover. This vegetation community was found on deeper, fine-textured soils in the northwest, southwest, and southeast portions of the Upton Plant Site Permit Area. The topography of these sites captures snow during the winter months, creating persistent drifts resulting in different vegetation types than adjacent sites where snow blows free. Big sagebrush shrubland habitats often end along fence lines, indicating delineation based on different land use practices.

D8-2.3.2.1 Cover

Thirty-six, 50-meter cover transects were sampled within the Big Sagebrush Shrubland vegetation community. Absolute total vegetation cover was 48.22%. Absolute total ground cover was 96.66% (Table D8-2.2). Absolute bare soil and litter/rock percentages were 3.34% and 44.88%, respectively. Cryptograms provided 3.56% absolute cover (Table D8-2.5). Native cool season perennial grasses were the dominant lifeform with 43.31% relative vegetation cover, followed by native full shrubs with 25.58% relative vegetation cover (Table D8-2.4). Big sagebrush provided the highest relative vegetation cover at 25.13%, while western wheatgrass (*Elymus smithil*) provided the next highest relative vegetation cover at 22.11% (Addendum D8-2-C).

D8-2.3.2.2 Shrub and Tree Density

Shrub density was 0.81 shrubs/ m^2 or 3,076.83 shrubs/acre (Table D8-2.2). Big sagebrush contributed 90.27% of the relative density with 0.73 shrubs/ m^2 (Addendum D8-2-D). No trees were observed within the Big Sagebrush Shrubland vegetation community.

D8-2.3.2.3 Species Diversity and Composition

Excluding SLCV, 11 lifeforms and 37 plant species were sampled or observed within the Big Sagebrush Shrubland vegetation community (Addendum D8-2-B). The mean number of plant species sampled or observed per belt transect was 9.69 (Addendum D8-2-C). Native perennial forbs were the most common

lifeform encountered with nine plant species sampled or observed. Native cool season perennial grasses were the second most common lifeform with six plant species sampled or observed (Addendum D8-2-B). Based on all plant species sampled on the cover transects, native cool season perennial grass, native warm season perennial grass, introduced perennial grass, native grasslike, and native full shrub lifeforms all had at least one plant species with greater than 2% relative vegetation cover (Table D8-2.6).

D8-2.3.3 Greasewood Shrubland

This vegetation community occupied 153.30 acres of the 831.85 acre (18.43%) Upton Plant Site Permit Area. This vegetation community was characterized by greater than 20% greasewood (*Sarcobatus vermiculatus*) canopy cover and occurred throughout the proposed Upton Plant Site Permit Area on breaks, as well as low-lying areas adjacent to the Meadow Grassland vegetation community on saline or alkaline floodplains.

D8-2.3.3.1 Cover

Twenty-nine, 50-meter cover transects were sampled within the Greasewood Shrubland vegetation community. Absolute total vegetation cover was 61.10%. Absolute total ground cover was 89.93% (Table D8-2.2). Absolute bare soil and litter/rock percentages were 10.07% and 28.42%, respectively. Cryptograms provided 0.41% absolute cover (Table D8-2-5). Introduced perennial grasses were the dominant lifeform with 45.16% relative vegetation cover, followed by native cool season perennial grasses with 28.45% relative vegetation cover (Table D8-2.4). Crested wheatgrass (*Agropyron cristatum*) provided the highest relative vegetation cover at 43.36%, while greasewood provided the next highest relative vegetation cover at 19.19% (Addendum D8-2-C).

D8-2.3.3.2 Shrub and Tree Density

Shrub density was 0.90 shrubs/ m^2 or 3,639.47 shrubs/acre (Table D8-2.2). Greasewood contributed 71.36% of the relative density with 0.64 shrubs/ m^2 (Addendum D8-2-D). No trees were observed within the Greasewood Shrubland vegetation community.

D8-2.3.3.3 Species Diversity and Composition

Excluding SLCV, 11 lifeforms and 37 plant species were sampled or observed within the Greasewood Shrubland vegetation community (Addendum D8-2-B). The mean number of plant species sampled or observed per belt transect was 7.41 (Addendum D8-2-C). Native cool season perennial grasses were the most common lifeform encountered with nine plant species sampled or observed. Native perennial forbs were the second most common lifeform with five plant species sampled or observed (Addendum D8-2-B). Based on all plant species

sampled on the cover transects, native cool season perennial grass, introduced perennial grass, and native full shrub lifeforms all had at least one plant species with greater than 2% relative vegetation cover (Table D8-2.6).

D8-2.3.4 Meadow Grassland

This vegetation community occupied approximately 36.16 acres of the 831.85 acre (4.35%) Upton Plant Site Permit Area. The Meadow Grassland vegetation community was found in shallow ephemeral drainages in the western portion of the Upton Plant Site Permit Area to deeper, more incised drainages along Coyote Creek in the eastern portion of the Upton Plant Site Permit Area, as well as surrounding reservoirs throughout the Upton Plant Site Permit Area and one seep/spring in the southwest portion of the Upton Plant Site Permit Area. Soils were generally deep, clayey or fine textured and not well developed.

D8-2.3.4.1 Cover

Twenty-four, 50-meter cover transects were sampled within the Meadow Grassland vegetation community. Absolute total vegetation cover was 60.60%. Absolute total ground cover was 94.44% (Table D8-2.2). Absolute bare soil and litter/rock percentages were 5.56% and 33.84%, respectively. Cryptograms were not observed within this vegetation community (Table D8-2.5). Native cool season perennial grasses were the dominant lifeform with 41.82% relative vegetation cover, followed by native warm season perennial grasses with 23.93% relative vegetation cover (Table D8-2.4). Western wheatgrass provided the highest relative vegetation cover at 34.39%, while prairie cordgrass (*Spartina pectinata*) provided the next highest relative vegetation cover at 19.93% (Addendum D8-2-C).

D8-2.3.4.2 Shrub and Tree Density

Shrub density was 0.01 shrubs/m² or 52.21 shrubs/acre (Table D8-2.2). Greasewood contributed 90.70% of the relative density at 0.01 shrubs/m² (Addendum D8-2-D). Two trees were observed within the Meadow Grassland vegetation community: one eastern cottonwood (*Populus deltoides*) in the central portion of the Upton Plant Site Permit Area and one peachleaf willow (*Salix amygdaloides*) in the southeast portion of the Upton Site Permit Area.

D8-2.3.4.3 Species Diversity and Composition

Excluding SLCV, 12 lifeforms and 48 plant species were sampled or observed within the Meadow Grassland vegetation community (Addendum D8-2-B). The mean number of plant species sampled or observed per belt transect was 6.80 (Addendum D8-2-C). Native perennial forbs were the most common lifeform encountered with 10 plant species sampled or observed. Native cool season

perennial grasses were the second most common lifeform with eight plant species sampled or observed (Addendum D8-2-B). Based on all plant species sampled on the cover transects, native cool season perennial grass, native warm season perennial grass, introduced perennial grass, and native grasslikes lifeforms all had at least one plant species with greater than 2% relative vegetation cover (Table D8-2.6).

D8-2.3.5 Mixed Shrubland

This vegetation community occupied approximately 334.76 acres of the 831.85 acre (40.24%) Upton Plant Site Pemit Area and was characterized by greater than 20% greasewood and big sagebrush canopy cover. Big sagebrush and yellow rabbitbrush (*Chrysothamnus viscidiflorus*) were the dominant shrub species present, with greasewood and broom snakeweed (*Gutierrezia sarothrae*) also accounting for high shrub cover. Generally, each shrub species was equally dominant across the vegetation community. The Mixed Shrubland vegetation community occurred throughout most of the central portion of the Upton Plant Site Permit Area on breaks, slopes, and low-lying areas on saline or alkaline floodplains.

D8-2.3.5.1 Cover

Twenty, 50-meter cover transects were sampled within the Mixed Shrubland vegetation community. Absolute total vegetation cover was 48.60%. Absolute total ground cover was 85.80% (Table D8-2.2). Absolute bare soil and litter/rock percentages were 14.20% and 34.60%, respectively. Cryptograms provided 2.60% absolute cover (Table D8-2.5). Native cool season perennial grasses were the dominant lifeform with 39.50% relative vegetation cover, followed by introduced perennial grasses with 25.92% relative vegetation cover (Table D8-2.4). Crested wheatgrass provided the highest relative vegetation cover at 24.69%, while big sagebrush provided the next highest relative vegetation cover at 15.43% (Addendum D8-2-C).

D8-2.3.5.2 Shrub and Tree Density

Shrub density was 1.26 shrubs/m² or 5,083.03 shrubs/acre (Table D8-2.2). Big sagebrush contributed 69.31% of the relative density at 0.87 shrubs/m², and yellow rabbitbrush provided 11.54% of the relative density (Addendum D8-2-D). One Rocky Mountain juniper (*Juniperus scopulorum*) was observed in the northwest portion of the Upton Plant Site Permit Area within the Mixed Shrubland vegetation community.

D8-2.3.5.3 Species Diversity and Composition

Excluding SLCV, 11 lifeforms and 27 plant species were sampled or observed within the Mixed Shrubland vegetation community (Addendum D8-2-B). The

mean number of plant species sampled or observed per belt transect is 10.95 (Addendum D8-2-C). Native perennial forbs were the most common lifeform encountered with eight plant species sampled or observed. Native cool season perennial grasses and native full shrubs were the second most common lifeforms with four plant species sampled or observed within each lifeform (Addendum D8-2-B). Based on all plant species sampled on the cover transects, native cool season perennial grass, introduced perennial grass, and native full shrub lifeforms all had at least one plant species with greater than 2% relative vegetation cover (Table D8-2.6).

D8-2.3.6 Reclaimed Grassland

This vegetation community occupied approximately 45.80 acres of the 831.85 acre (5.51%) Upton Plant Site Permit Area. The Reclaimed Grassland vegetation community was located in the northeastern portion of the Upton Plant Site Permit Area on a reclaimed bentonite mine. Due to the past disturbance and relatively recent seeding of this area, there was a high percentage of bare ground. Common species used in reclamation were observed, and included western wheatgrass and crested wheatgrass.

D8-2.3.6.1 Cover

Twenty-two, 50-meter cover transects were sampled within the Reclaimed Grassland vegetation community. Absolute total vegetation cover was 38.24%. Absolute total ground cover was 92.14% (Table D8-2.2). Absolute bare soil and litter/rock percentages were 7.86% and 53.90%, respectively. Cryptograms were not observed within this vegetation community (Table D8-2.5). Native cool season perennial grasses were the dominant lifeform with 71.08% relative vegetation cover, followed by introduced perennial grasses with 20.71% relative vegetation cover (Table D8-2.4). Western wheatgrass provided the highest relative vegetation cover at 59.41%, while crested wheatgrass provided the next highest relative vegetation cover at 19.98% (Addendum D8-2-C).

D8-2.3.6.2 Shrub and Tree Density

Shrub density was 0.14 shrubs/ m^2 or 554.01 shrubs/acre (Table D8-2.2). Greasewood contributed 97.30% of the relative density at 0.13 shrubs/ m^2 (Addendum D8-2-D). No trees were observed within the Reclaimed Grassland vegetation community.

D8-2.3.6.3 Species Diversity and Composition

Excluding SLCV, nine lifeforms and 29 plant species were sampled or observed within the Reclaimed Grassland vegetation community (Addendum D8-2-B). The mean number of plant species sampled or observed per belt transect was

4.96 (Addendum D8-2-C). Native cool season perennial grasses were the most common lifeform encountered with eight plant species sampled or observed. Native warm season perennial grasses were the second most common lifeform with four plant species sampled or observed (Addendum D8-2-B). Based on all plant species sampled on the cover transects, native cool season perennial grass and introduced perennial grass lifeforms all had at least one plant species with greater than 2% relative vegetation cover (Table D8-2.6).

D8-2.3.7 Upland Grassland

This vegetation community occupied approximately 116.24 acres of the 831.85 acre (13.97%) Upton Plant Site Permit Area. The Upland Grassland vegetation community was generally located on rolling topography with shallow, moderately deep, to deep light-textured soils along gently sloping to moderately steep hillsides extending from ridge tops to ephemeral drainages throughout the Upton Plant Site Permit Area.

D8-2.3.7.1 Cover

Nineteen, 50-meter cover transects were sampled within the Upland Grassland vegetation community. Absolute total vegetation cover was 48.60%. Absolute total ground cover was 98.50% (Table D8-2.2). Absolute bare soil and litter/rock percentages were 1.50% and 49.26%, respectively. Cryptograms provided 0.64% absolute cover (Table D8-2.5). Introduced perennial grasses were the dominant lifeform with 79.30% relative vegetation cover, followed by native cool season perennial grasses with 13.50% relative vegetation cover (Table D8-2.4). Crested wheatgrass provided the highest relative vegetation cover at 78.64%, while Sandberg bluegrass (*Poa secunda*) provided the next highest relative vegetation cover at 6.30% (Addendum D8-2-C).

D8-2.3.7.2 Shrub and Tree Density

Shrub density was 0.08 shrubs/m² or 329.82 shrubs/acre (Table D8-2.2). Big sagebrush contributed 60.00% of the relative density at 0.05 shrubs/m², and Woods' rose (*Rosa woodsii*) contributed 36.81% of the relative density at 0.03 shrubs/m² (Addendum D8-2-D). No trees were observed within the Upland Grassland vegetation community.

D8-2.3.7.3 Species Diversity and Composition

Excluding SLCV, eight lifeforms and 22 plant species were sampled or observed within the Upland Grassland vegetation community (Addendum D8-2-B). The mean number of plant species sampled or observed per belt transect was 4.80 (Addendum D8-2-C). Native cool season perennial grasses were the most common lifeform encountered with five plant species sampled or observed.

Native warm season perennial grasses and native full shrubs were the second most common lifeforms with four plant species sampled or observed within each lifeform (Addendum D8-2-B). Based on all plant species sampled on the cover transects, native cool season perennial grass, native warm season perennial grass, and introduced perennial grass lifeforms all had at least one plant species with greater than 2% relative vegetation cover (Table D8-2.6).

D8-2.3.8 Sample Adequacy

Thirty-six, 50-meter cover transects were sampled within the Big Sagebrush Shrubland vegetation community. Twenty-nine, 50-meter cover transects were sampled within the Greasewood Shrubland vegetation community. Twentyfour, 50-meter cover transects were sampled within the Meadow Grassland vegetation community. Twenty-two, 50-meter cover transects were sampled within the Reclaimed Grassland vegetation communities. Twenty, 50-meter cover transects were sampled within the in the Mixed Shrubland vegetation community. Nineteen, 50-meter cover transects were sampled within the Upland Grassland vegetation community. The sample adequacy formula, outlined in WDEQ Guideline 2, was utilized to determine the minimum required size of the sample population.

All sampled vegetation communities but the Reclaimed Grassland met sample adequacy (Table D8-2.3). The Reclaimed Grassland had a computed sample adequacy size of 22; an additional seven samples were collected above the maximum number required based on the WDEQ methodology. The confidence level achieved was 80.78%.

D8-2.4 THREATENED AND ENDANGERED HABITAT AND SPECIES SURVEYS

Refer to Table D8-2.7 for a tabular summary of potential occurrence determinations for Threatened and Endangered plant species within the proposed Upton Site Permit Area.

D8-2.4.1 Ute ladies'-tresses (Spiranthes diluvialis)

Habitat suitability for Ute ladies'-tresses (*Spiranthes diluvialis*), within the Upton Plant Site Permit Area, was evaluated based on the presence of the following characteristics: late season perennial water source, associated vegetation species, sandy or loamy textured soils, gradual transitions between uplands and water body or drainages, vegetation density between 75% and 90%, vegetation height less than 18 inches, and non-alkaline soils. Based on August field evaluations, late season perennial water sources were present within the Upton Plant Site Permit Area. However, where late season perennial water sources were present sources were present, associated vegetation species, appropriate soil

textures, gradual transitions, vegetation cover and density, and non-alkaline sandy or loamy textured soils were not present or not present in sufficient combination to provide suitable habitat. No individuals or populations of Ute ladies'-tresses were found during field surveys, and based on the lack of suitable habitat characteristics, local habitat was confirmed unsuitable for Ute ladies'-tresses.

D8-2.4.2 Blowout penstemon (*Penstemon haydenii*)

Habitat suitability for blowout penstemon (*Penstemon haydenii*), within the Upton Plant Site Permit Area, was evaluated based on the presence of the following characteristics: eolian sand deposits or sand deposits greater than three feet in depth, fine sandy textured soils absent of rocks and coarse fragments, wind or gravity erosion versus water erosion, slopes greater than 25%, slope elevation changes of 60 to 120 feet, vegetation cover of less than 40%, and associated plant species. Based on Natural Resource Conservation soil data and the 2012 baseline soil assessment, soils derived from eolian sources were not present within the Upton Plant Site Permit Area. Therefore, no blowout penstemon surveys were conducted in within the Upton Plant Site Permit Area.

D8-2.5 OTHER SPECIAL STATUS PLANT SPECIES

WYNDD reports no special status plant species within the Upton Plant Site Permit Area (WYNDD 2012).

D8-2.6 SELENIUM INDICATORS

One selenium indicator, two-grooved milkvetch (*Astragalus bisulcatus*), was observed within the Big Sagebrush Shrubland and Reclaimed Grassland vegetation communities. Selenium indicator plant species are known to accumulate selenium within plant tissue and cause sickness and death in livestock and wildlife (Beath 1982).

D8-2.7 NOXIOUS WEEDS

Surveys for Wyoming State Designated Noxious Weeds (Wyoming Weed and Pest Council 2012a) and Weston County Declared Weeds (Wyoming Weed and Pest Council 2012b) were conducted in conjunction with baseline vegetation mapping, sampling, and threatened and endangered plant species surveys. All State Designated Noxious Weeds and Weston County Declared Weeds observed during these surveys were GPS located and mapped. Refer to Addendum D8-2-F for a map illustrating weed location within the Upton Plant Site Permit Area.

One State Designated Noxious Weed, Canada thistle (*Cirsium arvense*), was observed. Canada thistle was observed within the Big Sagebrush Shrubland,

Meadow Grassland, and Mixed Shrubland vegetation communities either as scattered populations along stream channels and reservoirs or as small isolated populations scattered throughout the Upton Plant Site Permit Area.

Three Weston County Declared Weeds were encountered: wild licorice (*Glycyrrhiza lepidota*), broom snakeweed, and curly dock (*Rumex crispus*). Wild licorice was observed within the Meadow Grassland vegetation community along stream channels and edges of reservoirs. Broom snakeweed was observed within the Big Sagebrush Shrubland, Greasewood Shrubland, Mixed Shrubland, and Upland Grassland vegetation communities, either as small isolated populations or larger populations spreading throughout the community. Curly dock was observed within the Meadow Grassland vegetation community along stream channels and surrounding reservoirs.

D8-2.8 SUMMARY OF VEGETATION SURVEYS

The approximately 831.85 acre Upton Plant Site Permit Area consisted of six vegetation communities: Big Sagebrush Shrubland, Greasewood Shrubland, Meadow Grassland, Mixed Shrubland, Reclaimed Grassland, and Upland Grassland. Shrubland vegetation communities covered approximately 75% of the Upton Plant Site Permit Area. Mixed Shrubland was the dominant shrubland vegetation community accounting for approximately 40% of the Upton Plant Site Permit Area. Big Sagebrush Shrubland and Greasewood Shrubland vegetation communities occurred on almost equal percentages of the Upton Plant Site Permit Area.

Total vegetation cover ranged from 38.24% to 61.10%. Total ground cover ranged from 85.80% to 98.50%. Excluding SLCV, species diversity ranged from 22 to 48 plant species sampled or observed, with a total of 83 plant species sampled or observed within the Upton Plant Site Permit Area. Big sagebrush and greasewood were the most abundant shrub species. Western wheatgrass, prairie sandreed, Sandberg bluegrass, crested wheatgrass, and smooth brome (*Bromus inermis*) were the dominant perennial grasses. The dominant perennial forb species were western yarrow (*Achillea millefolium*) and prairie thermopsis (*Thermopsis rhombifolia*).

No special status plant species or suitable habitats were encountered within the Upton Plant Site Permit Area. One State Designated Noxious Weed and three Weston County Declared Weeds were observed throughout the Upton Plant Site Permit Area.

D8-2.9 REFERENCES

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ADDENDUM D8-2-A

TABLES

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Table D8-2.1: Acreage and Pe	rcent of Total Area for Each Vegetation Community with the Upton Pla
Site Permit Area.	

Vegetation Community	Upton P Proposed F	lant Site Permit Area	1/2 Mile Buffer		
	Acres	% of Area	Acres	% of Area	
Big Sagebrush Shrubland	138.78	16.68	376.30	16.95	
Greasewood Shrubland	153.30	18.43	58.16	2.62	
Meadow Grassland	36.16	4.35	55.08	2.48	
Mixed Shrubland	334.76	40.24	988.44	44.52	
Reclaimed Grassland	45.80	5.51	201.73	9.09	
Upland Grassland	116.24	13.97	153.53	6.91	
Disturbance	3.90	0.47	350.46	15.78	
Water	2.91	0.35	36.62	1.65	
Total	831.85	100.00	2,220.32	100.00	

Table D8-2.3: Summary	v of 2012 Major Ve	getation Parameters for th	e Upton Plant Site Permit Area.
		A · · · · · · · · · · · · · · · · · · ·	

Vegetation Community	Total Vegetation Cover	Total Ground Cover	Shrub Density
vegetation community	(Absolute %)	(Absolute %)	$(\#/m^2)$
Big Sagebrush Shrubland	48.22	96.66	0.81
Greasewood Shrubland	61.10	89.93	0.90
Meadow Grassland	60.60	94.44	0.01
Mixed Shrubland	48.60	85.80	1.26
Reclaimed Grassland	38.24	92.14	0.14
Upland Grassland	48.60	98.50	0.08

Vegetation Community	Mean	Standard Deviation	Computed Sample Adequacy Sample Size	Actual Sample #	Computed Z-Value	Confidence Level Achieved		
Big Sagebrush Shrubland	Big Sagebrush Shrubland							
Total Vegetation Cover	48.22	14.84	31	36	N/A	N/A		
Total Ground Cover	96.66	3.96	1	36	N/A	N/A		
Greasewood Shrubland								
Total Vegetation Cover	61.10	16.88	25	29	N/A	N/A		
Total Ground Cover	89.93	11.08	5	29	N/A	N/A		
Meadow Grassland								
Total Vegetation Cover	60.60	15.14	20	24	N/A	N/A		
Total Ground Cover	94.44	12.38	6	24	N/A	N/A		
Mixed Shrubland								
Total Vegetation Cover	48.60	8.68	11	20	N/A	N/A		
Total Ground Cover	85.80	9.74	5	20	N/A	N/A		
Reclaimed Grassland								
Total Vegetation Cover	38.24	10.26	24	22	0.87	87.90		
Total Ground Cover	92.14	7.76	2	22	N/A	N/A		
Upland Grassland								
Total Vegetation Cover	48.60	9.40	12	19	N/A	N/A		
Total Ground Cover	98.50	4.46	1	19	N/A	N/A		

Table D8-2.3: Summary of 2012 Sample Adequacy Calculations for the Upton Plant Site Permit Area.

Table D8-2.4: Summary of 2012 Mean	Vegetation Cover	Data, by Lifeform,	for the Upton Plant Site
Permit Area.			

Lifeform	Big Sagebrush Shrubland		Greasewood Shrubland		Meadow Grassland	
Lifelorm	Absolute	Relative	Absolute	Relative	Absolute	Relative
	%	%1	%	%1	%	%1
Native Annual Grasses					0.66	1.09
Introduced Annual Grasses	0.50	1.04	0.48	0.79	0.16	0.26
Native Cool Season Perennial Grasses	20.88	43.31	17.38	28.45	25.34	41.82
Native Warm Season Perennial Grasses	1.18	2.45	0.55	0.90	14.50	23.93
Introduced Perennial Grasses	7.40	15.35	27.59	45.16	8.76	14.46
Native Grasslike Species	2.34	4.85	0.14	0.23	8.16	13.47
Native Annual Forbs					0.76	1.25
Introduced Annual Forbs			0.21	0.34		
Introduced Biennial Forbs	0.40	0.83	0.07	0.11	0.08	0.13
Native Perennial Forbs	1.66	3.44	0.34	0.56	0.42	0.69
Introduced Perennial Forbs	0.18	0.37			1.42	2.34
Native Full Shrubs	12.34	25.58	13.17	21.55	0.34	0.56
Native Half & Sub-Shrubs	0.68	1.41	0.14	0.23		
Native Succulents	0.66	1.37	1.03	1.69		

¹Relative percentages within these communities do not appear to add to 100.00% based on the rounded values shown, non-rounded values equal 100.00%.

T if of o me	Mixed Shrubland		Reclaimed Grassland		Upland Grassland		
Lifelorm	Absolute	Relative	Absolute	Relative	Absolute	Relative	
	%	%	%	%	%	%	
Native Annual Grasses							
Introduced Annual Grasses			0.28	0.73	0.10	0.21	
Native Cool Season Perennial Grasses	19.2	39.50	27.18	71.08	6.56	13.50	
Native Warm Season Perennial Grasses	0.8	1.64	1.02	2.67	1.60	3.29	
Introduced Perennial Grasses	12.6	25.92	7.92	20.71	38.54	79.30	
Native Grasslike Species	0.3	0.62					
Native Annual Forbs	0.1	0.21					
Introduced Annual Forbs							
Introduced Biennial Forbs	0.5	1.03	0.36	0.94	0.42	0.86	
Native Perennial Forbs	2.6	5.36	0.64	1.67	0.54	1.11	
Introduced Perennial Forbs					0.10	0.21	
Native Full Shrubs	10.8	22.22	0.84	2.20	0.42	0.86	
Native Half & Sub-Shrubs	1.0	2.06					
Native Succulents	0.7	1.44			0.32	0.66	

Table D8-2.4 (Cont.): Summary of 2012 Mean Vegetation Cover Data, by Lifeform, for the Upton Plant Site Permit Area.

¹Relative percentages within these communities do not appear to add to 100.00% based on the rounded values shown, non-rounded values equal 100.00%.

Table D8-2.5: Summary by 2012 Mean Vegetation Cover Data, by Species, for the Upton Plant S	Site
Permit Area.	

Lifeform/Scientific Name	Common Name	Big Sagebrush Shrubland	Greasewood Shrubland	Meadow Grassland
		Absolute %	Absolute %	Absolute %
Native Annual Grasses				
Beckmannia syzigachne	American sloughgrass			0.66
Subtotal				0.66
Introduced Annual Grasses				
Bromus japonicus	Japanese brome	0.50	0.48	0.16
Subtotal		0.50	0.48	0.16
Native Cool Season Perenni	ial Grasses			
Achnatherum hymenoides	Indian ricegrass	0.22		
Elymus cinereus	Basin wildrye			
Elymus lanceolatus	Thickspike wheatgrass		0.21	0.16
Elymus smithii	Western wheatgrass	10.66	10.21	20.84
Elymus spicatus	Bluebunch wheatgrass		0.07	0.50
Hesperostipa comata	Needleandthread	2.06		
Hordeum jubatum	Foxtail barley			2.58
Koeleria macrantha	Prairie junegrass	2.00	0.76	
Muhlenbergia asperifolia	Alkali muhly			0.26
Nassella viridula	Green needlegrass	2.66	1.10	
Poa secunda	Sandberg bluegrass	3.28	5.03	0.16
Puccinellia nuttalliana	Alkaligrass			0.84
Subtotal		20.88	17.38	25.34

Table D8-2.5 (Cont.): Summary by 2012 Mean	Vegetation	Cover Data,	by Species,	for the Up	ton Plant
Site Permit Area.					

Lifeform/Scientific Name	Common Name	Big Sagebrush Shrubland	Greasewood Shrubland	Meadow Grassland
		Absolute %	Absolute %	Absolute %
Native Warm Season Perenni	al Grasses			
Bouteloua gracilis	Blue grama	1.06		
Calamovilfa longifolia	Prairie sandreed		0.48	2.34
Schizachyrium scoparium	Little bluestem			
Spartina pectinata	Prairie cordgrass		0.07	12.08
Sporobolus airoides	Alkali sacaton	0.12		0.08
Sporobolus cryptandrus	Sand dropseed			
Subtotal		1.18	0.55	14.50
Introduced Perennial Grasse	S			
Agropyron cristatum	Crested wheatgrass	6.66	26.49	0.08
Bromus inermis	Smooth brome	0.34	0.55	0.08
Elymus hispidus	Intermediate wheatgrass			
Phleum pratense	Timothy	0.06	0.07	0.34
Poa pratensis	Kentucky bluegrass	0.34	0.48	8.26
Subtotal		7.40	27.59	8.76
Native Grasslike Species				
Carex filifolia	Threadleaf sedge	2.34	0.14	
Carex nebrascensis	Nebraska sedge			3.08
Carex praegracilis	Clustered field sedge			0.08
Eleocharis palustris	Common spikerush			4.58
Juncus balticus	Mountain rush			0.34
Juncus interior	Inland rush			0.08
Subtotal		2.34	0.14	8.16

Table D8-2.5 (Cont.): Summary by 2012 Mean	Vegetation (Cover Data,	by Species,	for the Upton	Plant
Site Permit Area.					

Lifeform/Scientific Name	Common Name	Big Sagebrush Shrubland	Greasewood Shrubland	Meadow Grassland
		Absolute %	Absolute %	Absolute %
Native Annual Forbs				-
Chenopodium berlandieri	Pitseed goosefoot			
Gnaphalium palustre	Western marsh cudweed			
Xanthium strumarium	Common cocklebur			0.76
Subtotal				0.76
Introduced Annual Forbs				
Alyssum desertorum	Desert alyssum		0.07	
Camelina microcarpa	Littleseed falseflax			
Chenopodium glaucum	Oakleaf goosefoot			
Descurainia sophia	Flixweed		0.07	
Lepidium perfoliatum	Shieldcress		0.07	
Polygonum aviculare	Prostrate knotweed			
Thlaspi arvense	Field pennycress			
Subtotal			0.21	
Introduced Biennial Forbs				
Lactuca serriola	Prickly lettuce			0.08
Melilotus officinalis	Sweetclover	0.28	0.07	
Tragopogon dubius	Yellow salsify	0.12		
Subtotal		0.40	0.07	0.08

Table D8-2.5 (Cont.): Summary by 2012 Mean	Vegetation (Cover Data,	by Species,	for the Upton	Plant
Site Permit Area.					

Lifeform/Scientific Name	Common Name	Big Sagebrush Shrubland	Greasewood Shrubland	Meadow Grassland
		Absolute %	Absolute %	Absolute %
Native Perennial Forbs				
Achillea millefolium	Western yarrow	0.28	0.14	0.08
Astragalus bisulcatus	Two-grooved milkvetch			
Astragalus spatulatus	Spoonleaf milkvetch			
Calochortus gunnisonii	Gunnison mariposalily			0.08
Dalea candida	White prairie clover			
Gaura coccinea	Scarlet gaura			
Glycyrrhiza lepidota	Wild licorice			
Grindelia squarrosa	Curlycup gumweed		0.14	
Phlox hoodii	Hoods phlox	0.94	0.06	
Psoralidium tenuiflorum	Slimflower scurfpea			
Ratibida columnifera	Upright prairie coneflower	0.22		
Sphaeralcea coccinea	Scarlet globemallow	0.16		
Thermopsis rhombifolia	Prairie thermopsis			
Typha latifolia	Broadleaf cattail			0.26
Vicia americana	American vetch	0.06		
Subtotal		1.66	0.34	0.42

Table D8-2.5 (Cont.): Summary by 2012 Mea	n Vegetation	Cover Data,	by Species,	for the Up?	ton Plant
Site Permit Area.					

Lifeform/Scientific Name	Common Name	Big Sagebrush Shrubland	Greasewood Shrubland	Meadow Grassland
		Absolute %	Absolute %	Absolute %
Introduced Perennial Forbs				
Astragalus cicer	Chickpea milkvetch	0.06		0.08
Cirsium arvense	Canada thistle			0.26
Medicago sativa	Alfalfa			
Rumex crispus	Curly dock			0.92
Taraxacum officinale	Common dandelion	0.12		0.08
Trifolium pratense	Red clover			0.08
Subtotal		0.18		1.42
Native Full Shrubs				
Artemisia cana	Silver sagebrush		0.07	
Artemisia tridentata	Big sagebrush	12.12	1.31	
Atriplex canescens	Four-wing saltbush			
Chrysothamnus viscidiflorus	Yellow rabbitbrush	0.06	0.07	
Rosa woodsii	Woods' rose			
Sarcobatus vermiculatus	Greasewood	0.16	11.72	0.34
Subtotal		12.34	13.17	0.34

Table D8-2.5 (Cont.): Summary by 2012 Mean	Vegetation C	over Data, b	y Species, fo	or the Upton I	Plant
Site Permit Area.					

Lifeform/Scientific Name	Common Name	Big Sagebrush Shrubland	Greasewood Shrubland	Meadow Grassland
		Absolute %	Absolute %	Absolute %
Native Half & Sub-Shrubs				
Artemisia frigida	Fringed sagewort	0.50	0.07	
Atriplex gardneri	Gardner saltbush			
Gutierrezia sarothrae	Broom snakeweed	0.06	0.07	
Krascheninnikovia lanata	Winterfat	0.12		
Subtotal		0.68	0.14	
Native Succulents				
Opuntia polyacantha	Plains pricklypear	0.66	1.03	
Subtotal		0.66	1.03	
Total Vegetation Cover		48.22	61.10	60.60
Cryptograms		3.56	0.41	
Litter		44.66	28.28	33.84
Rock		0.22	0.14	
Total Ground Cover		96.66	89.93	94.44
Bare Ground		3.34	10.07	5.56

Table D8-2.5 (cont.): Summary by 2012 Mean Vegetation Cover Data, by Species, for the Upton Plant Site Permit Area.

Lifeform/Scientific Name	Common Name	Mixed Shrubland	Reclaimed Grassland	Upland Grassland	
		Absolute %	Absolute %	Absolute %	
Native Annual Grasses					
Beckmannia syzigachne	American sloughgrass				
Subtotal					
Introduced Annual Grasses					
Bromus japonicus	Japanese brome		0.28	0.10	
Subtotal			0.28	0.10	
Native Cool Season Perennial (Brasses			-	
Achnatherum hymenoides	Indian ricegrass				
Elymus cinereus	Basin wildrye				
Elymus lanceolatus	Thickspike wheatgrass				
Elymus smithii	Western wheatgrass	6.80	22.72	2.64	
Elymus spicatus	Bluebunch wheatgrass		2.18		
Hesperostipa comata	Needleandthread			0.22	
Hordeum jubatum	Foxtail barley				
Koeleria macrantha	Prairie junegrass	3.80	1.00	0.42	
Muhlenbergia asperifolia	Alkali muhly				
Nassella viridula	Green needlegrass	4.70	0.28	0.22	
Poa secunda	Sandberg bluegrass	3.90	1.00	3.06	
Puccinellia nuttalliana	Alkaligrass				
Subtotal		19.20	27.18	6.56	

Table D8-2.5 (Cont.): Summary by 2012 Mean Vegetation Cover Data, by Species, for the Upton Plant Site Permit Area.

Lifeform/Scientific Name	Common Name	Mixed Shrubland	Reclaimed Grassland	Upland Grassland				
		Absolute %	Absolute %	Absolute %				
Native Warm Season Perennial								
Bouteloua gracilis	Blue grama	0.20						
Calamovilfa longifolia	Prairie sandreed	0.60	0.10	1.06				
Schizachyrium scoparium	Little bluestem			0.22				
Spartina pectinata	Prairie cordgrass							
Sporobolus airoides	Alkali sacaton		0.64	0.32				
Sporobolus cryptandrus	Sand dropseed		0.28					
Subtotal		0.80	1.02	1.60				
Introduced Perennial Grasses								
Agropyron cristatum	Crested wheatgrass	12.00	7.64	38.22				
Bromus inermis	Smooth brome	0.60	0.28	0.32				
Elymus hispidus	Intermediate wheatgrass							
Phleum pratense	Timothy							
Poa pratensis	Kentucky bluegrass							
Subtotal		12.60	7.92	38.54				
Native Grasslike Species								
Carex filifolia	Threadleaf sedge	0.30						
Carex nebrascensis	Nebraska sedge							
Carex praegracilis	Clustered field sedge							
Eleocharis palustris	Common spikerush							
Juncus balticus	Mountain rush							
Juncus interior	Inland rush							
Subtotal		0.30						
Table D8-2.5 (Cont.): Summary by	2012 Mean	Vegetation	Cover Da	ata, by	Species,	for the	Upton	Plant
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Site Permit Area.								

Lifeform/Scientific Name	Common Name	Mixed Shrubland	Reclaimed Grassland	Upland Grassland
		Absolute %	Absolute %	Absolute %
Native Annual Forbs				
Chenopodium berlandieri	Pitseed goosefoot			
Gnaphalium palustre	Western marsh cudweed	0.10		
Xanthium strumarium	Common cocklebur			
Subtotal	0.10			
Introduced Annual Forbs				
Alyssum desertorum	Desert alyssum			
Camelina microcarpa	Littleseed falseflax			
Chenopodium glaucum	Oakleaf goosefoot			
Descurainia sophia	Flixweed			
Lepidium perfoliatum	Shieldcress			
Polygonum aviculare	Prostrate knotweed			
Thlaspi arvense	Field pennycress			
Subtotal				
Introduced Biennial Forbs				
Lactuca serriola	Prickly lettuce			
Melilotus officinalis	Sweetclover	0.40	0.36	0.42
Tragopogon dubius	Yellow salsify	0.10		
Subtotal		0.50	0.36	0.42

Table D8-2.5 (Cont.): Summary by	2012 Mean	Vegetation	Cover Da	ata, by	Species,	for the	Upton	Plant
Site Permit Area.								

Lifeform/Scientific Name	Common Name	Mixed Shrubland	Reclaimed Grassland	Upland Grassland
		Absolute %	Absolute %	Absolute %
Native Perennial Forbs				
Achillea millefolium	Western yarrow	0.70		
Astragalus bisulcatus	Two-grooved milkvetch			
Astragalus spatulatus	Spoonleaf milkvetch	0.20		
Calochortus gunnisonii	Gunnison mariposalily			
Dalea candida	White prairie clover			
Gaura coccinea	Scarlet gaura			
Glycyrrhiza lepidota	Wild licorice			
Grindelia squarrosa	Curlycup gumweed	0.10	0.18	
Phlox hoodii	Hoods phlox	0.10		
Psoralidium tenuiflorum	Slimflower scurfpea	0.30		
Ratibida columnifera	Upright prairie coneflower	0.20		
Sphaeralcea coccinea	Scarlet globemallow			0.22
Thermopsis rhombifolia	Prairie thermopsis	0.90	0.46	0.32
Typha latifolia	Broadleaf cattail			
Vicia americana	American vetch	0.10		
Subtotal		2.60	0.64	0.54

Table D8-2.5 (Cont.): Summary	by 2012 Mean	Vegetation	Cover Data,	by Species,	for the ¹	Upton 2	Plant
Site Permit Area.							

Lifeform/Scientific Name	Common Name	Mixed Shrubland	Reclaimed Grassland	Upland Grassland
		Absolute %	Absolute %	Absolute %
Introduced Perennial Forbs				
Astragalus cicer	Chickpea milkvetch			
Cirsium arvense	Canada thistle			
Medicago sativa	Alfalfa			
Rumex crispus	Curly dock			
Taraxacum officinale	Common dandelion			0.10
Trifolium pratense	Red clover			
Subtotal				0.10
Native Full Shrubs				
Artemisia cana	Silver sagebrush			
Artemisia tridentata	Big sagebrush	7.50		0.42
Atriplex canescens	Four-wing saltbush		0.10	
Chrysothamnus viscidiflorus	Yellow rabbitbrush	0.90		
Rosa woodsii	Woods' rose	0.10	0.10	
Sarcobatus vermiculatus	Greasewood	2.30	0.64	
Subtotal		10.80	0.84	0.42

Table D8-2.5 (Cont.): Summary by 2012 Mean	Vegetation	Cover Data,	by Species,	for the	Upton	Plant
Site Permit Area.						

Lifeform/Scientific Name	Common Name	Mixed Shrubland	Reclaimed Grassland	Upland Grassland
-		Absolute %	Absolute %	Absolute %
Native Half & Sub-Shrubs				
Artemisia frigida	Fringed sagewort			
Atriplex gardneri	Gardner saltbush	0.10		
Gutierrezia sarothrae	Broom snakeweed	0.90		
Krascheninnikovia lanata Winterfat				
Subtotal	1.00			
Native Succulents				-
Opuntia polyacantha	Plains pricklypear	0.70		0.32
Subtotal		0.70		0.32
Total Vegetation Cover		48.60	38.24	48.60
Cryptograms		2.60		0.64
Litter		34.10	53.36	49.16
Rock		0.50	0.54	0.10
Total Ground Cover	85.80	92.14	98.50	
Bare Ground		14.20	7.86	1.50

Table	D8-2.6:	Number	of Species	with Gr	reater Thar	a 2% Relative	Vegetation Cover withi	n the Upton
Plant	Site Per	rmit Area						

	Big SagebrushGreasewShrublandShrubla		ewood bland	Meadow Grassland		
Lifeform	Total # of Species Sampled	# of Species > 2%	Total # of Species Sampled	# of Species > 2%	Total # of Species Sampled	# of Species > 2%
Native Annual Grasses					1	
Introduced Annual Grasses	1		1		1	
Native Cool Season Perennial Grasses	6	5	6	2	7	2
Native Warm Season Perennial Grasses	2	1	2		3	2
Introduced Perennial Grasses	4	1	4	1	4	1
Native Grasslike Species	1	1	1		5	2
Native Annual Forbs					1	
Introduced Annual Forbs			3			
Introduced Biennial Forbs	2		1		1	
Native Perennial Forbs	5		3		3	
Introduced Perennial Forbs	2				5	
Native Full Shrubs	3	1	4	2	1	
Native Half & Sub-Shrubs	3		2			
Native Succulents	1		1			

Table D8-2.6 (Cont.): Number of	of Species with Greate	er Than 2% Relative	e Vegetation Cover	r within the
Upton Plant Site Permit Area.				

	Mixed Sl	hrubland	Reclaimed	teclaimed Grassland Upland Grassla		
Lifeform	Total # of Species Sampled	# of Species > 2%	Total # of Species Sampled	# of Species > 2%	Total # of Species Sampled	# of Species > 2%
Native Annual Grasses						
Introduced Annual Grasses			1		1	
Native Cool Season Perennial Grasses	4	4	5	4	5	2
Native Warm Season Perennial Grasses	2		3		3	1
Introduced Perennial Grasses	2	1	2	1	2	1
Native Grasslike Species	1					
Native Annual Forbs	1					
Introduced Annual Forbs						
Introduced Biennial Forbs	2		1		1	
Native Perennial Forbs	8		2		2	
Introduced Perennial Forbs					1	
Native Full Shrubs	4	2	3		1	
Native Half & Sub-Shrubs	2					
Native Succulents	1				1	

Table D8-2.7: Threatened and Endangered	Plant Species	Surveyed for	and Potential	Occurrence with	in
the Upton Plant Site Permit Area.					

Common Name	Scientific Name	Status	Habitat	Potential Occurrence within the Proposed Upton Plant Site Permit Area
Ute ladies'-tresses	Spiranthes diluvialis	Threatened	Seasonally moist soils and wet meadows of drainages below 7,000ft. in elevation	Habitat Confirmed Unsuitable
Blowout penstemon	Penstemon haydenii	Endangered	Sand blowouts or dunes	Habitat Confirmed Unsuitable

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ADDENDUM D8-2-B

COMPREHENSIVE PLANT SPECIES LIST

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A	Commont Nom on eletore	Common Nomo			Vegetation	Communit	y	
Асгопуш	Current Nomenciature	Common Name	BSS	GS	MG	MS	RG	UG
Native An:	nual Grasses							
BECSYZ	Beckmannia syzigachne	American sloughgrass			Х			
Introduce	d Annual Grasses							
BROJAP	Bromus japonicus	Japanese brome	Х	Х	Х		Х	Х
Native Co	ol Season Perennial Grasse	es						
АСННҮМ	Achnatherum hymenoides	Indian ricegrass	Х					
ELYCIN	Elymus cinereus	Basin wildrye						
ELYLAN	Elymus lanceolatus	Thickspike wheatgrass		Х	Х			
ELYSMI	Elymus smithii	Western wheatgrass	X	Х	Х	X	Х	X
ELYSPI	Elymus spicatus	Bluebunch wheatgrass		Х	Х		Х	
HESCOM	Hesperostipa comata	Needleandthread	Х					X
HORJUB	Hordeum jubatum	Foxtail barley			Х			
KOEMAC	Koeleria macrantha	Prairie junegrass	X	Х		X	Х	X
MUHASP	Muhlenbergia asperifolia	Alkali muhly			Х			
NASVIR	Nassella viridula	Green needlegrass	X	Х		X	Х	X
POAJUN	Poa juncifolia	Alkali bluegrass						
POASEC	Poa secunda	Sandberg bluegrass	Х	Х	Х	Х	Х	Х
PUCNUT	Puccinellia nuttalliana	Alkaligrass			Х			
Native Wa	rm Season Perennial Grass	ses						
BOUGRA	Bouteloua gracilis	Blue grama	X			X		
CALLON	Calamovilfa longifolia	Prairie sandreed		Х	Х	X	Х	X
DISSTR	Distichlis stricta	Inland saltgrass						
SCHSCO	Schizachyrium scoparium	Little bluestem						X
SPAPEC	Spartina pectinata	Prairie cordgrass		Х	Х			
SPOAIR	Sporobolus airoides	Alkali sacaton	Х		Х		Х	Х
SPOCRY	Sporobolus cryptandrus	Sand dropseed					Х	

Aoronym	Current Nomenclature	Common Name		V	egetation	Communit	y	
Actonym	Current Nomenciature		BSS	GS	MG	MS	RG	UG

Introduce	d Perennial Grasses							
AGRCRI	Agropyron cristatum	Crested wheatgrass	X	Х	X	Х	X	Х
BROINE	Bromus inermis	Smooth brome	Х	Х	X	Х	X	Х
ELYHIS	Elymus hispidus	Intermediate wheatgrass						
PHLPRA	Phleum pratense	Timothy	Х	Х	Х			
POAPRA	Poa pratensis	Kentucky bluegrass	Х	Х	X			
Native Gra	sslike Species							
CARFIL	Carex filifolia	Threadleaf sedge	Х	Х		Х		
CARNEB	Carex nebrascensis	Nebraska sedge			Х			
CARPRA	Carex praegracilis	Clustered field sedge			Х			
ELEPAL	Eleocharis palustris	Common spikerush			Х			
JUNBAL	Juncus balticus	Mountain rush			Х			
JUNINT	Juncus interior	Inland rush			Х			
Native An	nual Forbs			-		-		
ATRARG	Atriplex argentea	Silverscale saltbush						
ATRSUC	Atriplex suckleyi	Suckley's endolepis						
CHEBER	Chenopodium berlandieri	Pitseed goosefoot						
GNAPAL	Gnaphalium palustre	Western marsh cudweed				Х		
XANSTR	Xanthium strumarium	Common cocklebur			Х			
Introduce	d Annual Forbs							
ALYDES	Alyssum desertorum	Desert alyssum		Х				
CAMMIC	Camelina microcarpa	Littleseed falseflax						
CHEGLA	Chenopodium glaucum	Oakleaf goosefoot						
DESSOP	Descurainia sophia	Flixweed		Х				
LEPPER	Lepidium perfoliatum	Shieldcress		Х				
POLAVI	Polygonum aviculare	Prostrate knotweed						
THLARV	Thlaspi arvense	Field pennycress						

A	Current Nemeraleture	Common Nomo		V	egetation	Communit	У	
Acronym	Current Nomenciature	Common Name	BSS	GS	MG	MS	RG	UG
Introduce	d Biennial Forbs							
LACSER	Lactuca serriola	Prickly lettuce			Х			

MELOFF	Melilotus officinalis	Sweetclover	X	Х		Х	Х	X
TRADUB	Tragopogon dubius	Yellow salsify	Х			Х		
Native Per	ennial Forbs							
ACHMIL	Achillea millefolium	Western yarrow	Х	Х	Х	Х		
APOCAN	Apocynum cannabinum	Indianhemp						
ASTBIS	Astragalus bisulcatus	Two-grooved milkvetch						
ASTSPA	Astragalus spatulatus	Spoonleaf milkvetch				Х		
CALGUN	Calochortus gunnisonii	Gunnison mariposalily			Х			
DALCAN	Dalea candida	White prairie clover						
ERIFLA	Eriogonum flavum	Alpine golden buckwheat						
GAUCOC	Gaura coccinea	Scarlet gaura						
GLYLEP	Glycyrrhiza lepidota	Wild licorice						
GRISQU	Grindelia squarrosa	Curlycup gumweed		X		Х	Х	
PHLHOO	Phlox hoodii	Hoods phlox	Х	Х		Х		
PSOTEN	Psoralidium tenuiflorum	Slimflower scurfpea				Х		
RATCOL	Ratibida columnifera	Upright prairie coneflower	Х			Х		
RUMSAL	Rumex salicifolius	Willowleaf dock						
SPHCOC	Sphaeralcea coccinea	Scarlet globemallow	Х					X
SYMASC	Symphyotrichum ascendens	Western aster						
SYMFAL	Symphyotrichum falcatum	White prairie aster						
THERHO	Thermopsis rhombifolia	Prairie thermopsis				Х	Х	Х
TYPLAT	Typha latifolia	Broadleaf cattail			Х			
VICAME	Vicia americana	American vetch	Х			Х		

A	Current Nemeraleture	Common Nomo		V	egetation	Communit	У	
Acronym	Current Nomenciature	Common Name	BSS	GS	MG	MS	RG	UG
Introduce	d Perennial Forbs							
ASTCIC	Astragalus cicer	Chickpea milkvetch	Х		Х			
CIRARV	Cirsium arvense	Canada thistle			Х			
MEDSAT	Medicago sativa	Alfalfa						

RUMCRI	Rumex crispus	Curly dock			Х			
TAROFF	Taraxacum officinale	Common dandelion	X		X			X
TRIPRA	Trifolium pratense	Red clover			X			
Native Ful	1 Shrubs	•		•	•			
ARTCAN	Artemisia cana	Silver sagebrush	X	Х				Х
ARTTRI	Artemisia tridentata	Big sagebrush	X	Х	X	Х		X
ATRCAN	Atriplex canescens	Four-wing saltbush					Х	X
CHRVIS	Chrysothamnus viscidiflorus	Yellow rabbitbrush	X	X		Х		
ROSWOO	Rosa woodsii	Woods' rose			X	Х	Х	X
SARVER	Sarcobatus vermiculatus	Greasewood	Х	X	X	Х	Х	
Native Ha	f &Sub-Shrubs							
ARTFRI	Artemisia frigida	Fringed sagewort	X	Х				
ATRGAR	Atriplex gardneri	Gardner saltbush	X	Х		X		
GUTSAR	Gutierrezia sarothrae	Broom snakeweed	X	Х		X		
KRALAN	Krascheninnikovia lanata	Winterfat	Х					
Native Tre	es							
JUNSCO	Juniperus scopulorum	Rocky Mountain juniper						
POPDEL	Populus deltoides	Eastern cottonwood						
SALAMY	Salix amygdaloides	Peachleaf willow						
Native Suc	culents							
OPUPOL	Opuntia polyacantha	Plains pricklypear	X	Х		X		Х
Х	Species sampled on cover	or density transect.						
	Species observed, but n	ot sampled.						
Bold Acrony	m Species lacking creditat	ole value, not counted in spe	cies diversi	ty.				

ADDENDUM D8-2-C

COVER RAW DATA AND SUMMARIES

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Rare Element Resources Polygon #BSS Cover Sample Data Report Date: 12/14/2012 Point Line Intercept Method, n = 36

Plant Species																																					Mean Abs Cover
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
Promus ispaniaus	1	0	0	0	1	0	1	2	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0.25
Total Introduced Annual Grasses	1	0	0	0	1	0	1	2	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0.23
Total Introduced Annual Grasses		U	U	U	•	U		2	U	•	U	U	U	U	U	U	U		U	U	U	U	U	U	U	U	U	U	U	U	U	U	~	U	U	U	0.25
Achnatherum hymenoides	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.11
Elymus smithii	14	10	8	0	12	6	4	8	2	15	4	3	3	7	4	1	12	11	0	0	0	1	0	4	0	30	0	0	0	4	5	3	8	0	0	13	5.33
Hesperostipa comata	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	0	9	6	4	5	2	1	0	0	2	0	1	0	1	1	0	0	1	1.03
Koeleria macrantha	1	0	0	0	0	0	1	0	2	0	0	2	0	2	2	0	0	0	0	2	1	0	1	0	2	0	4	4	4	1	2	1	1	0	2	1	1.00
Nassella viridula	8	0	0	0	0	0	9	0	1	4	0	0	1	0	5	0	0	0	0	0	2	1	1	2	2	0	0	0	0	3	0	1	4	0	0	4	1.33
Poa secunda	4	1	1	2	0	0	6	0	0	0	0	0	0	0	7	0	0	0	0	2	2	5	1	5	1	2	3	0	4	5	2	1	1	4	0	0	1.64
Total Native Cool Season Perennial Grasses	27	11	9	2	13	6	20	8	5	19	7	5	4	9	19	1	14	12	0	13	11	11	8	13	6	32	7	6	8	14	9	7	15	4	2	19	10.44
Bouteloua gracilis	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	3	0	1	0	1	0	2	3	0	2	1	0	1	0	2	0	0.53
Sporobolus airoides	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.06
Total Native Warm Season Perennial Grasses	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	1	3	0	1	0	1	0	2	3	0	2	1	0	1	0	2	0	0.59
	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	•	•	•	•	•		•	-	•		_		•		•	_		0.00
Agropyron cristatum	0	0	0	34	2	0	0	2	0	1	0	0	0	0	0	0	0	0	21	5	0	0	1	5	2	0	0	0	4	2	2	1	1	18	11	8	3.33
Bromus inermis	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0.17
Phleum pratense	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03
Poa pratensis	0	0	0	0	1	0	0	0	2	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.17
Total Introduced Perennial Grasses	0	0	0	34	3	0	0	3	2	1	2	0	1	0	2	0	1	1	21	5	0	0	1	5	2	0	0	0	4	2	2	3	1	18	11	8	3.70
Corox filitolio	0	1	0	0	0	5	0	0	0	0	0	1	2	0	0	2	0	0	0	0	2	1	7	0	0	0	4	4	0	0	2	1	0	0	0	0	1 17
	0	4	0	0	0	5	0	0	0	0	0	4	2	0	0	0	0	0	0	0	3	4	7	0	0	0	4	4	0	0	2	4	0	0	0	0	1.17
Total Native Grasslike Species	U		U	U	U	Ð	U	U	U	U	U	1	2	U	U	3	U	U	U	U	3		1	U	0	U	4	4	U	U	2		U	U	U	U	1.17
Melilotus officinalis	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0.14
Tragopogon dubius	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.06
Total Introduced Biennial Forbs	0	0	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0.20

Rare Element Resources Polygon #BSS Cover Sample Data Report Date: 12/14/2012 Point Line Intercept Method, n = 36

Achillea millefolium	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.14
Phlox hoodii	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	1	0	0	0	2	2	1	1	0	1	0	2	2	0	0	0	0	0	0	2	0	0.47
Ratibida columnifera	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0.11
Sphaeralcea coccinea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.08
Vicia americana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.03
Total Native Perennial Forbs	0	0	0	0	0	0	1	2	0	1	0	1	2	1	0	1	0	0	0	3	4	1	2	0	1	0	3	2	0	0	0	0	1	0	3	1	0.83
Astragalus cicer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.03
Taraxacum officinale	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.06
Total Introduced Perennial Forbs	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0.09
Artemisia tridentata	0	5	5	1	4	1	5	6	10	4	15	14	4	10	4	4	5	2	19	8	5	8	10	2	4	5	4	2	4	4	6	14	9	4	8	3	6.06
Chrysothamnus viscidiflorus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.03
Sarcobatus vermiculatus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.08
Total Native Full Shrubs	0	5	5	1	4	1	5	6	10	4	15	14	4	10	4	4	5	2	20	9	5	8	10	2	4	6	4	3	4	4	6	14	9	4	8	3	6.17
Artemisia frigida	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	2	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0.25
Gutierrezia sarothrae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.03
Krascheninnikovia Ianata	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.06
Total Native Half &Sub-Shrubs	0	0	0	0	0	0	0	0	0	3	2	0	1	0	0	2	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0.34
Opuntia polyacantha	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2	0	1	0	0	0	0	1	0	0	1	0	0	1	1	1	0.33
Total Native Succulents	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2	0	1	0	0	0	0	1	0	0	1	0	0	1	1	1	0.33
Lichen	0	4	0	0	0	3	0	0	3	1	0	2	0	1	1	8	0	0	0	0	0	2	1	0	5	1	4	3	6	0	4	1	0	2	8	4	1.78
Fungi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Algae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Moss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Total Cryptograms	0	4	0	0	0	3	0	0	3	1	0	2	0	1	1	8	0	0	0	0	0	2	1	0	5	1	4	3	6	0	4	1	0	2	8	4	1.78
Bare Ground	0	3	0	0	3	0	1	0	3	1	1	2	0	0	0	1	2	0	0	1	2	3	1	1	7	1	3	6	2	0	0	0	2	7	3	5	1.67
Litter	20	26	35	12	25	35	22	27	27	18	23	25	35	28	24	30	28	34	7	17	19	24	18	29	14	10	21	21	26	28	23	21	18	14	12	8	22.33
Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	0	0	0	0	0	0	0	0.11

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Total Vegetation Cover Total Vegetation Cover w /out SLCV Total Vegetation w /Cryptograms Total Vegetation w /Cryptograms w /out SLCV Total Ground Cover Total Ground Cover w /out SLCV	30 29 30 29 50 49	17 17 21 21 47 47	15 15 15 50 50	38 38 38 38 50 50	22 21 22 21 47 46	12 12 15 15 50 50	27 26 27 26 49 48	23 21 23 21 50 48	17 17 20 20 47 47	30 26 31 27 49 45	26 25 26 25 49 48	21 21 23 23 48 48	15 15 15 15 50 50	21 21 22 22 50 50	25 25 26 26 50 50	11 9 19 17 49 47	20 20 20 20 48 48	16 15 16 15 50 49	43 43 43 50 50	32 32 32 32 49 49	29 28 29 28 48 47	21 23 23 47 47	30 30 31 31 49 49	20 20 20 20 49 49	23 22 28 27 43 42	38 38 39 39 49 49	20 20 24 24 47 47	19 19 22 22 44 44	16 16 22 22 48 48	22 22 22 22 50 50	23 22 27 26 50 49	28 29 29 50 50	30 28 30 28 48 46	27 27 29 29 43 43	27 27 35 35 47 47	33 33 37 37 37 45 45	3 7 5	2 2 2 2 2 4 4
No. of Species Sampled excluding SLCV No.of Species Observed excluding SLCV Total No. of Species excluding SLCV Total No. of SLCV	6 5 11 1	4 5 9 0	4 5 9 0	4 2 6 0	6 4 10 1	3 2 5 0	6 6 12 1	7 5 12 1	5 0 5 0	7 5 12 1	6 4 10 0	5 1 6 0	8 3 11 0	5 4 9 0	7 4 11 0	5 4 9 0	4 7 11 0	4 6 10 1	4 3 7 0	10 1 11 0	11 0 11 0	7 4 11 0	11 2 13 0	6 4 10 1	10 3 13 0	4 1 5 0	7 3 10 0	8 4 12 0	4 3 7 0	8 4 12 0	10 3 13 0	11 1 12 0	10 6 16 1	4 1 5 0	7 5 12 1	8 4 2 12 1	2	

Rare Element Resources Polygon #GS Cover Sample Data Report Date: 12/14/2012 Point Line Intercept Method, n = 29

Plant Species													S	amp (le N Cove	umb er	er													Mean Abs Cover
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	5 26	27	28	29)
Bromus japonicus	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	2	0.24
Total Introduced Annual Grasses	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	2	0.24
Elymus lanceolatus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0.10
Elymus smithii	0	5	6	5	1	0	0	1	0	1	1	1	21	2	0	0	0	0	19	12	1	17	0	1	10	0 (16	3	25	5.10
Elymus spicatus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.03
Koeleria macrantha	0	0	0	0	0	2	1	0	1	1	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.38
Nassella viridula	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	9	0	0	0.55
Poa secunda	0	4	9	2	0	3	9	0	4	7	4	3	2	1	1	0	0	2	1	4	0	2	5	9	1	0	0	0	0	2.52
Total Native Cool Season Perennial Grasses	0	12	15	8	1	5	10	1	5	9	6	4	23	8	1	0	0	2	24	16	1	20	5	10	11	0	25	3	27	8.69
Calamovilfa longifolia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	2	0.24
Spartina pectinata	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03
Total Native Warm Season Perennial Grasses	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	2	0.28
Agropyron cristatum	19	9	14	11	15	16	19	8	16	21	15	16	0	13	31	7	11	21	1	0	12	0	24	19	17	24	3	22	0	13.24
Bromus inermis	0	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0.28
Phleum pratense	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03
Poa pratensis	0	0	0	1	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.24
Total Introduced Perennial Grasses	19	10	14	17	16	16	19	14	16	21	15	16	0	13	31	7	11	21	1	0	12	0	24	21	17	24	3	22	0	13.79
Carex filifolia	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.07
Total Native Grasslike Species	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.07
Alyssum desertorum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.03
Descurainia sophia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.03
Lepidium perfoliatum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.03
lotal introduced Annual Forbs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0.10
Malilatus officinalis	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	~	~	0	0	0	0	0.00
ivieniotus officinalis	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03
i otal introduced Biennial Forbs	0	0	0	0	0	0	0	U	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03

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Achillea millefolium	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.07
Grindelia squarrosa	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.07
Phlox hoodii	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03
Total Native Perennial Forbs	0	1	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.17
Artemisia cana	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03
Artemisia tridentata	0	0	0	0	0	0	0	0	0	2	1	4	0	0	1	0	1	0	0	4	0	3	1	0	1	0	0	1	0	0.66
Chrysothamnus viscidiflorus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.03
Sarcobatus vermiculatus	0	2	1	0	4	6	1	6	4	4	4	7	17	5	0	6	2	4	2	12	2	24	6	7	16	16	0	8	4	5.86
Total Native Full Shrubs	0	2	1	0	4	6	1	6	4	6	5	11	17	6	1	6	3	4	2	17	2	27	7	7	17	16	0	9	4	6.59
Artemisia frigida	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03
Gutierrezia sarothrae	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03
Total Native Half &Sub-Shrubs	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.07
	_		_	_	_	_	_	_	_				_				_	_	_	_	_	_	_	_	_	_	_	_	_	
Opuntia polyacantha	0	1	0	0	0	2	0	0	3	1	1	1	0	1	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0.52
Total Native Succulents	0	1	0	0	0	2	0	0	3	1	1	1	0	1	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0.52
	~	~	~	~	•	~	~	~	~	~	~	~		~	•	•		•	~	~	~	•	~	~	~	~	~	~	~	0.04
	0	0	0	0	0	2	0	0	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0.21
Fungi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Algae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Moss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Total Cryptograms	0	0	0	0	0	2	0	0	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0.21
Bare Ground	10	2	1	1	5	٥	Q	12	11	2	2	6	5	0	2	າາ	Q	5	3	5	10	1	0	1	2	2	1	1	Δ	5.03
Litter	12	21	18	21	23	10	11	17	11	11	17	11	3	21	1/	1/	27	15	1/	11	25	2	14	10	2	2	17	15	14	14 14
Pock	0	21	0	21	20	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	20	2	0	0	0	0	0	0	0	0.07
NUCK	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0.07
Total Vegetation Cover	19	27	31	28	22	29	31	21	28	37	29	33	40	29	34	14	14	30	33	33	15	47	36	39	45	40	32	34	36	30.55
Total Vegetation Cover w/out SLCV	19	27	31	26	22	29	31	21	28	37	28	33	40	29	34	14	14	30	31	33	15	47	36	38	45	40	32	34	34	30.28
Total Vegetation w/Cryptograms	19	27	31	28	22	31	31	21	28	37	31	33	41	29	34	14	15	30	33	33	15	47	36	39	45	40	32	34	36	30.76
Total Vegetation w/Cryptograms w/out SLCV	19	27	31	26	22	31	31	21	28	37	30	33	41	29	34	14	15	30	31	33	15	47	36	38	45	40	32	34	34	30.48
Total Ground Cover	31	48	49	49	45	41	42	38	39	48	48	44	45	50	48	28	42	45	47	45	40	49	50	49	48	48	49	49	50	44.97
Total Ground Cover w /out SLCV	31	48	49	47	45	41	42	38	39	48	47	44	45	50	48	28	42	45	45	45	40	49	50	48	48	48	49	49	48	44.69
No. of Species Sampled excluding SLCV	1	9	5	7	5	5	5	5	5	7	8	7	3	8	4	3	3	4	10	5	3	5	4	5	5	2	4	4	5	5.03
No.of Species Observed excluding SLCV	3	2	1	0	3	5	3	2	2	4	0	2	0	3	4	3	4	3	4	0	2	0	1	0	0	2	7	5	4	2.38
Total No. of Species excluding SLCV	4	11	6	7	8	10	8	7	7	11	8	9	3	11	8	6	7	7	14	5	5	5	5	5	5	4	11	9	9	7.41
Total No. of SLCV	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	2	0.24

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Plant Species											San	nple Co	Nun ver	nber											Mean Abs Cover
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Beckmannia syzigachne	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4	0	0	0.33
Total Native Annual Grasses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4	0	0	0.33
Bromus japonicus	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0.08
Total Introduced Annual Grasses	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0.08
Elymus lanceolatus	0	Λ	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.08
Elymus anithii	2	0	5	0	12	4	2	0	2	21	10	27	11	0	2	1	10	1	25	11	22	0	12	12	10.08
Elymus spicatus	0	0	0	9	0	4	2	0	0	21	19	1	0	0	2	0	0	0	25	0	0	0	0	0	0.25
Hordeum jubatum	3	0	0	0	0	1	3	0	0	1	2	2	0	1	1	1	0	0	1	2	0	0	0	4	1.20
Muhlenhergia asperifolia	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4	0.13
Poa secunda	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0.13
Puccipellia puttalliana	5	1	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Total Native Cool Season Perennial Grasses	11	4	5	9	12	6	7	9	8	26	22	30	12	9	3	2	20	1	26	13	32	0	21	16	12.67
				-				-	-					-	-				-	-	-				
Calamovilfa longifolia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	7	7	0	0	0	0	3	0	0	1.17
Spartina pectinata	0	0	5	0	0	2	0	0	7	10	8	0	7	24	8	1	0	21	0	22	0	17	13	0	6.04
Sporobolus airoides	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.04
Total Native Warm Season Perennial Grasses	0	0	5	0	0	2	0	0	7	10	8	0	7	24	19	8	7	21	0	22	0	20	13	1	7.25
				_			_				_				_					_					
Agropyron cristatum	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.04
Bromus inermis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.04
Phleum pratense	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0.17
Poa pratensis	2	9	20	15	5	14	0	15	3	0	1	1	3	0	0	2	1	0	0	0	3	1	1	3	4.13
Total Introduced Perennial Grasses	2	9	21	15	5	14	0	15	3	0	1	1	4	0	3	2	1	0	1	0	3	1	1	3	4.38
Carey nebrascensis	0	Λ	0	0	0	0	0	0	0	0	0	0	0	0	4	11	0	7	2	0	Λ	13	0	0	1 54
Carex praegracilis	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.04
Eleocharis palustris	7	0	0	0	0	1	19	5	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2 29
Juncus balticus	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0 17
Juncus interior	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.04
Total Native Grasslike Species	7	0	0	0	0	3	19	5	24	0	1	0	0	0	4	11	2	7	2	0	0	13	0	0	4.08

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Xanthium strumarium	0	0	3	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0.38
Total Native Annual Forbs	0	0	3	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0.38
			•	•				•	~		•		•	•					~	•		•	•	•	0.04
Lactuca serriola	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.04
Total Introduced Biennial Forbs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.04
Achillea millefolium	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.04
Calochortus gunnisonii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.04
Typha latifolia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0.13
Total Native Perennial Forbs	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0.21
Astragalus cicer	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.04
Cirsium arvense	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.13
Rumex crispus	0	0	0	0	0	0	0	0	0	2	3	0	2	0	0	0	0	1	0	2	0	0	1	0	0.46
Taraxacum officinale	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.04
Trifolium pratense	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.04
Total Introduced Perennial Forbs	0	0	1	0	0	0	0	0	4	2	4	0	2	0	0	0	0	1	0	2	0	0	1	0	0.71
Sarcobatus vermiculatus	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 17
Total Native Full Shrubs	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.17
Lichen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Fungi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Algae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Moss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Total Cryptograms	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Bare Ground	4	27	0	3	16	5	2	3	0	0	0	0	1	1	0	0	0	0	0	0	0	4	1	0	2.78
Litter	26	7	14	23	17	19	22	18	4	12	14	19	22	10	17	24	20	18	21	13	15	8	13	30	16.92
Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00

Rare Element Resources Polygon #MG Cover Sample Data Report Date: 12/14/2012 Point Line Intercept Method, n = 24

Total Vegetation Cover	20	16	36	24	17	26	26	29	46	38	36	31	27	39	33	26	30	32	29	37	35	38	36	20	30.30
Total Vegetation Cover w /out SLCV	20	16	36	24	17	26	26	29	43	36	33	31	23	39	33	26	30	31	29	35	35	38	35	20	29.63
Total Vegetation w/Cryptograms	20	16	36	24	17	26	26	29	46	38	36	31	27	39	33	26	30	32	29	37	35	38	36	20	30.30
Total Vegetation w/Cryptograms w/out SLCV	20	16	36	24	17	26	26	29	43	36	33	31	23	39	33	26	30	31	29	35	35	38	35	20	29.63
Total Ground Cover	46	23	50	47	34	45	48	47	50	50	50	50	49	49	50	50	50	50	50	50	50	46	49	50	47.22
Total Ground Cover w /out SLCV	46	23	50	47	34	45	48	47	47	48	47	50	45	49	50	50	50	49	50	48	50	46	48	50	46.55
No. of Species Sampled excluding SLCV	5	4	7	2	2	8	4	4	7	4	7	4	5	4	7	7	5	5	4	3	2	5	4	4	4.71
No.of Species Observed excluding SLCV	1	2	6	1	2	2	2	7	2	1	1	1	1	3	2	1	3	1	3	1	1	2	2	0	2.00
Total No. of Species excluding SLCV	6	6	13	3	4	10	6	11	9	5	8	5	6	7	9	8	8	6	7	4	3	7	6	4	6.71
Total No. of SLCV	0	0	0	0	0	0	0	0	1	1	1	0	2	1	1	1	0	2	1	1	0	1	1	0	0.58

Rare Element Resources Polygon #MS Cover Sample Data Report Date: 12/14/2012 Point Line Intercept Method, n = 20

Plant Species									San	nple Co	Nun ver	nber									Mean Abs Cover
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Elvmus smithii	4	0	0	3	2	0	8	0	16	3	11	2	0	5	4	0	1	1	8	0	3.40
Koeleria macrantha	0	0	1	1	0	6	0	3	3	5	3	2	2	1	1	6	2	0	0	2	1.90
Nassella viridula	2	0	2	2	0	0	2	1	1	1	6	1	9	8	3	5	1	0	2	1	2.35
Poa secunda	3	0	8	4	3	0	1	2	1	2	1	2	1	1	0	5	1	0	3	1	1.95
Total Native Cool Season Perennial Grasses	9	0	11	10	5	6	11	6	21	11	21	7	12	15	8	16	5	1	13	4	9.60
Bouteloua gracilis	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0.10
Calamovilfa longifolia	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0.30
Total Native Warm Season Perennial Grasses	0	0	0	0	0	0	0	0	0	0	0	6	0	2	0	0	0	0	0	0	0.40
Agropyron cristatum	0	5	5	2	15	18	4	0	7	2	0	0	4	2	0	2	19	18	1	16	6.00
Bromus inermis	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.30
Total Introduced Perennial Grasses	0	5	5	8	15	18	4	0	7	2	0	0	4	2	0	2	19	18	1	16	6.30
Carex filifolia	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.15
Total Native Grasslike Species	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.15
Gnaphalium palustre	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05
Total Native Annual Forbs	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05
Melilotus officinalis	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0.20
Tragopogon dubius	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.05
Total Introduced Biennial Forbs	0	0	0	2	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0.25

Rare Element Resources Polygon #MS Cover Sample Data Report Date: 12/14/2012

Achillea millefolium	0	2	1	0	0	0	0	0	0	1	0	2	0	0	1	0	0	0	0	0	0.35
Astragalus spatulatus	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.10
Grindelia squarrosa	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.05
Phlox hoodii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.05
Psoralidium tenuiflorum	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0.15
Ratibida columnifera	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.10
Thermopsis rhombifolia	1	2	0	0	0	0	0	1	0	1	0	1	0	0	1	1	0	0	1	0	0.45
Vicia americana	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.05
Total Native Perennial Forbs	2	4	1	1	0	0	1	1	1	2	0	6	0	1	4	1	0	0	1	0	1.30
Artemisia tridentata	4	4	1	3	4	2	0	6	0	8	1	7	6	3	5	4	2	6	2	7	3 75
Chrysothamnus viscidiflorus	0	1	0	0	0	0	0	1	0	0	0	2	0	0	2	0	0	0	3	0	0.45
Rosa woodsii	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.05
Sarcobatus vermiculatus	3	1	5	0	0	0	3	0	0	8	0	0	2	0	0	0	0	0	1	0	1.15
Total Native Full Shrubs	7	6	6	3	4	2	3	7	0	16	1	10	8	3	7	4	2	6	6	7	5.40
Atriplex gardneri	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.05
Gutierrezia sarothrae	3	0	0	0	0	0	1	1	0	0	1	0	1	0	0	1	0	0	1	0	0.45
Total Native Half &Sub-Shrubs	3	0	0	0	0	0	1	1	0	0	2	0	1	0	0	1	0	0	1	0	0.50
Opuntia polyacantha	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2	1	0	1	0.35
Total Native Succulents	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2	1	0	1	0.35
Lichen	0	1	0	٥	2	1	٥	6	٥	0	1	0	0	1	2	0	٥	5	1	0	1 30
Fundi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Algae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Moss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Total Cryptograms	Ő	4	0	0	2	1	0	6	0	0	1	0	0	4	2	0	0	5	1	0	1.30
iotal of yetogramo	•	•	•	•	-	•	•	•	•	•	•	•	•			•	•	Ť		•	
Bare Ground	15	14	3	5	4	7	6	15	5	6	1	9	2	2	18	10	4	7	7	2	7.10
Litter	14	14	23	21	18	14	23	14	16	13	23	12	20	21	11	15	18	11	20	20	17.05
Rock	0	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.25

Rare Element Resources Polygon #MS Cover Sample Data Report Date: 12/14/2012 Point Line Intercept Method, n = 20

Total Vegetation Cover	21	16	23	24	26	27	21	15	29	31	25	29	28	23	19	25	28	26	22	28	24.30
Total Vegetation Cover w /out SLCV	18	16	23	24	26	27	20	14	29	31	24	29	27	23	19	24	28	26	21	28	23.85
Total Vegetation w/Cryptograms	21	20	23	24	28	28	21	21	29	31	26	29	28	27	21	25	28	31	23	28	25.60
Total Vegetation w/Cryptograms w/out SLCV	18	20	23	24	28	28	20	20	29	31	25	29	27	27	21	24	28	31	22	28	25.15
Total Ground Cover	35	36	47	45	46	43	44	35	45	44	49	41	48	48	32	40	46	43	43	48	42.90
Total Ground Cover w /out SLCV	32	36	47	45	46	43	43	34	45	44	48	41	47	48	32	39	46	43	42	48	42.45
No. of Species Sampled excluding SLCV	7	7	7	9	6	4	7	6	6	9	7	13	8	8	9	7	7	4	8	6	7.25
No.of Species Observed excluding SLCV	2	6	4	4	3	4	3	5	4	5	4	1	2	4	3	7	0	4	4	5	3.70
Total No. of Species excluding SLCV	9	13	11	13	9	8	10	11	10	14	11	14	10	12	12	14	7	8	12	11	10.95
Total No. of SLCV	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	0	1	2	0.90

Rare Element Resources Polygon #RG Cover Sample Data Report Date: 12/14/2012 Point Line Intercept Method, n = 22

Plant Species										San	nple Co	Nun ver	nber										Mean Abs Cover
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
Bromus iaponicus	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0 14
Total Introduced Annual Grasses	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.14
Elymus smithii	11	6	8	13	8	8	8	9	8	6	3	10	15	5	20	17	13	17	17	15	15	18	11.36
Elymus spicatus	2	0	1	5	5	2	2	0	1	3	0	0	2	0	0	0	0	0	0	0	1	0	1.09
Koeleria macrantha	0	0	0	0	0	1	6	1	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0.50
Nassella viridula	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.14
Poa secunda	0	0	0	0	0	3	1	0	0	0	1	0	3	0	0	0	2	0	1	0	0	0	0.50
Total Native Cool Season Perennial Grasses	13	6	9	18	13	16	17	10	9	9	4	11	20	5	20	17	17	18	18	15	16	18	13.59
	•	~	•	•				~	•				•	•	•	•		~	•	•	•		
Calamovilta longitolia	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05
Sporobolus airoides	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0.32
Sporobolus cryptandrus	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.14
Total Native Warm Season Perennial Grasses	0	3	0	0	0	0	1	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0.51
Agropyron cristatum	0	1	7	2	3	1	2	2	3	3	4	3	0	12	5	3	5	10	7	6	4	1	3.82
Bromus inermis	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.14
Total Introduced Perennial Grasses	0	2	7	2	5	1	2	2	3	3	4	3	0	12	5	3	5	10	7	6	4	1	3.96
Melilotus officinalis	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.18
Total Introduced Biennial Forbs	0	n	0	3	0	1	0	n	0	0	0	0	0	n	0	n	0	0	Ô	0	n n	0	0.10
	U	0	U	0			U	0	0	U		0	U	U	0	U	U	0	0	U	U	U	0.10
Grindelia squarrosa	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.09
Thermopsis rhombifolia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.23
Total Native Perennial Forbs	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.32

Rare Element Resources Polygon #RG Cover Sample Data Report Date: 12/14/2012

Atriplex canescens	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0.05
Rosa woodsii	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05
Sarcobatus vermiculatus	1	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	1	0	0	0	0	0	0.32
Total Native Full Shrubs	1	0	0	0	0	0	1	0	0	0	5	0	0	1	0	0	1	0	0	0	0	0	0.42
Lichen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Fungi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Algae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Moss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Total Cryptograms	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Bare Ground	4	6	0	3	9	0	2	0	9	10	5	8	7	1	8	0	0	0	0	3	1	11	3.93
Litter	32	31	34	24	23	31	25	38	28	27	32	26	23	24	17	30	27	22	25	24	29	15	26.68
Rock	0	1	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	2	0	0	0.27
Total Vegetation Cover	14	12	16	23	18	19	23	12	12	12	13	15	20	25	25	20	23	28	25	21	20	24	19.12 ¹
Total Vegetation Cover w /out SLCV	14	11	16	23	18	18	21	12	12	12	13	14	20	25	25	20	23	28	25	21	20	24	18.98
Total Vegetation w/Cryptograms	14	12	16	23	18	19	23	12	12	12	13	15	20	25	25	20	23	28	25	21	20	24	19.12
Total Vegetation w/Cryptograms w/out SLCV	14	11	16	23	18	18	21	12	12	12	13	14	20	25	25	20	23	28	25	21	20	24	18.98
Total Ground Cover	46	44	50	47	41	50	48	50	41	40	45	42	43	49	42	50	50	50	50	47	49	39	46.07
Total Ground Cover w /out SLCV	46	43	50	47	41	49	46	50	41	40	45	41	43	49	42	50	50	50	50	47	49	39	45.93 ¹
No. of Species Sampled excluding SLCV	3	4	3	4	4	7	8	3	3	3	4	3	3	4	2	2	6	3	3	2	3	3	3.64
No.of Species Observed excluding SLCV	4	4	3	3	2	3	0	5	3	1	0	1	4	0	0	0	0	2	0	0	0	0	1.59
Total No. of Species excluding SLCV	7	8	6	7	6	10	8	8	6	4	4	4	7	4	2	2	6	5	3	2	3	3	5.23
Total No. of SLCV	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.18

Rare Element Resources Polygon #UG Cover Sample Data

Report Date: 12/14/2012

Plant Species								Si	amp (le Ni Cove	umb er	er								Mean Abs Cover
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Bromus japonicus	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05
Total Introduced Annual Grasses	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05
Elymus smithii	0	1	0	0	2	0	1	0	2	11	1	1	2	2	1	1	0	0	0	1.32
Hesperostipa comata	0	0	0	2	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0.11
Nassella viridula	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0.21
Poa secunda	0	0	0	1	1	0	0	1	0	0	0	0	8	0	18	0	0	0	0	1.53
Total Native Cool Season Perennial Grasses	0	2	0	3	5	0	2	1	2	13	1	1	10	2	19	1	0	0	0	3.28
Calamovilfa longifolia	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.53
Schizachyrium scoparium	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.11
Sporobolus airoides	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0.16
Total Native Warm Season Perennial Grasses	0	0	0	0	12	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0.80
Agropyron cristatum	22	19	27	20	0	20	15	23	20	1	23	23	21	24	13	19	27	18	28	19.11
Bromus inermis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0.16
Total Introduced Perennial Grasses	22	19	27	20	0	20	15	23	20	1	23	23	21	24	13	19	27	21	28	19.27
Melilotus officinalis	0	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0	0	0	0	0.21
Total Introduced Biennial Forbs	0	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0	0	0	0	0.21

Rare Element Resources

Polygon #UG

Cover Sample Data

Report Date: 12/14/2012

Sphaeralcea coccinea	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0.11
Thermopsis rhombifolia	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.16
Total Native Perennial Forbs	0	0	0	0	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0.27
Taraxacum officinale	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05
Total Introduced Perennial Forbs	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05
Artemicio tridontato	0	0	4	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0.21
	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0.21
Total Native Full Shrubs	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0.21
Opuntia polyacantha	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.16
Total Native Succulents	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.16
Lieben	~	0	0	4	2	~	0	~	0	0	0	~	~	0	~	0	~	0	0	0.00
	0	0	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.32
Fungi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Algae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Moss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Total Cryptograms	0	0	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.32
Pare Ground	0	0	0	٥	Q	0	0	6	1	Δ	0	0	0	Δ	0	0	0	٥	0	0.75
l itter	27	29	19	21	19	30	33	18	26	34	25	23	19	22	18	30	23	29	22	24.58
Rock	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05

Rare Element Resources Polygon #UG Cover Sample Data Report Date: 12/14/2012 Point Line Intercept Method, n = 19

Total Vegetation Cover	23	21	31	25	20	20	17	26	23	16	25	27	31	28	32	20	27	21	28	24.30
Total Vegetation Cover w /out SLCV	22	21	31	25	20	20	17	26	23	16	25	27	31	28	32	20	27	21	28	24.25
Total Vegetation w /Cryptograms	23	21	31	29	22	20	17	26	23	16	25	27	31	28	32	20	27	21	28	24.62
Total Vegetation w /Cryptograms w /out SLCV	22	21	31	29	22	20	17	26	23	16	25	27	31	28	32	20	27	21	28	24.57
Total Ground Cover	50	50	50	50	42	50	50	44	49	50	50	50	50	50	50	50	50	50	50	49.25
Total Ground Cover w /out SLCV	49	50	50	50	42	50	50	44	49	50	50	50	50	50	50	50	50	50	50	49.20
No. of Species Sampled excluding SLCV	1	3	4	5	6	1	3	3	3	4	3	3	3	3	3	2	1	2	1	2.84
No.of Species Observed excluding SLCV	1	0	3	2	4	1	4	0	4	3	2	0	1	0	0	5	1	5	3	2.05
Total No. of Species excluding SLCV	2	3	7	7	10	2	7	3	7	7	5	3	4	3	3	7	2	7	4	4.89
Total No. of SLCV	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.11

RARE ELEMENT RESOURCES Report: Cover Summary

Project Name: Polygon Name: Community Type: Date:	2012 Upton Plant Site BSS Big Sagebrush Shrubland	Sampling Method: Sample Size: Number of Samples: Report Date:	Point Line Intercept 1 36 12/14/2012						
bate.	11/13/2014	Report Date.	12/14/201	2					
Species	Mean Absolute	Cover Relative (%)	Std. Dev. (n-1)	Absolute	Freque Relative (%)	ncy I.V*	Rank		
Introduced Annual Grasses									
Bromus japonicus	0.50	1.04	1.10	19.44	2.66	3.70	13		
Sub-Total	0.50	1.04	1.10	19.44	2.66	3.70			
Native Cool Season Perennial Grasses									
Achnatherum hymenoides	0.22	0.46	0.80	8 33	1 14	1 60	20		
Flymus smithii	10.66	22 11	12.60	69.44	9.50	31.61	2		
Hesperostina comata	2.06	4 27	4 04	36.11	4 94	9.21	9		
Koeleria macrantha	2.00	4.15	2.44	52 77	7.22	11 37	6		
Nassella viridula	2.00	5.52	4 54	41.66	5 70	11.37	7		
Poo secundo	3.28	6.80	4.04	55.55	7.60	14.40	5		
Sub-Total	20.88	43.31	14.02	263.86	36.10	79.41	5		
Native Warm Season Perennial Grasses	1.06	2.20	1 76	22.22	1 56	6 76	10		
Bouleioua graciiis	0.12	2.20	1.70	33.33	4.50	0.70	24		
Sub-Total	1 18	2 45	1.82	36.10	0.30 4 94	7.39	24		
		2.40	1.02	00.10	0-1	1.00			
Introduced Perennial Grasses									
Agropyron cristatum	6.66	13.81	14.32	47.22	6.46	20.27	3		
Bromus inermis	0.34	0.71	1.12	8.33	1.14	1.85	18		
Phleum pratense	0.06	0.12	0.34	2.77	0.38	0.50	25		
Poa pratensis	0.34	0.71	0.90	13.88	1.90	2.61	15		
Sub-Total	7.40	15.35	14.1	72.20	9.88	25.23			
Native Grasslike Species									
Carex filifolia	2.34	4.85	4.16	36.11	4.94	9.79	8		
Sub-Total	2.34	4.85	4.16	36.11	4.94	9.79			
Introduced Biennial Forbs									
Melilotus officinalis	0.28	0.58	0.84	11.11	1.52	2.10	16		
Tragopogon dubius	0.12	0.25	0.46	5.55	0.76	1.01	23		
Sub-Total	0.40	0.83	1.16	16.66	2.28	3.11			
Nation Demonstral Fembra									
Native Perennial Fords	0.28	0.59	0.09	0.00	1 1 4	1 70	10		
Achinea millelonum	0.28	0.00	0.98	0.00	1.14	1.72	19		
Prilox nooun	0.94	1.95	0.64	11 11	4.50	1.09	17		
	0.22	0.40	0.04	F 55	0.76	1.90	22		
Visio emericano	0.10	0.33	0.74	0.00	0.70	0.50	22		
Sub-Total	1.66	3.44	2 22	61.09	8.36	11.80	20		
Sub-Total	1.00	3.44	2.22	01.05	0.50	11.00			
Introduced Perennial Forbs									
Astragalus cicer	0.06	0.12	0.34	2.77	0.38	0.50	25		
Taraxacum officinale	0.12	0.25	0.46	5.55	0.76	1.01	23		
Sub-Total	0.18	0.37	0.56	8.32	1.14	1.51			
Native Full Shrubs									
Artemisia tridentata	12.12	25.13	8.52	97.22	13.30	38.43	1		
Chrysothamnus viscidiflorus	0.06	0.12	0.34	2.77	0.38	0.50	25		
Sarcobatus vermiculatus	0.16	0.33	0.56	8.33	1.14	1.47	21		
Sub-Total	12.34	25.58	8.68	108.32	14.82	40.41			

Rare Element Resources

Native Half &Sub-Shrubs							
Artemisia frigida	0.50	1.04	1.30	16.66	2.28	3.32	14
Gutierrezia sarothrae	0.06	0.12	0.34	2.77	0.38	0.50	25
Krascheninnikovia lanata	0.12	0.25	0.46	5.55	0.76	1.01	23
Sub-Total	0.68	1.41	1.44	24.98	3.42	4.83	
Native Succulents							
Opuntia polyacantha	0.66	1.37	1.06	30.55	4.18	5.55	12
Sub-Total	0.66	1.37	1.06	28.21	4.18	5.55	
Cryptograms							
Moss	0.00	0.00	0.00	0.00	0.00	0.00	26
Lichen	3.56	6.87	4.58	55.55	7.60	14.47	4
Algae	0.00	0.00	0.00	0.00	0.00	0.00	26
Fungi	0.00	0.00	0.00	0.00	0.00	0.00	26
Sub-Total	3.56	6.87	4.58	55.55	7.60	13.56	

Totals		Std. Dev.
Total Vegetation	48.22	14.84
Total Vegetation w/Cryptograms	51.78	13.98
Total Vegetation excluding SLCV	47.66	14.86
Litter	44.66	14.96
Rock	0.22	0.80
Total Ground Cover	96.66	3.96
Total Ground Cover excluding SLCV	96.10	4.16
Bare Soil	3.34	3.96
Total Cover	100.00	

* I.V. Stands for Importance Value

RARE ELEMENT RESOURCES BASELINE ASSESSMENT Report: Cover Summary

Project Name: Polygon Name: Community Type: Date:	2012 Upton Plant Site GS Greasew ood Shrubland 12/2/2014	Sampling Method: Sample Size: Number of Samples: Report Date:	Point Line Intercept 1 29 12/14/2012				
Species	Mean Absolute	Cover Relative (%)	Std. Dev. (n-1)	Absolute	Frequency Relative (%)	I.V*	Rank
Introduced Annual Grasses	I						
Bromus japonicus	0.48	0.79	1.28	13.79	2.52	3.31	10
Sub-Total	0.48	0.79	1.28	13.79	2.52	3.31	
Native Cool Season Perennial Grasses	0.00	0.00	0.00	0.00	4.00	4 50	40
	0.20	0.33	0.82	6.90	1.26	1.59	13
	10.20	16.69	14.96	65.52	11.95	28.64	3
Elymus spicatus	0.06	0.10	0.38	3.45	0.63	0.73	15
Koeleria macrantha	0.76	1.24	2.02	20.69	3.77	5.01	8
Nassella Viridula	1.10	1.80	3.60	13.79	2.52	4.32	9
Poa secunda	5.04	8.25	5.80	65.52	11.95	20.20	4
Sub-Total	17.36	28.41	16.76	175.87	32.08	60.49	
Notice Warms On an an Dama with One and							
Native warm Season Perenmai Grasses	0.40	0.70	4.00	40.04	4.00	0.00	40
	0.48	0.79	1.00	10.34	1.89	2.68	12
Spartina pectinata	0.06	0.10	0.38	3.45	0.63	0.73	15
Sub-rotai	0.54	0.89	1.68	13.79	2.52	3.41	
Introduced Perennial Grasses							
Agropyron cristatum	26.48	43 34	16 64	86 21	15 72	59.06	1
Bromus inermis	0.56	0.92	2 00	10.34	1.89	2.81	11
Phleum pratense	0.06	0.32	0.38	3 4 5	0.63	0.73	15
Poa pratensis	0.00	0.70	1 90	10.40	1.80	2.68	12
Sub-Total	27 58	45 15	16 64	110.34	20 13	65 28	12
	21.00	40.10	10.04	110.04	20.10	00.20	
Native Grasslike Species							
Carex filifolia	0.14	0.23	0.52	6.90	1.26	1.49	14
Sub-Total	0.14	0.23	0.52	6.90	1.26	1.49	
	-						
Introduced Annual Forbs							
Alyssum desertorum	0.06	0.10	0.38	3.45	0.63	0.73	15
Descurainia sophia	0.06	0.10	0.38	3.45	0.63	0.73	15
Lepidium perfoliatum	0.06	0.10	0.38	3.45	0.63	0.73	15
Sub-Total	0.18	0.30	0.82	10.35	1.89	2.19	
Introduced Biennial Forbs				.			
Melliotus officinalis	0.06	0.10	0.38	3.45	0.63	0.73	15
Sub-Total	0.06	0.10	0.38	3.45	0.63	0.73	

Rare Element Resources

Native Perennial Forbs							
Achillea millefolium	0.14	0.23	0.52	6.90	1.26	1.49	14
Grindelia squarrosa	0.14	0.23	0.52	6.90	1.26	1.49	14
Phlox hoodii	0.06	0.10	0.38	3.45	0.63	0.73	15
Sub-Total	0.34	0.56	0.76	17.25	3.15	3.71	
Nativo Full Shrubs							
Artemisia cana	0.06	0 10	0.38	3 4 5	0.63	0.73	15
Artemisia tridentata	1 32	2 16	2 34	34.48	6.29	8 4 5	5
Chrysothampus viscidiflorus	0.06	0.10	0.38	3 45	0.23	0.73	15
Sarcobatus vormiculatus	11 73	10.10	11.76	96.21	15 72	34.00	2
Sub Total	12.12	24 54	13.02	127 59	22.27	44.90	2
Sub-Total	13.10	21.34	13.02	127.59	23.21	44.01	
Native Half & Sub-Shrubs							
Artemisia frigida	0.06	0.10	0.38	3.45	0.63	0.73	15
Gutierrezia sarothrae	0.06	0.10	0.38	3.45	0.63	0.73	15
Sub-Total	0.12	0.20	0.52	6.90	1.26	1.46	
Native Succulents							
Opuntia polyacantha	1.04	1.70	1.74	34.48	6.29	7.99	6
Sub-Total	1.04	1.70	1.74	34.48	6.29	7.99	
Cryptograms							
Moss	0.00	0.00	0.00	0.00	0.00	0.00	16
Lichen	0.41	0.00	1.12	27.59	5.03	5.03	7
Algae	0.00	0.00	0.00	0.00	0.00	0.00	16
Fungi	0.00	0.00	0.00	0.00	0.00	0.00	16
Sub-Total	0.41	0.00	1.12	27.59	5.03	5.03	

Totals		Std. Dev.
Total Vegetation	61.10	16.88
Total Vegetation w/Cryptograms	61.51	16.80
Total Vegetation excluding SLCV	60.56	16.78
Litter	28.28	12.34
Rock	0.14	0.52
Total Ground Cover	89.93	11.08
Total Ground Cover excluding SLCV	89.39	10.78
Bare Soil	10.07	11.08
Total Cover	100.00	

* I.V. Stands for Importance Value
RARE ELEMENT RESOURCES Report: Cover Summary

Project Name: Polygon Name: Community Type: Date:	2012 Upton Plant Site MG Meadow Grassland 11/19/2014	Sampling Method: Sample Size: Number of Samples: Report Date:	Point Line Intercept 24 12/14/2012	2			
Species	Mean Absolute	Cover Relative (%)	Std. Dev. (n-1)	Absolute	Frequency Relative (%)	/ I.V*	Rank
Native Annual Grasses	1						
Beckmannia syzigachne	0.66	1.09	2.26	8.33	1.65	2.74	12
Sub-Total	0.66	1.09	2.26	8.33	1.65	2.74	
Introduced Annual Grasses							
Bromus japonicus	0.16	0.26	0.82	4.17	0.83	1.09	16
Sub-Total	0.16	0.26	0.82	4.17	0.83	1.09	
Notice On al One and Damaged One and							
Native Cool Season Perennial Grasses	0.16	0.06	0.92	4 47	0.92	1 00	10
Elymus ranceoralus	0.10	0.20	19.02	4.17	0.03	F2 59	10
Elymus snicatus	0.50	0.83	1 70	12 50	2.48	3 31	10
Hordeum jub stum	2.58	4.26	4.02	54.16	10.75	15.01	4
Muhlenhergia asperifolia	0.26	4.20	4.02	4 16	0.83	1.26	15
Poa secunda	0.16	0.45	0.56	8.33	1.65	1.20	14
Puccipellia puttalliana	0.84	1 39	2 20	20.83	4 13	5.52	9
Sub-Total	25.34	41.82	18.80	195.81	38.85	80.67	0
	20.01		10100				
Native Warm Season Perennial Grasses							
Calamovilfa longifolia	2.34	3.86	5.82	16.66	3.31	7.17	7
Spartina pectinata	12.08	19.93	15.82	54.16	10.75	30.68	2
Sporobolus airoides	0.08	0.13	0.40	4.16	0.83	0.96	17
Sub-Total	14.50	23.93	16.54	74.98	14.88	38.81	
	_						
Introduced Perennial Grasses							
Agropyron cristatum	0.08	0.13	0.40	4.16	0.83	0.96	17
Bromus inermis	0.08	0.13	0.40	4.16	0.83	0.96	17
Phleum pratense	0.34	0.56	1.28	8.33	1.65	2.21	13
Poa pratensis	8.26	13.63	11.74	70.83	14.05	27.68	3
Sub-Total	8.76	14.46	11.8	87.48	17.36	31.82	
Native Crosslike Species							
Carex pebrascensis	3.08	5.08	7.24	20.83	1 13	0.21	6
Carex proegracilis	0.08	0.13	0.40	20.03	4.13	9.21	17
Eleocharis nalustris	4.58	7.56	12.08	20.83	4 13	11 60	5
Juncus halticus	0.34	0.56	1 12	8.33	1.65	2 21	13
Juncus interior	0.08	0.13	0.40	4 16	0.83	0.96	17
Sub-Total	8 16	13.47	13.08	58.31	11 57	25.04	
	0.10	10.71	10.00	00.01	11.07	20.04	

Rare Element Resources

Native Annual Forbs							
Xanthium strumarium	0.76	1.25	2.70	8.33	1.65	2.90	11
Sub-Total	0.76	1.25	2.70	8.33	1.65	2.9	
Introduced Biennial Forbs							
Lactuca serriola	0.08	0.13	0.40	4.16	0.83	0.96	17
Sub-Total	0.08	0.13	0.40	4.16	0.83	0.96	
Native Perennial Forbs							
Achillea millefolium	0.08	0.13	0.40	4.16	0.83	0.96	17
Calochortus gunnisonii	0.08	0.13	0.40	4.16	0.83	0.96	17
Typha latifolia	0.26	0.43	1.22	4.16	0.83	1.26	15
Sub-Total	0.42	0.69	1.32	12.48	2.48	3.17	
Introduced Perennial Forbs							
Astragalus cicer	0.08	0.13	0.40	4.16	0.83	0.96	17
Cirsium arvense	0.26	0.43	1.22	4.16	0.83	1.26	15
Rumex crispus	0.92	1.52	1.76	25.00	4.96	6.48	8
Taraxacum officinale	0.08	0.13	0.40	4.16	0.83	0.96	17
Trifolium pratense	0.08	0.13	0.40	4.16	0.83	0.96	17
Sub-Total	1.42	2.34	2.46	41.64	8.26	10.61	
Native Full Shrubs							
Sarcobatus vermiculatus	0.34	0.56	1.28	8.33	1.65	2.21	13
Sub-Total	0.34	0.56	1.28	8.33	1.65	2.21	
Cryptograms							
Moss	0.00	0.00	0.00	0.00	0.00	0.00	18
Lichen	0.00	0.00	0.00	0.00	0.00	0.00	18
Algae	0.00	0.00	0.00	0.00	0.00	0.00	18
Fungi	0.00	0.00	0.00	0.00	0.00	0.00	18
Sub-Total	0.00	0.00	0.00	0.00	0.00	0.00	

Totals		Std. Dev.
Total Vegetation	60.60	15.14
Total Vegetation w/Cryptograms	60.60	15.14
Total Vegetation excluding SLCV	59.26	14.32
Litter	33.84	12.50
Rock	0.00	0.00
Total Ground Cover	94.44	12.38
Total Ground Cover excluding SLCV	93.10	12.04
Bare Soil	5.56	12.38
Total Cover	100.00	

* I.V. Stands for Importance Value

Project Name: Polygon Name: Community Type: Date:	2012 Upton Plant Site MS Mixed Shrubland 12/2/2014	Sampling Method: Sample Size: Number of Samples: Report Date:	Point Line Intercept 1 20 12/14/2012				
Species	Mean Absolute	Cover Relative (%)	Std. Dev. (n-1)	Absolute	Frequency Relative (%)	I.V*	Rank
Native Cool Season Perennial Grasses							
Elvmus smithii	6.80	13.99	8.70	65.00	7.65	21.64	3
Koeleria macrantha	3.80	7.82	3.88	70.00	8.24	16.06	6
Nassella viridula	4.70	9.67	5.24	80.00	9.41	19.08	4
Poa secunda	3.90	8.02	3.98	80.00	9.41	17.43	5
Sub-Total	19.20	39,50	11.50	295.00	34.71	74.21	
Native Warm Season Perennial Grasses							
Bouteloua gracilis	0.20	0.41	0.90	5.00	0.59	1.00	17
Calamovilfa longifolia	0.60	1.23	2.68	5.00	0.59	1.82	15
Sub-Total	0.80	1.64	2.78	10.00	1.18	2.82	
Introduced Perennial Grasses							
Agropyron cristatum	12.00	24.69	13.90	75.00	8.82	33.51	1
Bromus inermis	0.60	1.23	2.68	5.00	0.59	1.82	15
Sub-Total	12.60	25.92	13.80	80.00	9.41	35.33	
Native Grasslike Species							
Carex filifolia	0.30	0.62	0.74	15.00	1.76	2.38	14
Sub-Total	0.30	0.62	0.74	15.00	1.76	2.38	
Native Annual Forbs							
Gnaphalium palustre	0.10	0.21	0.44	5.00	0.59	0.80	18
Sub-Total	0.10	0.21	0.44	5.00	0.59	0.80	
Introduced Biennial Forbs							
Melilotus officinalis	0.40	0.82	1.04	15.00	1.76	2.58	13
Tragopogon dubius	0.10	0.21	0.44	5.00	0.59	0.80	18
Sub-Total	0.50	1.03	1.10	20.00	2.35	3.38	
Native Perennial Forbs							
Achillea millefolium	0.70	1.44	1.34	25.00	2.94	4.38	12
Astragalus spatulatus	0.20	0.41	0.62	10.00	1.18	1.59	16
Grindelia squarrosa	0.10	0.21	0.44	5.00	0.59	0.80	18
Phlox hoodii	0.10	0.21	0.44	5.00	0.59	0.80	18
Psoralidium tenuiflorum	0.30	0.62	0.74	15.00	1.76	2.38	14
Ratibida columnifera	0.20	0.41	0.62	10.00	1.18	1.59	16
Thermopsis rhombifolia	0.90	1.85	1.20	40.00	4.71	6.56	9
Vicia americana	0.10	0.21	0.44	5.00	0.59	0.80	18
Sub-Total	2.60	5.36	3.26	115.00	13.54	18.90	

Rare Element Resources

Native Full Shrubs							
Artemisia tridentata	7.50	15.43	4.80	90.00	10.59	26.02	2
Chrysothamnus viscidiflorus	0.90	1.85	1.78	25.00	2.94	4.79	11
Rosa woodsii	0.10	0.21	0.44	5.00	0.59	0.80	18
Sarcobatus vermiculatus	2.30	4.73	4.26	35.00	4.12	8.85	8
Sub-Total	10.80	22.22	7.18	155.00	18.24	40.46	
Native Half & Sub-Shrubs							
Atriplex gardneri	0.10	0.21	0.44	5.00	0.59	0.80	18
Gutierrezia sarothrae	0.90	1.85	1.52	35.00	4.12	5.97	10
Sub-Total	1.00	2.06	1.66	40.00	4.71	6.77	
Native Succulents							
Opuntia polyacantha	0.70	1.44	1.34	25.00	2.94	4.38	12
Sub-Total	0.70	1.44	1.34	25.00	2.94	4.38	
Cryptograms							
Moss	0.00	0.00	0.00	0.00	0.00	0.00	19
Lichen	2.60	0.00	3.84	90.00	10.59	10.59	7
Algae	0.00	0.00	0.00	0.00	0.00	0.00	19
Fungi	0.00	0.00	0.00	0.00	0.00	0.00	19
Sub-Total	2.60	0.00	3.84	90.00	10.59	10.59	

Totals		Std. Dev.
Total Vegetation	48.60	8.68
Total Vegetation w/Cryptograms	51.20	7.18
Total Vegetation excluding SLCV	47.70	9.28
Litter	34.10	8.24
Rock	0.50	1.10
Total Ground Cover	85.80	9.90
Total Ground Cover excluding SLCV	84.90	10.48
Bare Soil	14.20	9.90
Total Cover	100.00	

* I.V. Stands for Importance Value

Projection term: Community Type: best: Divertion terms and plant bits: Post line idences i 1 22 121/14/2012 Post line idences i 2 21/14/2012 Section 2 21/14/2012 Species Convertion terms 2000 terms Convertion terms 2000 terms Species Feature (%) Std. Dec. (n · 1) Absolute Feature (%) N/* Residue (%) Species Convertion terms Convertion terms Std. Dec. (n · 1) Absolute Feature (%) N/* Residue (%) Species Convertion terms Convertion terms Std. Dec. (n · 1) Absolute Feature (%) N/* Residue (%) Species Convertion terms Convertion terms Std. Dec. (n · 1) Absolute Feature (%) N/* Residue (%) Species Convertion terms Convertion terms Std. Dec. (n · 1) Absolute Feature (%) N/* Residue (%) Species Convertion terms Convertion terms Std. Dec. (n · 1) Absolute Std. Dec. (n · 1) Absolute Std. Dec. (n · 1) Species Convertion terms Convertion terms Std. Dec. (n · 1) Absolute <t< th=""><th></th><th>RAR R</th><th>E ELEMENT RESOURCES</th><th></th><th></th><th></th><th></th><th></th></t<>		RAR R	E ELEMENT RESOURCES					
Late: L114201 Peropentors Propentory Propentory <th>Project Name: Polygon Name: Community Type:</th> <th>2012 Upton Plant Site RG Reclaimed Grassland</th> <th>Sampling Method: Sample Size: Number of Samples:</th> <th>Point Line Intercept</th> <th></th> <th></th> <th></th> <th></th>	Project Name: Polygon Name: Community Type:	2012 Upton Plant Site RG Reclaimed Grassland	Sampling Method: Sample Size: Number of Samples:	Point Line Intercept				
Species Near Absolue Cover Pleative (%) Std. Dev. (n+1) Absolue Prequency Prequency Std. Dev. (n+1) Prequency Pleative (%) V/V Park Species 0.28 0.73 0.70 13.63 3.61 4.34 7 Sub-Total 0.28 0.73 0.70 13.63 3.61 4.34 7 Spins antini 0.28 0.73 0.70 13.63 3.61 4.34 7 Spins antini 0.28 0.73 3.14 4.64 120 1.7 3 Spins antini 0.00 2.02 13.24 4.64 120 1.47 3 Spin-Total 2.01 7.10 1.00 2.02 1.02 2.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02	Date:	11/19/2014	Report Date:	12/14/2012				
National Grasses 0.28 0.73 0.70 13.83 3.81 4.34 7 Brons Japoneus 0.28 0.73 0.70 13.83 3.81 4.34 7 Sub-Total 0.28 0.73 0.70 13.83 3.81 4.34 7 Sub-Total 0.28 0.73 0.70 13.83 3.81 4.34 4.34 Elymas picitudis 2.18 5.70 3.14 4.54 12.05 1 Colera macrantha 1.00 2.62 2.60 5.63 1 5 Prise sectudis 1.00 2.71 7.18 5.80 2.05 1.81 4.54 1.02 2.71 1.82 - Catamorifis forging 0.10 0.28 0.42 4.54 1.02 2.87 10 Spaceholis sericides 0.64 1.67 2.88 4.54 1.02 2.87 10 Spaceholis sericides 0.64 0.73 0.64 0.00 2.41 <td< th=""><th>Species</th><th>Mean Absolute</th><th>Cover Relative (%)</th><th>Std. Dev. (n-1)</th><th>Absolute</th><th>Frequency Relative (%)</th><th>I.V*</th><th>Rank</th></td<>	Species	Mean Absolute	Cover Relative (%)	Std. Dev. (n-1)	Absolute	Frequency Relative (%)	I.V*	Rank
Chronol Jonus Jores 1 United Samuel Jonus								
drama i generativa 0.28 0.73 0.70 13.83 3.81 4.34 7 Main-Total 0.28 0.73 0.70 13.83 3.81 4.34 7 Main-Total 0.28 0.73 0.74 10.83 3.81 4.34 7 Eyma antihit 2.71 0.94 5.80 10.00 2.82 2.73 3.44 45.45 12.05 17.75 3 Roberta macranth 1.00 2.82 2.73 0.94 9.00 2.41 3.14 9 Poa secunda 1.00 2.82 2.73 0.24 5.44 12.02 1.46 14 Somorbina arrow fiscano Deronhal Cassos 0.10 0.26 0.42 4.54 12.0 1.46 14 Somorbina arrow fiscano Deronhal Cassos 0.10 0.26 0.42 4.54 12.0 1.46 14 Somorbina arrow fiscano 0.54 0.73 0.28 0.28 1.18 2.49 11 Somorbina	Introduced Annual Grasses							_
Sub-Total Co.0 Co.0 Co.0 Co.0 Co.0 Co.0 Co.0 Elymas siciality 22.72 59.41 9.68 10.00 25.52 85.03 1 Elymas siciality 2.18 5.70 3.14 4.454 12.05 17.75 3 9.49 5 Koleria macrantha 1.00 2.62 2.60 27.27 7.23 9.84 5 Nasolia virtuality 2.718 71.08 9.99 20.806 55.44 12.02 2.87 10 Sub-Total 2.718 71.08 9.99 2.806 12.84 12.0 2.87 10 Sub-Total 1.62 2.87 13.43 3.59 6.26 11 3.59 6.26 11 3.59 6.26 11.55 11.52 2.97 10 3.55 8 5.61 10.99 2.41 3.14 9 10.54 12.5 11.55 11.52 2.97 10 3.55 11.52 2.97 <t< td=""><td>Bromus japonicus Sub-Total</td><td>0.28</td><td>0.73</td><td>0.70</td><td>13.63</td><td>3.61</td><td>4.34</td><td>7</td></t<>	Bromus japonicus Sub-Total	0.28	0.73	0.70	13.63	3.61	4.34	7
Native Cools Season Perennial Grasses 22.72 69.41 9.88 100.00 26.52 8.5.03 1 Ejmma sinjuita 2.18 5.70 3.14 45.45 12.05 17.75 3 Robertia macrantha 0.00 2.62 2.60 2.727 7.23 9.49 5.78 9.89 7.33 9.89 7.30 9.89 7.30 9.89 7.30 9.89 7.30 9.89 7.30 9.89 7.30 9.85 7.3 9.85 7.30 9.80 7.30 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63 7.63	Sub-Total	0.20	0.75	0.70	13.03	3.01	4.34	
Ejmas sinthi 22.72 69.41 9.68 100.00 26.52 85.03 1 Koleran macrantha 1.00 2.62 2.60 27.27 7.23 0.44 5 Koleran macrantha 0.00 2.62 2.60 27.27 7.23 0.84 5 Pos ascundh 0.00 2.62 1.62 2.727 7.23 0.85 4 Sub-Total 2.718 7.108 9.90 2.056 14.64 14.65 Sub-Total 2.717 7.108 9.90 2.64 1.84 1.85 Sub-Total 0.10 0.26 0.42 4.54 1.85 2.86 Spontobias cryntantins 0.28 0.73 1.28 4.45 1.18 2.46 1 Spontobias cryntantins 0.28 0.73 1.28 4.15 1.46 1.4 Spontobias cryntantins 0.26 0.73 0.94 9.09 2.41 3.16 9 Intrototad Bonotal Foros Intrototad S	Native Cool Season Perennial Grasses							
Elyma spicatus 2.18 5.70 3.14 44.64 12.05 17.75 3 Nasselia virduia 0.28 0.73 0.94 6.00 2.41 3.14 9 Nasselia virduia 0.28 0.73 0.94 6.00 2.41 3.14 9 Nasselia virduia 2.718 7.108 3.90 2.208 5.544 1.20 2.87 10 Sub-Total 0.10 0.26 0.42 4.54 1.20 2.87 10 Sporebolia scriptendus 0.28 0.73 1.28 4.46 1.18 2.49 11 Sporebolia scriptendus 0.28 0.73 1.28 4.54 1.20 2.87 10 Sporebolia scriptendus 0.28 0.73 0.94 9.99 2.61 47.32 47.92 Sub-Total 7.92 2.071 6.10 9.99 2.41 3.35 8 Sub-Total 0.36 0.44 1.32 9.00 2.41 3.35 <td>Elymus smithii</td> <td>22.72</td> <td>59.41</td> <td>9.68</td> <td>100.00</td> <td>26.52</td> <td>85.03</td> <td>1</td>	Elymus smithii	22.72	59.41	9.68	100.00	26.52	85.03	1
Nonleta macranthma 1.00 2.82 2.80 27.27 7.23 9.49 5 Nassalia virtula 0.28 0.73 0.94 0.00 2.41 3.14 9 Poa secunda 1.00 2.62 1.92 27.27 7.23 9.85 4 Sub-Total 2.718 71.08 3.90 2.92.86 4.44 9 Sub-Total 0.10 0.26 0.42 4.54 1.20 1.46 1.4 Spondolus arrystendrus 0.28 0.73 0.28 4.46 1.18 2.47 10 Spondolus arrystendrus 0.28 0.73 0.94 9.09 2.41 3.14 9 Sub-Total 7.92 2.071 6.10 9.99 2.41 3.14 9 Sub-Total 7.92 2.071 6.10 9.99 2.41 3.35 8 Sub-Total 0.36 0.94 1.32 9.09 2.41 3.35 8 Moroduced Bercantal	Elymus spicatus	2.18	5.70	3.14	45.45	12.05	17.75	3
nassein virbula 0.23 0.13 0.94 9.00 2.41 3.14 9 Sub-Total 27.19 71.06 3.90 209.08 55.44 128.52 Sub-Total 27.19 71.06 3.90 209.08 55.44 128.52 Sub-Total 0.10 0.26 0.42 4.54 1.20 1.46 14 Sportables arroubles 0.64 1.67 2.98 4.45 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.18 2.46 1.40 1.48 2.9 2.41 3.14 9.09 2.41 3.14 9.09 2.41 3.14 9.09	Koeleria macrantha	1.00	2.62	2.60	27.27	7.23	9.49	5
Prod Section 1.00 2.02 1.12 2.12.1 1.23 9.35 4 Sub-Total 27.18 71.06 9.30 65.44 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 126.32 <td< td=""><td>Nassella Viridula</td><td>0.28</td><td>0.73</td><td>0.94</td><td>9.09</td><td>2.41</td><td>3.14</td><td>9</td></td<>	Nassella Viridula	0.28	0.73	0.94	9.09	2.41	3.14	9
Salar Cola P.100 P.100 P.200 P.2000 P.2000 P.2000 P.2000 Calar colla 0.10 0.26 0.42 4.54 1.20 1.46 14 Sporebola singles 0.64 1.67 2.68 4.54 1.18 2.47 10 Sporebola singles 0.28 0.73 1.28 4.45 1.18 2.49 11 Sporebola singles 0.28 0.73 1.28 4.45 1.18 2.49 11 Sub-Total 1.02 2.67 0.20 1.353 3.59 6.28 7 Microbios 0.28 0.73 0.54 9.09 2.41 3.35 8 Sub-Total 7.92 20.71 6.10 99.99 2.651 47.32 7 Introduced Branchal Forbs	Poa secunda	1.00 27.18	2.02	1.92	2/.2/	7.23	9.85	4
Native Warm Season Perennial Crasses 0.10 0.26 0.42 4.54 1.20 2.87 1.01 Sporabolis airialdes 0.64 1.67 2.98 4.54 1.20 2.87 10 Sporabolis airialdes 0.64 1.67 2.98 4.54 1.10 2.49 10 Sporabolis airialdes 0.28 0.73 1.26 4.45 1.18 2.49 1.13 Sub-Total 1.02 2.67 3.20 13.83 3.59 6.26 7 Arroduced Parannial Grasses 2 2 2.67 3.20 13.83 3.59 6.26 7 Marroduced Parannial Grasses 0.28 0.73 0.94 9.09 2.41 3.35 8 Sub-Total 0.36 0.94 1.32 9.09 2.41 3.35 8 Sub-Total 0.36 0.47 0.86 4.54 1.20 1.67 1.3 Oridula squarrosa 0.18 0.47 0.86 4.54 1.	Sub-Total	27.10	/ 1.00	5.50	209.00	55.44	120.52	
Calamonifa longifulia 0.10 0.26 0.42 4.54 1.20 1.46 14 Sporebolus cryptandrus 0.28 0.73 1.28 4.45 1.10 2.47 11 Sporebolus cryptandrus 0.28 0.73 1.28 4.45 1.18 2.49 11 Sporebolus cryptandrus 0.26 0.73 1.28 4.45 1.20 2.47 1.40 4.08 2.87 11 Sub-Total 1.02 2.67 3.20 13.83 3.59 6.28 7.3 0.94 9.09 2.41 3.41 7.92 20.71 6.10 99.99 2.6.51 47.32 1.90 2.41 3.35 8 3.95 5.8 8 3.90 2.41 3.35 8 3.90 2.41 3.35 8 3.90 2.41 3.35 8 3.90 2.41 3.35 8 3.90 2.41 3.35 8 3.90 2.41 3.35 8 3.90 1.20 1.61 <td>Native Warm Season Perennial Grasses</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Native Warm Season Perennial Grasses							
Sporabilis airoides 0.84 1.67 2.98 4.54 1.20 2.87 10 Sporabilis airoides 0.28 0.73 1.28 4.45 1.18 2.49 11 Sub-Total 1.02 2.67 3.20 13.53 3.59 6.26 Aporgono citatum 7.64 19.99 6.16 90.90 2.41 3.14 9 Bornus inermis 0.28 0.73 0.94 9.09 2.41 3.14 9 Sub-Total 7.92 20.71 6.10 99.99 2.61 47.32 Introduced lemnal Forbs	Calamovilfa longifolia	0.10	0.26	0.42	4.54	1.20	1.46	14
Sporzbala 0.28 0.73 1.28 4.45 1.18 2.49 11 Sub-Total 1.02 2.67 3.20 13.53 3.59 6.26 Mitroduced Parantial Crasses 2 20.71 6.16 90.90 2.41.01 44.08 2 Sob-Total 7.84 19.98 6.16 90.90 2.41 3.44.9 9 Sub-Total 7.92 20.71 6.10 99.99 26.51 47.32 Introduced Bonnal Forbs	Sporobolus airoides	0.64	1.67	2.98	4.54	1.20	2.87	10
Sub-Total 1.02 2.67 3.20 13.53 3.59 6.26 Introduced Peronial Crassos	Sporobolus cryptandrus	0.28	0.73	1.28	4.45	1.18	2.49	11
Introduced Perennial Grasses Agrogynor ristatum 7.64 19.98 6.16 90.90 24.10 44.08 2 Storb Total 7.92 20.71 6.10 99.99 26.51 47.32 Storb Total 7.92 20.71 6.10 99.99 26.51 47.32 Introduced Bionals Forbs	Sub-Total	1.02	2.67	3.20	13.53	3.59	6.26	
Agrogroup a ristatum 7.64 19.98 6.16 90.90 24.10 44.08 2 Bromus inernis 0.28 0.73 0.94 90.90 2.41 3.14 9 Sub-Total 7.92 20.71 6.10 99.99 2.651 47.32 Introduced Bionals Forbs	Introduced Perennial Grasses							
Browns internis 0.28 0.73 0.94 9.09 2.41 3.14 9 Sub-Total 7.92 20.71 6.10 99.99 2.65 47.32 Introduced Blennial Forbs	Agropyron cristatum	7.64	19.98	6.16	90.90	24.10	44.08	2
Sub-Total 7.92 20.71 6.10 99.99 26.51 47.32 Introduced Bionnial Forbs	Bromus inermis	0.28	0.73	0.94	9.09	2.41	3.14	9
Introduced Elennial Forbs 0.36 0.94 1.32 9.09 2.41 3.35 8 Sub-Total 0.36 0.47 0.86 4.54 1.20 1.67 13 Christial squartosa 0.18 0.47 0.86 4.54 1.20 1.46 14 Mainter Eul Strubos 1.67 2.26 9.08 2.41 4.08 14 Sarcobatis verniculatus 0.10 0.26 0.42 4.54 1.20 1.46 14 Rosa contais verniculatus 0.01 0.26 0.42 4.54 1.20 1.46 14 Sarcobatis verniculatus 0.04 2.00 2.20 2.21 6.02 8.22 1.65 1.45 </td <td>Sub-Total</td> <td>7.92</td> <td>20.71</td> <td>6.10</td> <td>99.99</td> <td>26.51</td> <td>47.32</td> <td></td>	Sub-Total	7.92	20.71	6.10	99.99	26.51	47.32	
Mellious officinalis 0.36 0.94 1.32 9.09 2.41 3.35 8 Sub-Total 0.36 0.94 1.32 9.09 2.41 3.35 8 Native Peronnial Forbs	Introduced Biennial Forbs							
Sub-Total 0.36 0.94 1.32 9.09 2.41 3.35 Native Perennial Forbs Grindelia squarrosa 0.18 0.47 0.86 4.54 1.20 1.67 13 Thermoges is hombifolia 0.64 1.20 2.14 4.54 1.20 2.41 4.08 Sub-Total 0.64 1.67 2.26 9.08 2.41 4.08 Native Full Shrubs Arrijek canescens 0.10 0.26 0.42 4.54 1.20 1.46 14 Sarobatus vermiculatus 0.64 1.67 2.18 13.63 3.61 5.28 6 Sub-Total 0.84 2.20 2.20 2.21 6.2 8.22 Cryptograms Mass 0.00 0.00 0.00 0.00 0.00 1.5 Lichen 0.00 0.00 0.00 0.00 0.00 0.00 1.5 Sub-Total 0.00 0.00 0.00 0.00 0.00 1.5 L	Melilotus officinalis	0.36	0.94	1.32	9.09	2.41	3.35	8
Native Parennial Forbs Grindelia squarrosa 0.18 0.47 0.86 4.54 1.20 1.67 13 Thermopsis thombifolia 0.64 1.20 2.14 4.54 1.20 2.40 12 Sub-Total 0.64 1.67 2.26 9.08 2.41 4.08 Native Full Shrubs 7 2.6 9.08 2.41 4.08 Rose woodsii 0.10 0.26 0.42 4.54 1.20 1.46 14 Rose woodsii 0.10 0.26 0.42 4.54 1.20 1.46 14 Sarcobatus vermiculatus 0.64 1.67 2.18 13.63 3.61 5.28 6 Sub-Totai 0.84 2.20 2.20 2.271 6.02 8.22 Cryptograms 0.00 0.00 0.00 0.00 0.00 1.5 Jage 0.00 0.00 0.00 0.00 0.00 0.00 5	Sub-Total	0.36	0.94	1.32	9.09	2.41	3.35	
Native Peronial Forbs Grindelia squarrosa 0.18 0.47 0.86 4.54 1.20 1.67 13 Thermopsis thombifolia 0.46 1.20 2.14 4.54 1.20 2.40 12 Sub-Total 0.64 1.67 2.26 9.08 2.41 4.08 Native Full Shrubs Arrigles canescens 0.10 0.26 0.42 4.54 1.20 1.46 14 Rosa woodsii 0.10 0.26 0.42 4.54 1.20 1.46 14 Sarcobatus verniculatus 0.64 1.67 2.18 13.63 3.61 5.28 6 Sub-Total 0.84 2.20 2.20 22.71 6.02 8.22 Moss 0.00 0.00 0.00 0.00 0.00 0.00 15 Lichen 0.00 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00								
Grindelia squarrosa 0.18 0.47 0.86 4.54 1.20 1.67 13 Thermopsis thombifolia 0.64 1.67 2.26 9.08 2.41 4.08 Sub-Total 0.64 1.67 2.26 9.08 2.41 4.08 Native Full Shrubs Arrigles canescens 0.10 0.26 0.42 4.54 1.20 1.46 14 Rosa woodsii 0.10 0.26 0.42 4.54 1.20 1.46 14 Rosa woodsii 0.10 0.26 0.42 4.54 1.20 1.46 14 Sarcobalus vermiculatus 0.64 1.67 2.18 13.63 3.61 5.28 6 Sub-Total 0.84 2.20 2.27 6.02 8.22 7 Moss 0.00 0.00 0.00 0.00 0.00 0.00 15 Juherosa 0.00 0.00 0.00 0.00 0.00 0.00 0.00 14 Al	Native Perennial Forbs	_						
Inemposis mombinia 0.46 1.20 2.14 4.54 120 2.40 12 Sub-Total 0.64 1.67 2.26 9.08 2.41 4.08 Native Full Shrubs Resense 2.14 4.54 1.20 1.46 14 Rosa woodsii 0.10 0.26 0.42 4.54 1.20 1.46 14 Rosa woodsii 0.10 0.26 0.42 4.54 1.20 1.46 14 Sarcobatus verniculatus 0.64 1.67 2.18 13.63 3.61 5.28 6 Sub-Total 0.84 2.20 2.20 22.71 6.02 8.22 Cryptograms Kate 0.00 0.00 0.00 0.00 0.00 0.00 0.00 15 Kate 0.00 0.00 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00 0.00 <td>Grindelia squarrosa</td> <td>0.18</td> <td>0.47</td> <td>0.86</td> <td>4.54</td> <td>1.20</td> <td>1.67</td> <td>13</td>	Grindelia squarrosa	0.18	0.47	0.86	4.54	1.20	1.67	13
Native Full Shrubs Native Full Shrubs Atrijke canescens 0.10 0.26 0.42 4.54 1.20 1.46 14 Sacobatus vermiculatus 0.64 1.67 2.18 13.63 3.61 5.28 6 Sacobatus vermiculatus 0.64 1.67 2.18 13.63 3.61 5.28 6 Sub-Total 0.84 2.20 2.20 22.71 6.02 8.22 Cryptograms 0.84 2.20 2.20 22.71 6.02 8.22 Moss 0.00 0.00 0.00 0.00 0.00 0.00 15 Ichen 0.00 0.00 0.00 0.00 0.00 15 Fungi 0.00 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00 15 Total Vegetatio	Inermopsis rhombitolia	0.46	1.20	2.14	4.54	1.20	2.40	12
Native Full Shrubs Atrijek canescens 0.10 0.26 0.42 4.54 1.20 1.46 14 Rosa woodsii 0.10 0.26 0.42 4.54 1.20 1.46 14 Rosa woodsii 0.64 1.67 2.18 13.63 3.61 5.28 6 Sub-Total 0.84 2.20 2.20 22.71 6.02 8.27 Cryptograms 0.00 0.00 0.00 0.00 0.00 0.00 15 Alage 0.00 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00 15 Ichen 0.00 0.00 0.00 0.00 0.00 15 Algae 0.00 0.00 0.00 0.00 0.00 0.00 Sub-Total 0.00 0.00 0.00 0.00 0.00 0.00 Total Vegetation wCryptograms 38.24 10.26	Sub-Total	0.04	1.07	2.20	9.00	2.41	4.00	
Atriplex canescens 0.10 0.26 0.42 4.54 1.20 1.46 14 Rosa woodsii 0.10 0.26 0.42 4.54 1.20 1.46 14 Sarcobatus verniculatus 0.64 1.67 2.18 13.63 3.61 5.28 6 Sub-Total 0.84 2.20 2.20 2.2.71 6.02 8.2 - Cryptograms 0.00 0.00 0.00 0.00 0.00 0.00 0.00 15 Lichen 0.00 0.00 0.00 0.00 0.00 0.00 0.00 15 Fungi 0.00 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00 0.00 15 Subartotal 0.00 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00 0.00 0.00 15 Total Vegetation 38.24 10.26 10.26 10.70 <	Native Full Shrubs							
Rosa woodsii 0.10 0.26 0.42 4.54 1.20 1.46 14 Sarcobatus vermiculatus 0.64 1.67 2.18 13.63 3.61 5.28 6 Sub-Total 0.84 2.20 22.71 6.0 8.22	Atriplex canescens	0.10	0.26	0.42	4.54	1.20	1.46	14
Sarcobatus vermiculatus 0.64 1.67 2.18 13.63 3.61 5.28 6 Sub-Total 0.84 2.20 22.71 6.02 8.22 Cryptograms	Rosa woodsii	0.10	0.26	0.42	4.54	1.20	1.46	14
Sub-Total 0.84 2.20 2.20 22.71 6.02 8.22 Cryptograms Moss 0.00 0.00 0.00 0.00 0.00 15 Lichen 0.00 0.00 0.00 0.00 0.00 0.00 0.00 15 Algae 0.00 0.00 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	Sarcobatus vermiculatus	0.64	1.67	2.18	13.63	3.61	5.28	6
Cryptograms Moss 0.00 0.00 0.00 0.00 15 Lichen 0.00 0.00 0.00 0.00 0.00 15 Algae 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00 0.00 15 Total 0.00 0.00 0.00 0.00 0.00 0.00 0.00 15 Total Vegetation 38.24 10.26 15 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 10.26 1	Sub-Total	0.84	2.20	2.20	22.71	6.02	8.22	
Moss 0.00 0.00 0.00 0.00 0.00 0.00 15 Lichen 0.00 0.00 0.00 0.00 0.00 15 Algae 0.00 0.00 0.00 0.00 0.00 0.00 15 Algae 0.00 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	Cryptograms							
Lichen 0.00 0.00 0.00 0.00 0.00 0.00 15 Algae 0.00 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00 0.00 0.00 15 Total Vegetation %Cryptograms 38.24 10.26 Total Vegetation excluding SLCV 37.96 11.22 Litter 53.36 10.70 Rock 0.54 1.10 Total Ground Cover excluding SLCV 91.86 7.80 Bare Soil 7.86 7.76 Total Cover 100.00	Moss	0.00	0.00	0.00	0.00	0.00	0.00	15
Algae 0.00 0.00 0.00 0.00 0.00 0.00 15 Fungi 0.00 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00 0.00 0.00 15 Sub-Total 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	Lichen	0.00	0.00	0.00	0.00	0.00	0.00	15
Fungi 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 </td <td>Algae</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>15</td>	Algae	0.00	0.00	0.00	0.00	0.00	0.00	15
Std. Fotal Std. Dev. Total Vegetation 38.24 Total Vegetation w/Cryptograms 38.24 Total Vegetation excluding SLCV 37.96 Total Vegetation excluding SLCV 37.96 Total Vegetation excluding SLCV 37.96 Total Vegetation excluding SLCV 91.96 Total Ground Cover 92.14 Total Ground Cover excluding SLCV 91.86 Total Cover 7.86 Total Cover 100.00	Fungi Sub Total	0.00	0.00	0.00	0.00	0.00	0.00	15
Std. Dev. Total Vegetation 38.24 10.26 Total Vegetation w/Cryptograms 38.24 10.26 Total Vegetation excluding SLCV 37.96 11.22 Litter 53.36 10.70 Rock 0.54 1.10 Total Ground Cover 92.14 7.76 Total Ground Cover excluding SLCV 19.86 7.80 Bare Soil 7.86 7.76 Total Cover 100.00 100.00	Sub-rotai	0.00	0.00	0.00	0.00	0.00	0.00	
Total Vegetation 38.24 10.26 Total Vegetation w/Cryptograms 38.24 10.26 Total Vegetation excluding SLCV 37.96 11.22 Litter 53.36 10.70 Rock 0.54 1.10 Total Ground Cover 92.14 7.76 Total Ground Cover excluding SLCV 91.86 7.80 Bare Soil 7.86 7.76 Total Cover 10.00 100.00	Totals		Std. Dev.					
Total Vegetation wCryptograms 38.24 10.26 Total Vegetation excluding SLCV 37.96 11.22 Litter 53.36 10.70 Rock 0.54 1.10 Total Ground Cover 92.14 7.76 Total Ground Cover excluding SLCV 91.86 7.80 Bare Soil 7.86 7.76 Total Cover 100.00 100.00	Total Vegetation	38.24	10.26					
Total Vegetation excluding SLCV 37.96 11.22 Litter 53.36 10.70 Rock 0.54 1.10 Total Ground Cover 92.14 7.76 Total Ground Cover excluding SLCV 91.86 7.80 Bare Soil 7.86 7.76 Total Cover 10.00 1000	Total Vegetation w/Cryptograms	38.24	10.26					
Litter 53.36 10.70 Rock 0.54 1.10 Total Ground Cover 92.14 7.76 Total Ground Cover excluding SLCV 91.86 7.80 Bare Soil 7.86 7.76 Total Cover 100.00 100.00	Total Vegetation excluding SLCV	37.96	11.22					
NOCK 0.94 1.10 Total Ground Cover 92.14 7.76 Total Ground Cover excluding SLCV 91.86 7.80 Bare Soil 7.86 7.76 Total Cover 100.00 100.00	Litter	53.36	10.70					
Total Ground Cover 52.14 7.76 Total Ground Cover excluding SLCV 91.86 7.80 Bare Soil 7.86 7.76 Total Cover 100.00 100.00	Total Ground Cover	0.54	1.10					
Bare Soil 7.66 7.76 Total Cover 100.00	Total Ground Cover excluding SLOV	92.14	7.10					
Total Cover 100.00	Bare Soil	7.86	7.76					
	Total Cover	100.00						

Total Ground Cover Total Ground Cover excluding SLCV Bare Soil Total Cover * I.V. Stands for Importance Value

RARE ELEMENT RESOURCES Report: Cover Summary

Project Name:	2012 Upton Plant Site	Plant Site Sampling Method:		Point Line Intercept				
Polygon Name:	UG Upland Crassland	Sample Size:	1	1				
Community Type: Date:	11/19/2014	Report Date:	12/14/201	9 2				
Buto.	11/10/2014	The port bate.	12/14/201	-				
		Cover			Frequency			
Species	Mean Absolute	Relative (%)	Std. Dev. (n-1)	Absolute	Relative (%)	I.V*	Rank	
Introduced Annual Grasses								
Bromus japonicus	0.10	0.21	0.46	5.26	1.54	1.75	12	
Sub-Total	0.10	0.21	0.46	5.26	1.54	1.75		
Native Carel Cases on Danamial Creases								
Native Cool Season Perennial Grasses	2.64	5.43	4.04	57 90	16.02	22.35	2	
Hesperostipa comata	0.22	0.45	0.92	5.26	1.54	1.99	11	
Koeleria macrantha	0.42	0.86	1.26	10.53	3.08	3.94	6	
Nassella viridula	0.22	0.45	0.64	10.53	3.08	3.53	9	
Poa secunda	3.06	6.30	8.78	26.32	7.69	13.99	3	
Sub-Total	6.56	13.50	10.34	110.53	32.31	45.80		
Native Merm Sasaan Daramial Crosses								
Calamovilfa longifolia	1.06	2 18	4 58	5.26	1.54	3 72	R	
Schizachyrium scoparium	0.22	0.45	0.92	5.26	1.54	1.99	11	
Sporobolus airoides	0.32	0.66	1.38	5.26	1.54	2.20	10	
Sub-Total	1.60	3.29	5.6	15.78	4.62	7.91		
Introduced Perennial Grasses		70.04	45.40	04.74	07.00	400.00		
Agropyron cristatum Bromus inermis	38.22	/8.64	15.18	94.74 5.26	27.69	2 20	1	
Sub-Total	38.54	79.30	15.18	100.00	29.23	108.53	10	
	00101	10.00			20.20			
Introduced Biennial Forbs								
Melilotus officinalis	0.42	0.86	1.08	15.79	4.62	5.48	4	
Sub-Total	0.42	0.86	1.08	15.79	4.62	5.48		
Nativo Poronnial Forbe								
Sphaeralcea coccinea	0.22	0.45	0.92	5 26	1 54	1 99	11	
Thermopsis rhombifolia	0.32	0.66	1.38	5.26	1.54	2.20	10	
Sub-Total	0.54	1.11	1.62	10.52	3.08	4.19		
	_							
Introduced Perennial Forbs								
l araxacum officinale	0.10	0.21	0.46	5.26	1.54	1.75	12	
Sub-rotai	0.10	0.21	0.40	5.20	1.54	1.75		
Native Full Shrubs								
Artemisia tridentata	0.42	0.86	1.08	15.79	4.62	5.48	4	
Sub-Total	0.42	0.86	1.08	15.79	4.62	5.48		
Native Succurents	0.32	0.66	1.00	10.53	3.09	3 74	7	
Sub-Total	0.32	0.66	1.00	52.63	15.39	3.74	'	
	0.02			02.00	10100	•		
Cryptogram s								
Moss	0.00	0.00	0.00	0.00	0.00	0.00	13	
Lichen	0.64	1.30	2.00	10.53	3.08	4.38	5	
Algae Europi	0.00	0.00	0.00	0.00	0.00	0.00	13	
rungi Sub-Total	0.00	1.30	2 00	10.53	3.08	4.38	13	
	0.04	1.00	2.00	10.00	0.00	4.00		
Totals		Std. Dev.						
Total Vegetation	48.60	9.40]					
Total Vegetation w/Cryptograms	49.24	9.48						
Total Vegetation excluding SLCV	48.50	9.44						
Litter	49.16	10.30						
Total Ground Cover	98.50	4 46						
Total Ground Cover excluding SLCV	98.40	4.44						
Bare Soil	1.50	4.46						
Total Cover	100.00							
* I.V. Stands for Importance Value								

ADDENDUM D8-2-D

SHRUB DENSITY SUMMARIES

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Project Name	2012 Upton Plant Site	Plot Size	100 Square Meters
Polygon Name	BSS	Sample Size	1
	Big Sagebrush		
Community Type	Shrubland	Number of Samples	36
Date	12/2/2014	Report Date	12/14/2012

	Mean	Relative	Std. Dev.	Mean	Mean
	(Number/Plot)	Density	n-1	(Number/sq.m.)	(Number/Acre)
			(Number/Plot)		
Artemisia cana	0.06	0.07	0.33	0.00	2.43
Artemisia tridentata	72.75	90.27	35.08	0.73	2,944.09
Chrysothamnus viscidiflorus	0.08	0.10	0.50	0.00	3.24
Sarcobatus vermiculatus	0.58	0.72	2.71	0.01	23.47
Total Native Full Shrubs	73.47	91.17	35.21	0.73	2,973.23
Artemisia frigida	4.56	5.66	11.60	0.05	0.00
Atriplex gardneri	0.92	1.14	3.29	0.01	37.23
Gutierrezia sarothrae	0.17	0.21	0.74	0.00	6.88
Krascheninnikovia lanata	1.47	1.82	3.34	0.01	59.49
Total Native Half &Sub-Shrubs	7.12	8.83	12.22	0.07	103.60
Total	80.59	100.00	34.41	0.81	3,076.83

Project Name Polygon Name Community Type Date	2012 Upton Plant Site GS Other 12/4/201	e 4	Plot Size Sample Size Number of Samples Report Date	100 Square Meters 1 29 12/14/2012)
		·			
	Mean (Number/Plot)	Relative Density	Std. Dev. n-1 (Number/Plot)	Mean (Number/sq.m.)	Mean (Number/Acre)
Artemisia cana	0.1	0.12	0.31	0	4.05
Artemisia tridentata	24.03	26.73	36.73	0.24	972.49
Chrysothamnus viscidiflorus	0.34	0.38	1.86	0	13.76
Sarcobatus vermiculatus	64.17	71.36	40.08	0.64	2,596.96
Total Native Full Shrubs	88.66	98.58	64.83	0.89	3,588.07
Atriplex gardneri	0.97	1.07	2.91	0.01	39.26
Gutierrezia sarothrae	0.31	0.35	1.17	0	12.55
Total Native Half & Sub-Shrubs	1.28	1.42	3.03	0.01	51.8
Total	89.93	100.01	65.62	0.9	3.639.47

Project Name Polygon Name Community Type Date	2012 Upton Plant Site MG Meadow Grassland 12/2/2014		Plot Size Sample Size Number of Samples Report Date	100 Square Meters 1 24 12/14/2012	
	Mean (Number/Plot)	Relative Density	Std. Dev. n-1 (Number/Plot)	Mean (Number/sq.m.)	Mean (Number/Acre)
Artemisia tridentata	0.08	6.20	0.41	0.00	3.24
Rosa woodsii	0.04	3.10	0.20	0.00	1.62
Sarcobatus vermiculatus	1.17	90.70	3.60	0.01	47.35
Total Native Full Shrubs	1.29	100.00	3.64	0.01	52.21
Total	1.29	100.00	3.64	0.01	52.21

Project Name Polygon Name Community Type Date	2012 Upton Plant Site MS Other 12/4/2014		Plot Size Sample Size Number of Samples Report Date	100 Square Meters 1 20 12/14/2012	
	Mean (Number/Plot)	Relative Density	Std. Dev. n-1 (Number/Plot)	Mean (Number/sq.m.)	Mean (Number/Acre)
Artemisia tridentata	87.05	69.31	44.14	0.87	3.522.91
Chrysothamnus viscidiflorus	14.5	11.54	29.42	0.15	586.82
Sarcobatus vermiculatus	11.1	8.84	14.33	0.11	449.22
Total Native Full Shrubs	112.65	89.69	48.75	1.13	4,558.95
Atriplex gardneri	0.9	0.72	2.69	0.01	36.42
Gutierrezia sarothrae	12.05	9.59	17.98	0.12	487.66
Total Native Half &Sub-Shrubs	12.95	10.31	17.86	0.13	524.09
Total	125.6	100	62.58	1.26	5,083.03

Project Name Polygon Name Community Type Date	2012 Upton Plant Site RG Reclaimed Grassland 12/2/2014		Plot Size Sample Size Number of Samples Report Date	100 Square Meters 1 22 12/14/2012	
	Mean (Number/Plot)	Relative Density	Std. Dev. n-1 (Number/Plot)	Mean (Number/sq.m.)	Mean (Number/Acre)
Atriplex canescens	0.05	0.37	0.21	0.00	2.02
Rosa woodsii	0.32	2.34	1.49	0.00	12.95
Sarcobatus vermiculatus	13.32	97.30	45.45	0.13	539.04
Total Native Full Shrubs	13.69	100.00	45.37	0.14	554.01
Total	13.69	100.00	45.37	0.14	554.01

Project Name Polygon Name Community Type Date	2012 Upton Plant Site JG Jpland Grassland 12/2/2014		Plot Size Sample Size Number of Samples Report Date	100 Square Meters 1 19 12/14/2012	
	Mean (Number/Plot)	Relative Density	Std. Dev. n-1 (Number/Plot)	Mean (Number/sq.m.)	Mean (Number/Acre)
Artemisia cana	0.21	2.58	0.92	0.00	8.50
Artemisia tridentata	4.89	60.00	11.76	0.05	197.89
Atriplex canescens	0.05	0.61	0.23	0.00	2.02
Rosa woodsii	3.00	36.81	12.60	0.03	121.41
Total Native Full Shrubs	8.15	100.00	16.90	0.08	329.82
Total	8.15	100.00	16.90	0.08	329.82

ADDENDUM D8-2-E

PHOTOGRAPHS

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Big Sagebrush Shrubland 3



Big Sagebrush Shrubland 9



Greasewood Shrubland 3



Greasewood Shrubland 4



Greasewood Shrubland 5



Greasewood Shrubland 10



Meadow Grassland 7



Meadow Grassland 9



Mixed Shrubland 2



Mixed Shrubland 1



Reclaimed Grassland 3



Reclaimed Grassland 1



Upland Grassland 2

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ADDENDUM D8-2-F

MAPS

MAP D8-2.1

2012 BASELINE VEGETATION ASSESSMENT

MAP D8-2.2

2012 BASELINE WEED INVENTORY