

SECTION 15

VEGETATION

TABLE OF CONTENTS

SECTION	SECTION TITLE	PAGE NUMBER
SECTION 15	VEGETATION.....	1
15.1	Baseline Vegetation Surveys	1
15.1.1	Baselines Surveys 1987	1
15.1.2	Baseline Surveys 2004.....	2
15.1.3	Baseline Surveys 2007.....	2
15.2	Description of Vegetation Communities	2
15.2.1	Alkali Wash	3
15.2.2	Arroyo Shrub	3
15.2.3	Badlands	4
15.2.4	Dunes.....	4
15.2.5	Sands	5
15.2.6	Thinbreaks	6
15.3	Endangered and Threatened Plant Species	7
	Personnel	7
	References	8

SECTION 15

VEGETATION

LIST OF TABLES

TABLE NUMBER	TABLE TITLE
<u>15.2-1</u>	Proportions and Acreages of the Vegetation Communities in the Pinabete Permit Area
<u>15.2-2</u>	Summary of Absolute Cover for All Vegetation Communities from 1987 Baseline Inventory
<u>15.2-3</u>	Alkali Wash Vegetation Community Absolute and Relative Cover from 1987 Baseline Inventory
<u>15.2-4</u>	Absolute Cover for All Vegetation Communities from 2004 Baseline Inventory
<u>15.2-5</u>	Alkali Wash Vegetation Community Absolute and Relative Cover from 2004 Baseline Inventory
<u>15.2-6</u>	Characteristics of All Vegetation Communities from 2007 Baseline Inventory
<u>15.2-7</u>	Alkali Wash Vegetation Community Spring and Fall Absolute and Relative Cover from 2007 Baseline Inventory
<u>15.2-8</u>	Summary of Production (Biomass) and Carrying Capacity for All Vegetation Communities from 1987 Baseline Inventory
<u>15.2-9</u>	Vegetation Community Forage and Animal Unit Months per Acre from 2007 Baseline Inventory
<u>15.2-10</u>	Shrub Density for All Vegetation Communities from 1987, 2004, and 2007 Baseline Inventories
<u>15.2-11</u>	Arroyo Shrub Vegetation Community Absolute and Relative Cover from 1987 Baseline Inventory
<u>15.2-12</u>	Arroyo Shrub Vegetation Community Absolute and Relative Cover from 2004 Baseline Inventory
<u>15.2-13</u>	Arroyo Shrub Vegetation Community Spring and Fall Absolute and Relative Cover from 2007 Baseline Inventory
<u>15.2-14</u>	Badlands Vegetation Community Absolute and Relative Cover from 1987 Baseline Inventory
<u>15.2-15</u>	Badlands Vegetation Community Absolute and Relative Cover from 2004 Baseline Inventory
<u>15.2-16</u>	Badlands Vegetation Community Spring and Fall Absolute and Relative Cover from 2007 Baseline Inventory

SECTION 15

VEGETATION

LIST OF TABLES

TABLE

NUMBER

TABLE TITLE

<u>15.2-17</u>	Dunes Vegetation Community Absolute and Relative Cover from 1987 Baseline Inventory
<u>15.2-18</u>	Dunes Vegetation Community Absolute and Relative Cover from 2004 Baseline Inventory
<u>15.2-19</u>	Dunes Vegetation Community Spring and Fall Absolute and Relative Cover from 2007 Baseline Inventory
<u>15.2-20</u>	Sands and Saline Sands Vegetation Communities Absolute and Relative Cover from 1987 Baseline Inventory
<u>15.2-21</u>	Sands Vegetation Community Absolute and Relative Cover from 2004 Baseline Inventory
<u>15.2-22</u>	Sands Vegetation Community Spring and Fall Absolute and Relative Cover from 2007 Baseline Inventory
<u>15.2-23</u>	Thinbreaks Vegetation Community Absolute and Relative Cover from 1987 Baseline Inventory
<u>15.2-24</u>	Thinbreaks Vegetation Community Total and Relative Cover from 2004 Baseline Inventory
<u>15.2-25</u>	Thinbreaks Vegetation Community Spring and Fall Absolute and Relative Cover from 2007 Baseline Inventory

SECTION 15

VEGETATION

LIST OF EXHIBITS

**EXHIBIT
NUMBER EXHIBIT TITLE**

- [15.1-1](#) Baseline Surveys
- [15.1-2](#) Baseline Vegetation Communities

SECTION 15

VEGETATION

LIST OF APPENDICES

APPENDIX

NUMBER APPENDIX TITLE

<u>15.A</u>	Vegetation Survey Navajo Mine Area 4 North 1987
<u>15.B</u>	Floristic Survey and Ecological Study of BHP Area 4 North, San Juan County, 2004
<u>15.C</u>	2007 Baseline Vegetation Inventories

SECTION 15

VEGETATION

LIST OF REVISIONS DURING PERMIT TERM

REV.		DATE
NUMBER	REVISION DESCRIPTION	APPROVED

SECTION 15 VEGETATION

BHP Navajo Coal Company's (BNCC) Pinabete Mine Plan permit area (permit area) is located in northwestern New Mexico on Navajo Nation lands in San Juan County and encompasses approximately 5,569 acres of BNCC's mining lease. Elevations of the permit area range from 5,285 to 5,580 feet and the area is characterized by low rolling grasslands/shrublands interspersed with rocky cliffs and thinbreaks. Land uses in the permit area and adjacent areas include livestock grazing and residential areas.

The native vegetation of the permit area is characteristic of the Colorado Plateau salt-desert shrub ecosystem. Salt-desert shrub ranges occur in Utah, Nevada, western Colorado, northeastern Arizona, and northwestern New Mexico. This ecosystem contains a large number of salt-tolerant species and a significant shrub component. Common shrubs present include numerous species of saltbush (*Atriplex* spp.), rabbitbrush (*Chrysothamnus* spp. and *Ericameria* spp.), Mormon tea (*Ephedra* spp.), and snakeweed (*Gutierrezia sarothrae*). The grass community is generally dominated by the warm season species of galleta (*Pleuraphis jamesii*) and alkali sacaton (*Sporobolus airoides*) and the annual cheatgrass (*Bromus tectorum*). The only cool-season grass of any significance is Indian ricegrass (*Achnatherum hymenoides*). Prevalent forb species include globemallow (*Sphaeralcea* spp.), buckwheat (*Eriogonum* spp.), and Russian thistle (*Salsola tragus*).

The purpose of the baseline inventories was to document the vegetation communities and characteristics prior to disturbance and to establish suitable vegetation reference areas. Reference areas are not planned to be impacted by future mining activities, are of sufficient size to maintain natural ecological processes and are of similar characteristics to provide comparative standards to determine reclamation success. Further discussion on reclamation success is presented in Section 37 (Post-Reclamation Vegetation).

15.1 Baseline Vegetation Surveys

Several baseline vegetation inventories have been conducted within the permit area and the BNCC mining lease. Three previous studies are used to describe the vegetation in the permit area. Inventories in Area 4 North were conducted by Wood and Allred in 1987 ([Appendix 15.A](#)) and again by Ecosphere Environmental Services (Ecosphere) in 2004 ([Appendix 15.B](#)). Ecosphere also conducted a baseline vegetation inventory in 2007 for Areas 4 South and 5 ([Appendix 15.C](#)). The extent of these survey areas in relation to the permit area are presented on [Exhibit 15.1-1](#).

15.1.1 Baselines Surveys 1987

The detailed 1987 report and data collected in Area 4 North are provided in [Appendix 15.A](#). Seven vegetation communities were delineated (Alkali Wash, Arroyo Shrub, Badlands, Dunes, Saline Sands, Sands, and Thinbreaks). Vegetation characteristics were measured in each vegetation community and included: cover, frequency, composition/constancy, shrub density, and production. Cover data was collected using a 30-meter line intercept. Frequency was calculated by presence in ten 3-meter subplots

along the 30-meter line transect. Shrub density was measured with a 30-meter long belt transect, using a width of 1 meter on either side of the line transect. Production was measured by harvesting one square meter (m²) plot (10 meters by 10 centimeters) along the line transect.

15.1.2 Baseline Surveys 2004

In 2004, Area 4 North was sampled for cover, frequency, and shrub density. No production data was collected. The detailed report and data collected is provided in [Appendix 15.B](#). To remain consistent with Navajo Mine vegetation reporting, the two sand communities identified in 1987 were combined into one Sands community. Therefore, the 2004 survey used six vegetation communities (Alkali Wash, Arroyo Shrub, Badlands, Dunes, Sands, and Thinbreaks). Cover was measured with a 30-meter line intercept divided into six 5-meter intervals. Cover was also measured in five subplots of 0.5 by 0.5 meters along the line transect. Shrub density was measured using a 30-meter long belt transect with a width of one meter along either side of the transect line.

15.1.3 Baseline Surveys 2007

Field work for the 2007 Areas 4 South and 5 baseline inventories occurred in the spring and fall. The inventories collected data on cover, frequency, constancy, shrub density, and production. The detailed report is provided in [Appendix 15.C](#). The 2007 survey used six vegetation communities (Alkali Wash, Arroyo Shrub, Badlands, Dunes, Thinbreaks, and Sands). Cover and frequency data were collected using a point intercept method (Barbour et.al. 1980; Knight 1978) along a 50-meter tape. Compared to the line intercept, the point intercept method resulted in higher coverage values. Shrub density was measured within a 2-meter wide by 50-meter long (100 m²) belt transect. Production transects consisted of 1-m² plot (10 centimeters x 10 meters).

15.2 Description of Vegetation Communities

The following vegetation community descriptions are based on data and analysis derived from the three baseline inventories conducted within permit area, which are shown on [Exhibit 15.1-1](#). None of the baseline inventories encompass the entire extent of the permit area; however when combined, the entire permit area is included.

Vegetation communities are categorized into the following six communities; Alkali Wash, Arroyo Shrub, Badlands, Dunes, Thinbreaks, and Sands (combined Sands and Saline Sands). Baseline vegetation communities are represented on [Exhibit 15.1-2](#). The proportion of the total permit area each vegetation community comprises is presented in [Table 15.2-1](#). The following subsections summarize each community type.

15.2.1 Alkali Wash

The Alkali Wash vegetation community is associated with small ephemeral waterways or drainages. These areas are typically broad and level with occasional small, dense patches of galleta grass and alkali sacaton. Alkali Wash sites are typically located in washes and major drainages as well as at the base of Badlands. Terrain is nearly level to moderately sloping, ranging from 0 to 3%. The soils found in this community are shallow and unsuitable for salvage because of heavy clays and high sodic levels. Alkali Wash represents the largest community type in the permit area at 29.1% ([Table 15.2-1](#)).

Absolute vegetation cover in the Alkali Wash vegetation community was measured at 2.3% with 1.6% perennial vegetation and 0.7% annual vegetation cover in 1987 ([Table 15.2-2](#) and [Table 15.2-3](#)). In 2004, absolute cover was measured at 3.2% with forbs contributing 48.6% of relative cover ([Table 15.2-4](#) and [Table 15.2-5](#)). The 2007 baseline inventory measured absolute cover between 8.2% in the spring and 5.8% in the fall ([Table 15.2-6](#) and [Table 15.2-7](#)). Spring perennial absolute cover was 2.8%, which comprised 34.8% of relative cover. Fall perennial absolute cover was 2.0%, which comprised 33.9% of the relative cover. The greatest contributor to vegetation cover in the spring and fall was annual forbs with relative cover at 57.8% and 62.6%, respectively ([Table 15.2-7](#)).

The mean biomass production was 584.0 pounds per acre (lbs/acre) in 1987 ([Table 15.2-8](#)) and 156.9 lbs/acre in 2007 ([Table 15.2-6](#)). In 2007, the stocking rate was 0.8 Animal Unit Months per acre (AUMs/ac) ([Table 15.2-9](#)).

Mean shrub densities were 1,153 stems/acre in 1987 and 972 stems/acre in 2004. In 2007, mean shrub density was 540 stems/acre with broom snakeweed (*Gutierrezia sarothrae*) and 511 stems/acre without broom snakeweed ([Table 15.2-10](#)).

15.2.2 Arroyo Shrub

Arroyo Shrub vegetation communities are found on level or nearly level terrain (0 to 2% slopes) located along stream beds in major drainages, such as Pinabete Arroyo. The Arroyo Shrub community is the smallest vegetation type in the permit area comprising 5.3% ([Table 15.2-1](#)). The soils of this vegetation community are stratified sands and often have high sodium adsorption ratio values. Production is still high on the site because of the deep, well-drained soil and proximity to water.

Absolute cover averaged 4.3% in the 1987 inventory ([Table 15.2-2](#)) with perennial and annual vegetation contributing 3.6% and 0.7%, respectively ([Table 15.2-11](#)). In 2004, absolute cover was measured at 5.7% ([Table 15.2-4](#)) with shrubs comprising 61% of relative cover ([Table 15.2-12](#)). The 2007 inventory found that absolute cover in the Arroyo Shrub community varied from 19.5% in the spring to 12.1% in the fall ([Table 15.2-6](#) and [Table 15.2-13](#)). Spring perennial absolute cover was 9.3%, which comprised 47.6% of the relative cover. Perennial absolute cover in the fall was 7.3%, which comprised 59.9% of the relative

cover. Shrub cover contributed the highest relative cover (42.6%) in the fall, while annual forbs contributed the highest relative cover (40.6%) in the spring ([Table 15.2-13](#)).

Mean biomass production in 1987 was 1392.8 lbs/acre ([Table 15.2-8](#)) and in 2007, it was the highest of any community at 320.7 lbs/acre ([Table 15.2-6](#)). The stocking rate in 2007 was 1.5 AUMs/ac ([Table 15.2-9](#)).

Mean shrub densities were 2,978 stems/acre in 1987 and 1,619 stems/acre in 2004. In 2007, shrub density was the highest (without broom snakeweed) of all vegetation communities in the study area at 941 stems/acre. Mean shrub density was 1,101 stems/ac with broom snakeweed ([Table 15.2-10](#)).

15.2.3 Badlands

The Badlands vegetation community consists of exposed, weathered shales with steep to moderately undulating topography (10 to 60% slopes). These sites generally occur between plateau edges and major drainages. The Badlands have the least vegetation of any of the six communities. Plants, where they occur, are often located along the small relief channels of these barren areas. This vegetation community can abruptly shift to another vegetation community or gradually transition to Alkali Wash or Thinbreaks communities. Badlands are sparsely vegetated and cover data demonstrates few seasonal differences. The Badlands vegetation community accounts for 22.9% of the permit area ([Table 15.2-1](#))

Inventories in 1987 measured absolute cover in the Badlands vegetation community at 1.2% ([Table 15.2-2](#)), with annuals and perennials comprising 0.4% and 0.8%, respectively ([Table 15.2-14](#)). In 2004, absolute cover was measured at 1.1% ([Table 15.2-4](#)) with forbs comprising 62.5% and shrubs 28.3% of relative cover ([Table 15.2-15](#)). In 2007, absolute cover varied from 3.7% in the spring to 3.1% in the fall ([Table 15.2-6](#) and [Table 15.2-16](#)). Spring absolute perennial cover was 0.8%, which comprised 22.9% of the relative cover. Fall absolute perennial cover was 1.0%, which comprised 33.1% of relative cover. The greatest contributor to absolute cover in the spring and fall sampling was annual forbs with a relative cover of 66.7% and 65.4%, respectively ([Table 15.2-16](#)).

The mean biomass production was 394.8 lbs/acre in 1987 ([Table 15.2-8](#)) and 85.9 lbs/acre in 2007 ([Table 15.2-6](#)). The stocking rate in 2007 was 1.0 AUMs/acre ([Table 15.2-9](#)).

Mean shrub densities were 506 stems/acre in 1987 and 405 stems/acre in 2004. In 2007, mean shrub density was 520 stems/acre with broom snakeweed and 514 stems/acre without broom snakeweed ([Table 15.2-10](#)).

15.2.4 Dunes

Dunes form gently rolling terrain (0 to 5% slopes) located on the leeward side of ridges, bluffs, and plateaus. Soils within the Dunes vegetation community are deep and composed of well-drained eolian

sands. These deep sands allow for deep water availability. Since only deep-rooted perennial plants can exploit this water, Dunes have several unique plant species, such as canaigre dock (*Rumex hymenosepalus*) and sand sagebrush (*Artemisia filifolia*). The Dunes represent the second to the smallest vegetation community in the permit area covering 5.7% ([Table 15.2-1](#)).

Absolute cover of Dunes was 3.6% in 1987 ([Table 15.2-2](#)). All vegetative cover was perennial with the highest cover values for grasses at 2.5% ([Table 15.2-17](#)). In 2004, absolute cover was measured at 6.2% ([Table 15.2-4](#)) with forbs accounting for 50.3% of relative cover ([Table 15.2-18](#)). Absolute cover in 2007 varied from 20.3% in the spring to 15.0% in the fall due to seasonal changes in species composition, primarily higher spring annual forb cover ([Table 15.2-6](#) and [Table 15.2-19](#)). In 2007 spring and fall data collections, annual forbs contributed 50.6% and 37.5% of relative cover, respectively. Absolute perennial cover in the spring was 9.7% which comprised 48.1% of relative cover. Absolute perennial cover in the fall was 9.1% which comprised 60.5% of relative cover ([Table 15.2-19](#)).

Mean biomass production was 1223.5 lbs/acre in 1987 ([Table 15.2-8](#)) and 209.7 lbs/acre in 2007 ([Table 15.2-6](#)). The stocking rate in 2007 was 0.9 AUMs/acre ([Table 15.2-9](#)).

Mean shrub densities were 2,813 stems/acre in 1987 and 3,805 stems/acre in 2004. In 2007, mean shrub density was 730 stems/acre with broom snakeweed and 487 stems/acre without broom snakeweed ([Table 15.2-10](#)).

15.2.5 Sands

The Sands vegetation community contains moderately deep soils which can range from Saline to Calcareous sands. As with Dunes, the deeper penetration of rainwater into sandy soils allows for greater water availability and increases plant species diversity. The Sands vegetation community often transitions to and can be mixed with Thinbreaks. In years with high amounts of spring rainfall, the Sands vegetation community can display an abundance of annuals including scorpion weed (*Phacelia crenulata*), annual Townsend daisy (*Townsendia annua*), and *Cryptantha* species. The Sands vegetation community makes up 21.2% of the permit area ([Table 15.2-1](#)).

In 1987, vegetative cover was measured in the Sands and Saline Sands communities. The Sands sites had an absolute cover of 2.9% and the Saline Sands sites had 3.8% absolute cover. Absolute vegetative cover in Saline Sands was the second highest of the communities inventoried in 1987 ([Table 15.2-2](#)). In the Sands and Saline Sands sites, perennial grasses comprised the bulk of the relative cover, accounting for 62.4% and 87.3%, respectively ([Table 15.2-20](#)).

Sands and Saline Sands were combined into one community for inventories in 2004 and 2007. Absolute cover in the combined Sands community in 2004 was measured at 8.4% ([Table 15.2-4](#)). Forbs were the

dominant life form accounting for 61.1% of relative cover while shrubs comprised 22.2% ([Table 15.2-21](#)). In the 2007 inventories, absolute cover varied from 14.8% in the spring to 13.1% in the fall, even though the composition of annual forbs and perennial grasses changed more appreciably between the seasons ([Table 15.2-6](#) and [Table 15.2-22](#)). Relative cover of annual forbs in the spring and fall was 58.8% and 39.7%, respectively. Meanwhile, relative cover of perennial grasses in the spring and fall was 18.9% and 40.5%, respectively. Spring absolute perennial cover was 6.0%, which comprised 40.4% of relative cover. Fall absolute perennial cover was 7.9%, which comprised 59.9% of the relative cover ([Table 15.2-22](#)).

In 1987, mean biomass production was measured in Sands and Saline Sands community at 917.3 lbs/acre and 913.8 lbs/acre, respectively ([Table 15.2-8](#)). In 2007, the mean biomass production for the Sands community was 208.6 lbs/acre ([Table 15.2-6](#)) and the stocking rate was 1.1 AUMs/acre ([Table 15.2-9](#)).

In 1987, mean shrub density for the Sands and Saline Sands vegetation community was 6,301 stems/acre and 1,087 stems/acre, respectively. In 2004, shrub density was 648 stems/acre in the combined Sands community. In 2007, Sands mean shrub density was 1,108 stems/acre with broom snakeweed and 486 stems/acre without broom snakeweed ([Table 15.2-10](#)).

15.2.6 Thinbreaks

Thinbreaks topography includes exposed shale, siltstone, and sandstone outcrops and associated thin soils of the immediate adjacent area. These sites typically occur along ridges and rock outcrops between plateaus and major drainages or plateaus and Badlands, as well as butte and mesa tops. Slopes vary from 2 to 9%. The soil surface is usually covered with thin, broken fragments of sandstone. These are rocky areas, sometimes with loose rock and sometimes with large pieces of rock firmly embedded in the ground. Thinbreaks are typically upland habitats with surface rock as a unifying feature. Flat surface rocks allow for greater water runoff and for accumulation in crevices or fissures between rocks. Thinbreaks vegetation communities can abruptly shift to another vegetation community or gradually shift to Badlands or sandy soil types. The Thinbreaks vegetation community comprises 15.9% of the permit area ([Table 15.2-1](#)).

In 1987, Thinbreaks had an absolute cover value of 3.5% ([Table 15.2-2](#)), with perennial vegetation comprising 3.4% ([Table 15.2-23](#)). In 2004, absolute cover in this community was 2.1% ([Table 15.2-4](#)) with shrubs and forbs comprising 48.7% and 35.9% of relative cover, respectively ([Table 15.2-24](#)). In 2007, absolute cover varied from 4.4% in the spring to 4.8% in the fall ([Table 15.2-6](#) and [Table 15.2-25](#)). The greatest contributor to relative cover in the spring and fall was annual forbs with 57.7% and 58.5%, respectively. With a low vegetative component in the Thinbreaks community, there was little difference between cover values in spring and fall data. Spring perennial absolute cover was 1.7%, which comprised 38.0% of the relative cover. Fall perennial absolute cover was 1.9%, which comprised 40.5% of the relative cover. ([Table 15.2-25](#)).

The mean biomass production was 1048.9 lbs/acre in 1987 ([Table 15.2-8](#)) and 121.3 lbs/acre in 2007([Table 15.2-6](#)). The stocking rate in 2007 was calculated at 0.7 AUMs/acre ([Table 15.2-9](#)).

The mean shrub densities were 3,171 stems/acre in 1987 and 40 stems/acre in 2004. In 2007, shrub density was 511 stems/acre with broom snakeweed and 409 stems/acre without broom snakeweed ([Table 15.2-10](#)).

15.3 Endangered and Threatened Plant Species

There are no records of any previous occurrences of federally listed flora species occurring within the permit area. No potential habitat occurs within the permit area boundary for any federally listed threatened or endangered flora species listed for San Juan County. Details of threatened and endangered species surveys are provided in [Appendix 15.A](#), [Appendix 15.B](#), and [Appendix 16.B](#). No Navajo Nation threatened or endangered species, or potential habitats, have been identified within the BNCC mining lease. Therefore, disturbance activities within the permit area would have no effects on any federally listed threatened or endangered flora species.

No Navajo Nation threatened or endangered species, or potential habitats, have been identified within the permit area. However, San Juan milkweed (*Asclepias sanjuanensis*), a Group 4 species on the Navajo Endangered Species List (NESL), has been recorded within the permit area. Group 4 refers to a species for which NNDFW does not currently have sufficient information to support this species being listed as threatened or endangered on the NESL (Navajo Nation 2008). There are no federal, state, or Navajo Nation protections for this species.

San Juan milkweed flowers in April and has mature fruits in mid- to late May. The characteristic habitat of this plant is sandy soil, sometimes occurring in piñon-juniper woodlands. In the permit area, this species occurs in the Dunes vegetation community. Further discussion on the occurrence of San Juan milkweed is provided in [Appendix 15.B](#). In 2004, San Juan milkweed was encountered at four widely dispersed locations in Area 4 North. Eight or more individual milkweed plants were encountered at each of these locations ([Appendix 15.B](#)).

Personnel

Persons or organizations responsible for data collection, analysis, and preparation of this permit application package section:

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Table 15.2-1 Proportions and Acreages of the Vegetation Communities in the Pinabete Permit Area

Vegetation community	Acre	Portion of total area (%)
Alkali Wash	1,622	29.1
Arroyo Shrub	297	5.3
Badlands	1,274	22.9
Dunes	316	5.7
Sands	1,183	21.2
Thinbreaks	878	15.9
Total ¹	5,570	100

¹addition of values may not equal total due to rounding; therefore total calculated acreage may exceed actual acreage

Table 15.2-2 Summary of Absolute Cover for All Vegetation Communities from 1987 Baseline Inventory

Vegetation community	Acreage	Percent cover	Standard deviation (<i>s</i>)
Alkali Wash	1,135	2.31	5.8
Arroyo Shrub	104	4.34	8.7
Badlands	786	1.17	3.2
Dunes	75	3.58	6.3
Saline Sands	37	3.83	4.9
Sands	146	2.94	4.9
Thinbreaks	387	3.49	5.3

Table 15.2-3 Alkali Wash Vegetation Community Absolute and Relative Cover from 1987 Baseline Inventory

Life form	Absolute cover (%)	Relative cover (%)
Annual forbs	0.36	15.9
Annual grasses	0.33	14.4
Perennial forbs	0.0	0.0
Perennial grasses	0.57	24.5
Shrubs	1.05	45.2
Total	2.31	100.0

Table 15.2-4 Absolute Cover for All Vegetation Communities from 2004 Baseline Inventory

Vegetation community	Total transect distance	Vegetation intercept by lifeform (m)			Total vegetation intercept (m)	Average absolute cover (%)
		Forbs	Grasses	Shrubs		
Alkali Wash	1,710	26.85	8.91	19.52	55.28	3.2
Arroyo Shrub	150	3.18	0.16	5.23	8.57	5.7
Badlands	1,350	9.10	1.34	4.13	14.57	1.1
Dunes	210	6.58	1.55	4.96	13.09	6.2
Sands	1,470	74.98	20.50	27.32	122.80	8.4
Thinbreaks	1,080	8.21	3.54	11.14	22.89	2.1
All Communities	5,970	128.9	36.0	72.3	237.2	4.0

Table 15.2-5 Alkali Wash Vegetation Community Absolute and Relative Cover from 2004 Baseline Inventory

Life form	Intercept distance	Average cover (%)	Average relative cover (%)
Forbs	26.85	1.6	48.6
Grasses	8.91	0.5	16.1
Shrubs	19.52	1.1	35.3
Total	55.28	3.2	100.0

Table 15.2-6 Characteristics of All Vegetation Communities from 2007 Baseline Inventory

Vegetation community	Spring absolute cover (%)	Fall absolute cover (%)	Fall average production (lbs/ac)
Alkali Wash	8.2	5.8	156.9
Arroyo Shrub	19.5	12.1	320.7
Badlands	3.7	3.1	85.9
Dunes	20.3	15.0	209.7
Sands	14.8	13.1	208.6
Thinbreaks	4.4	4.8	121.3

Table 15.2-7 Alkali Wash Vegetation Community Spring and Fall Absolute and Relative Cover from 2007 Baseline Inventory

Life form	Spring absolute cover (%)	Spring relative cover (%)	Fall absolute cover (%)	Fall relative cover (%)
Annual forbs	4.7	57.8	3.6	62.6
Annual grasses	0.4	4.8	0.2	3.5
Forbs ¹	0.0	0.0	0.0	0.0
Perennial forbs	0.3	3.3	0.0	0.0
Perennial grasses	1.4	16.7	1.0	17.4
Perennial shrubs	1.2	14.8	1.0	16.5
Perennial succulents	0.0	0.0	0.0	0.0
Unidentified	0.2	2.6	0.0	0.0
Total	8.2	100.0	5.8	100.0
Total perennial	2.8	34.8	2.0	33.9

¹Forbs not specifically identified as either annual or perennial

Table 15.2-8 Summary of Production (Biomass) and Carrying Capacity for All Vegetation Communities from 1987 Baseline Inventory

Vegetation community	Green biomass (g/m ²)		Dry Biomass (g/m ²)		Kg/ha Mean	Lb/ac Mean
	Mean	Standard deviation (s)	Mean	Standard deviation (s)		
Alkali Wash	97.0	261.6	65.5	168.9	654.3	584.0
Arroyo Shrub	271.6	676.4	156.1	375.3	1560.4	1392.8
Badlands	75.2	257.6	44.2	146.3	442.3	394.8
Dunes	224.9	556.3	137.1	322.6	1370.8	1223.5
Saline Sands	153.8	271.7	102.4	182.7	1023.7	913.8
Sands	172.1	393.7	102.8	244.0	1027.7	917.3
Thinbreaks	169.5	369.4	117.5	248.1	1175.0	1048.9

Table 15.2-9 Vegetation Community Forage and Animal Unit Months per Acre from 2007 Baseline Inventory

Vegetation community	Forage ¹ (lbs/ac) x 0.25	AUMs ² /Ac
Alkali Wash	640.4	0.8
Arroyo Shrub	1189.0	1.5
Badlands	786.9	1.0
Dunes	749.0	0.9
Sands	891.7	1.1
Thinbreaks	515.5	0.7

¹ Estimated stocking rates are calculated based on the Usable Production Method for cattle forage using a harvest efficiency of 25% (the average for continuously grazed rangelands) and a standard animal unit month of 790 pounds of forage

² Animal Unit Months

Table 15.2-10 Shrub Density for All Vegetation Communities from 1987, 2004, and 2007 Baseline Inventories

Vegetation community	Density (stems/ac)			
	1987	2004	2007 (with <i>Gutierrezia</i>)	2007 (without <i>Gutierrezia</i>)
Alkali Wash	1,153	972	540	511
Arroyo Shrub	2,978	1,619	1,101	941
Badlands	506	405	520	514
Dunes	2,813	3,805	730	487
Saline Sands	1,087	N/A	N/A	N/A
Sands	6,301	648	1,108	486
Thinbreaks	3,171	40	511	409

Table 15.2-11 Arroyo Shrub Vegetation Community Absolute and Relative Cover from 1987 Baseline Inventory

Life form	Absolute cover (%)	Relative cover (%)
Annual forbs	0.08	1.71
Annual grasses	0.66	15.14
Perennial forbs	0.01	0.24
Perennial grasses	1.95	44.82
Shrubs	1.65	38.09
Total	4.34	100.0

Table 5.2-12 Arroyo Shrub Vegetation Community Absolute and Relative Cover from 2004 Baseline Inventory

Life form	Intercept distance (m)	Absolute cover (%)	Relative cover (%)
Forbs	3.18	2.1	37.1
Grasses	0.16	0.1	1.9
Shrubs	5.23	3.5	61.0
Total	8.57	5.7	100.0

Table 15.2-13 Arroyo Shrub Vegetation Community Spring and Fall Absolute and Relative Cover from 2007 Baseline Inventory

Life form	Spring absolute cover (%)	Spring relative cover (%)	Fall absolute cover (%)	Fall relative cover (%)
Annual forbs	7.9	40.6	4.4	36.2
Annual grasses	2.2	11.1	0.3	2.1
Unidentified forbs ¹	0.1	0.6	0.2	1.2
Perennial forbs	1.1	5.6	0.2	1.4
Perennial grasses	4.2	21.6	1.9	15.9
Perennial shrubs	4.0	20.5	5.2	42.6
Perennial succulents	0.0	0.0	0.0	0.0
Unidentified	0.0	0.0	0.1	0.6
Total	19.5	100.0	12.1	100.0
Total perennial	9.3	47.6	7.3	59.9

¹Forbs not specifically identified as either annual or perennial

Table 15.2-14 Badlands Vegetation Community Absolute and Relative Cover from 1987 Baseline Inventory

Life form	Absolute cover (%)	Relative cover (%)
Annual forbs	0.36	29.9
Annual grasses	0.06	5.1
Perennial forbs	0.01	0.8
Perennial grasses	0.10	8.8
Shrubs	0.64	55.4
Total	1.17	100.0

Table 15.2-15 Badlands Vegetation Community Absolute and Relative Cover from 2004 Baseline Inventory

Life form	Intercept distance (m)	Absolute cover (%)	Relative cover (%)
Forbs	9.10	0.7	62.5
Grasses	1.34	0.1	9.2
Shrubs	4.13	0.3	28.3
Total	14.57	1.1	100

Table 15.2-16 Badlands Vegetation Community Spring and Fall Absolute and Relative Cover from 2007 Baseline Inventory

Life form	Spring		Fall Absolute cover (%)	Fall relative cover (%)
	absolute cover (%)	Spring relative cover (%)		
Annual forbs	2.5	66.7	2.0	65.4
Annual grasses	0.0	0.0	0.0	0.8
Unidentified forbs ¹	0.0	0.0	0.0	0.8
Perennial forbs	0.1	2.1	0.1	2.3
Perennial grasses	0.3	8.3	0.2	6.8
Perennial shrubs	0.5	12.5	0.7	24.1
Perennial succulents	0.0	0.0	0.0	0.0
Unidentified	0.4	10.4	0.0	0.0
Total	3.7	100.0	3.1	100.0
Total perennial	0.8	22.9	1.0	33.1

¹Forbs not specifically identified as either annual or perennial

Table 15.2-17 Dunes Vegetation Community Absolute and Relative Cover from 1987 Baseline Inventory

Life form	Absolute cover (%)	Relative cover (%)
Annual forbs	0.0	0.08
Annual grasses	0.0	0.0
Perennial forbs	0.04	1.2
Perennial grasses	2.47	68.8
Shrubs	1.07	29.9
Total	3.58	100.0

Table 15.2-18 Dunes Vegetation Community Absolute and Relative Cover from 2004 Baseline Inventory

Life form	Intercept distance (m)	Absolute cover (%)	Relative cover (%)
Forbs	6.58	3.1	50.3
Grasses	1.58	0.7	11.8
Shrubs	4.96	2.4	37.9
Total	13.09	6.2	100.0

Table 15.2-19 Dunes Vegetation Community Spring and Fall Absolute and Relative Cover from 2007 Baseline Inventory

Life form	Spring absolute cover (%)	Spring relative cover (%)	Fall absolute cover (%)	Fall relative cover (%)
Annual forbs	10.3	50.6	5.6	37.5
Annual grasses	0.0	0.0	0.2	1.2
Unidentified forbs ¹	0.3	1.3	0.1	0.7
Perennial forbs	5.1	24.9	0.7	4.7
Perennial grasses	2.3	11.4	4.3	28.5
Perennial shrubs	2.3	11.4	4.1	27.2
Perennial succulents	0.0	0.0	0.0	0.2
Unidentified	0.0	0.0	0.0	0.2
Total	20.3	100.0	15.0	100.0
Total perennial	9.7	48.1	9.1	60.5

¹Forbs not specifically identified as either annual or perennial

Table 15.2-20 Sands and Saline Sands Vegetation Communities Absolute and Relative Cover from 1987 Baseline Inventory

Life form	Sands		Saline Sands	
	Absolute cover (%)	Relative cover (%)	Absolute cover (%)	Relative cover (%)
Annual forbs	0.03	1.2	0.08	2.0
Annual grasses	0.11	3.8	0.22	5.7
Perennial forbs	0.03	0.9	0.06	1.5
Perennial grasses	1.84	62.4	3.35	87.3
Shrubs	0.93	31.8	0.12	3.4
Total	2.94	100.0	3.83	100.0

Table 15.2-21 Sands Vegetation Community Absolute and Relative Cover from 2004 Baseline Inventory

Life form	Intercept distance (m)	Absolute cover (%)	Relative cover (%)
Forbs	74.98	5.1	61.1
Grasses	20.50	1.4	16.7
Shrubs	27.32	1.9	22.2
Total	122.80	8.4	100.0

Table 15.2-22 Sands Vegetation Community Spring and Fall Absolute and Relative Cover from 2007
Baseline Inventory

Life form	Spring absolute cover (%)	Spring relative cover (%)	Fall absolute cover (%)	Fall relative cover (%)
Annual forbs	8.7	58.8	5.2	39.7
Annual grasses	0.1	0.8	0.0	0.2
Unidentified forbs ¹	0.0	0.0	0.0	0.2
Perennial forbs	1.3	8.5	0.4	2.7
Perennial grasses	2.8	18.9	5.3	40.5
Perennial shrubs	1.8	11.9	2.2	16.6
Perennial succulents	0.2	1.1	0.0	0.2
Unidentified	0.0	0.0	0.0	0.0
Total	14.8	100.0	13.1	100.0
Total perennial	6.0	40.4	7.9	59.9

¹Forbs not specifically identified as either annual or perennial

Table 15.2-23 Thinbreaks Vegetation Community Absolute and Relative Cover from 1987 Baseline Inventory

Life form	Absolute cover (%)	Relative cover (%)
Annual forbs	0.05	1.4
Annual grasses	0.05	1.5
Perennial forbs	0.03	1.1
Perennial grasses	1.17	33.5
Shrubs	2.19	62.5
Total	3.49	100.0

Table 15.2-24 Thinbreaks Vegetation Community Total and Relative Cover from 2004 Baseline Inventory

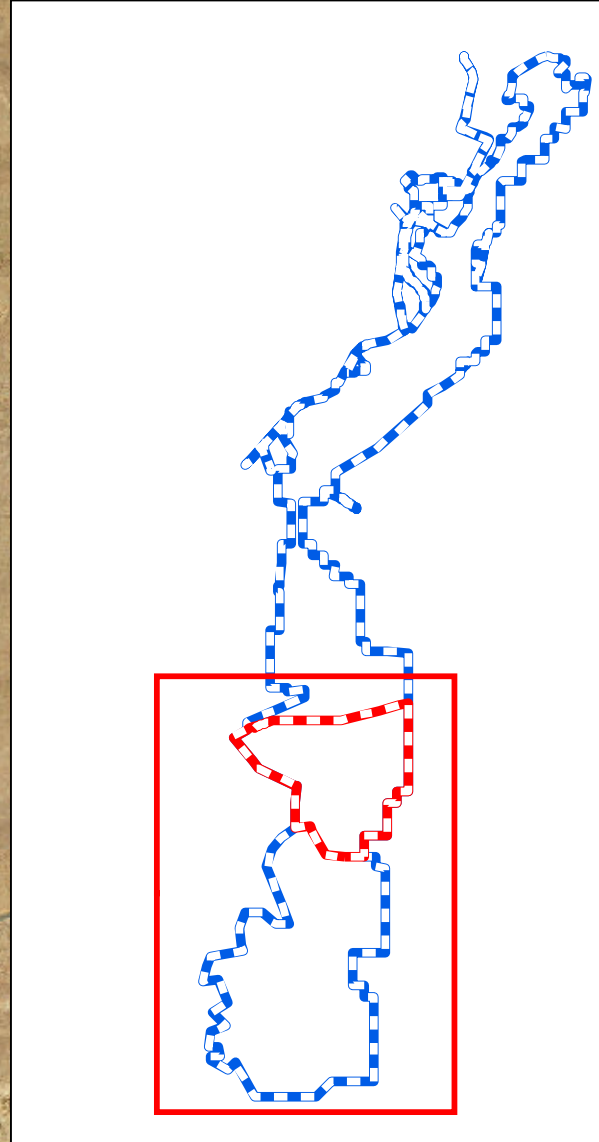
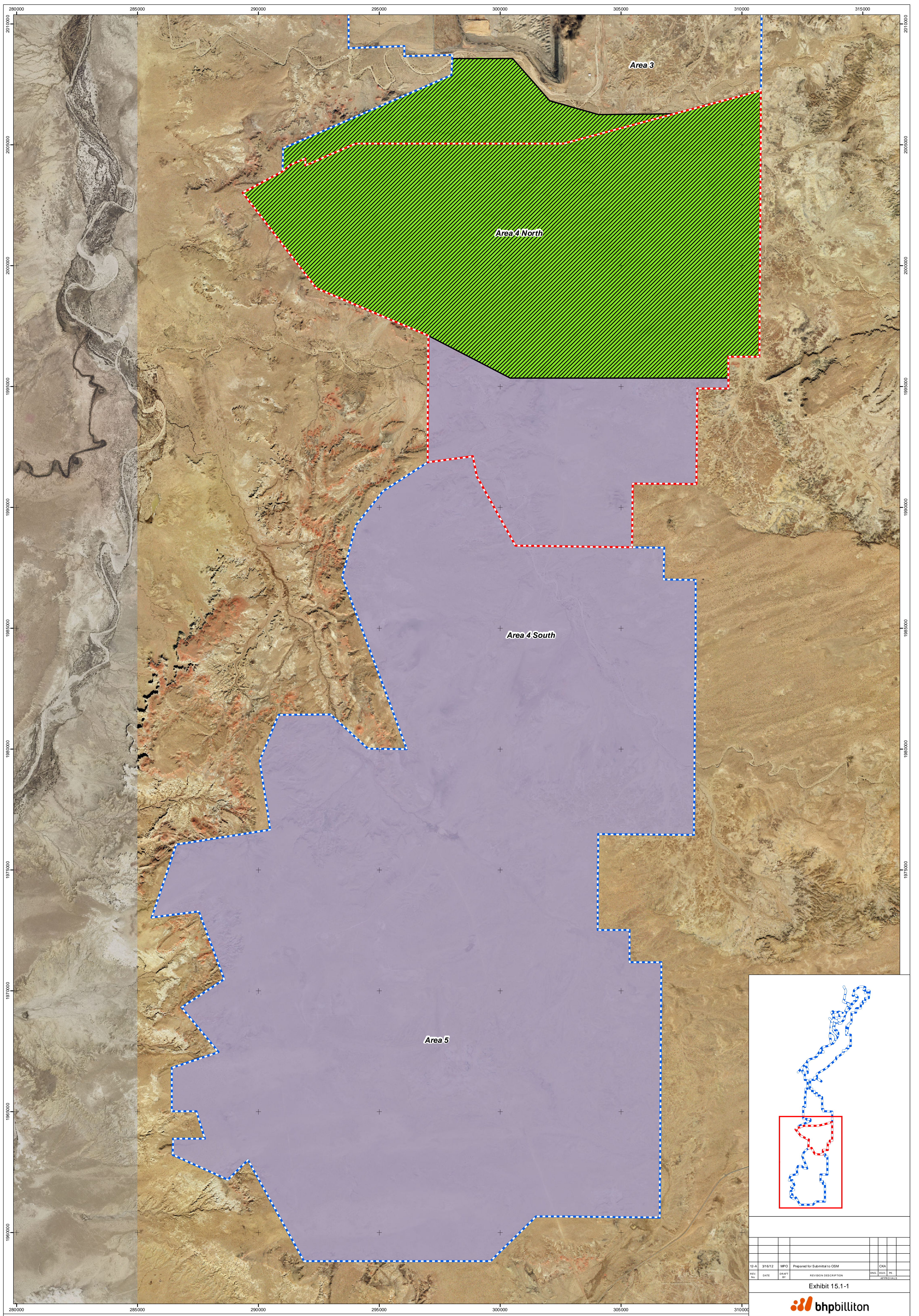
Life form	Intercept distance (m)	Absolute cover (%)	Relative cover (%)
Forbs	8.21	0.8	35.9
Grasses	3.54	0.3	15.5
Shrubs	11.14	1.0	48.7
Total	22.89	2.1	100.0

Table 15.2-25 Thinbreaks Vegetation Community Spring and Fall Absolute and Relative Cover from 2007 Baseline Inventory

Life form	Spring absolute cover (%)	Spring relative cover (%)	Fall absolute cover (%)	Fall relative cover (%)
Annual forbs	2.6	57.7	2.8	58.5
Annual grasses	0.2	4.2	0.0	0.0
Unidentified forbs ¹	0.0	0.0	0.0	0.5
Perennial forbs	0.1	1.4	0.0	0.5
Perennial grasses	0.6	14.1	1.0	20.0
Perennial shrubs	1.0	22.5	1.0	20.0
Perennial succulents	0.0	0.0	0.0	0.0
Unidentified	0.0	0.0	0.0 ²	0.5
Total	4.4	100.0	4.8	100.0
Total perennial	1.7	38.0	1.9	40.5

¹Forbs not specifically identified as either annual or perennial

²0.024%



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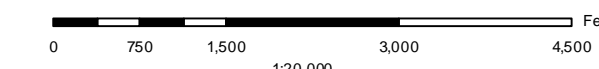
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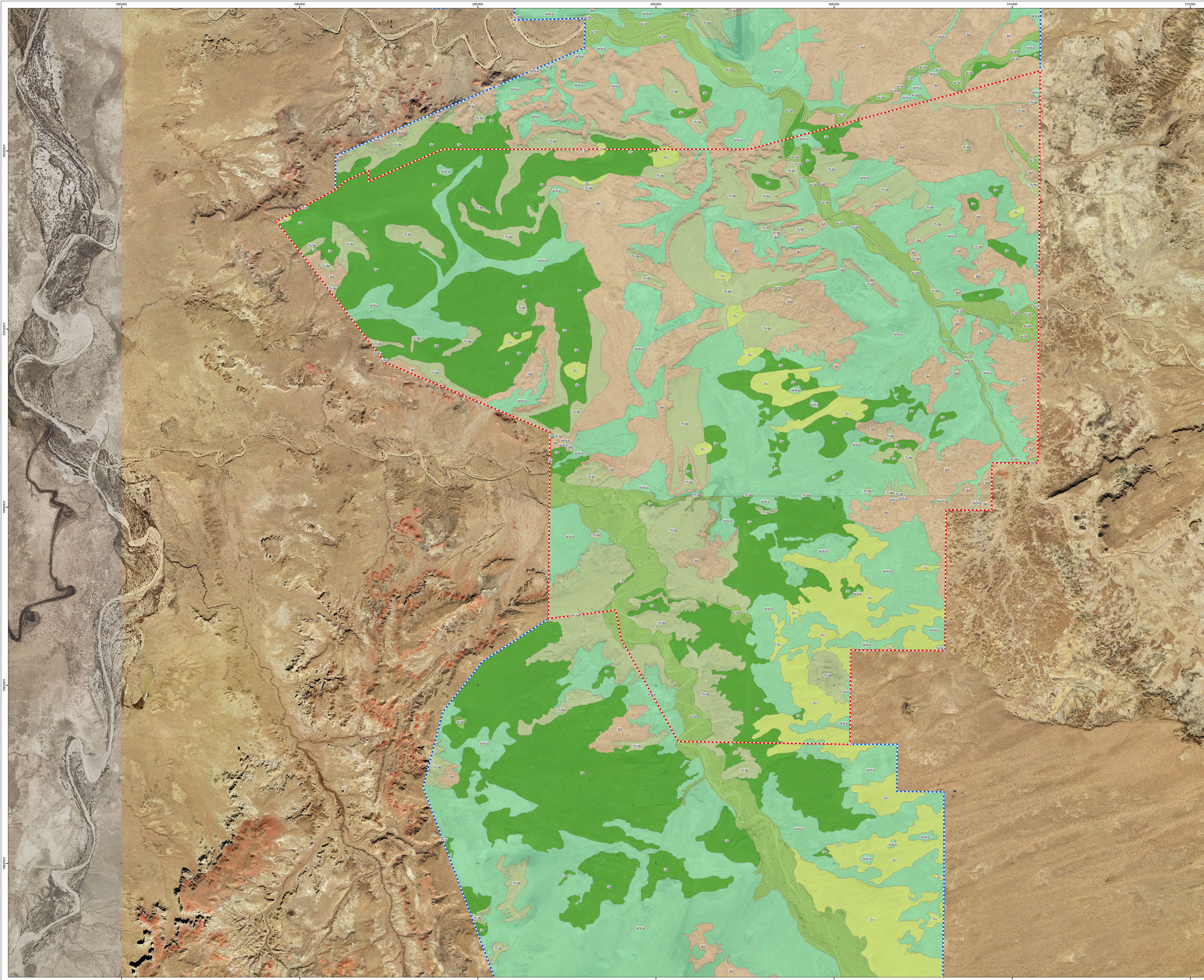
Baseline Vegetation Surveys

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 Projection: Transverse Mercator
 Datum: North American 1927
 Units: Foot US

- Legend**
- Biological Surveys
 - Ecosphere, 2004
 - Wood and Allred, 1987
 - Ecosphere, 2007
 - Pinabete SMCRA Permit Boundary
 - BNCC Lease and ROWs



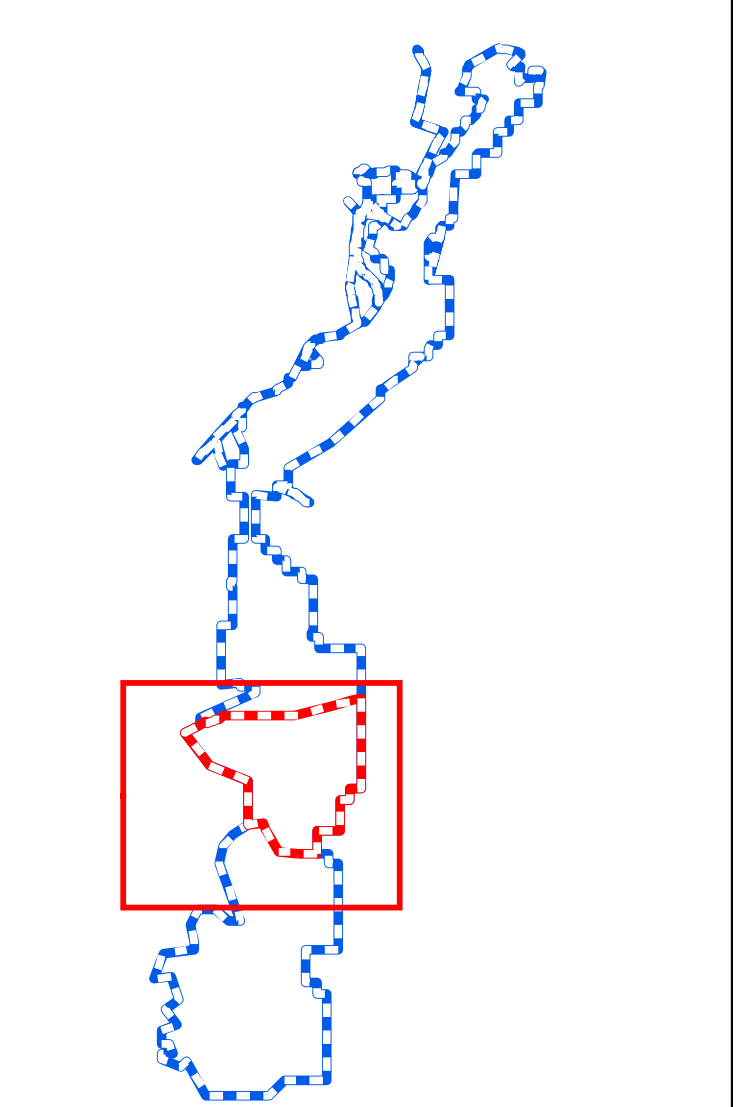


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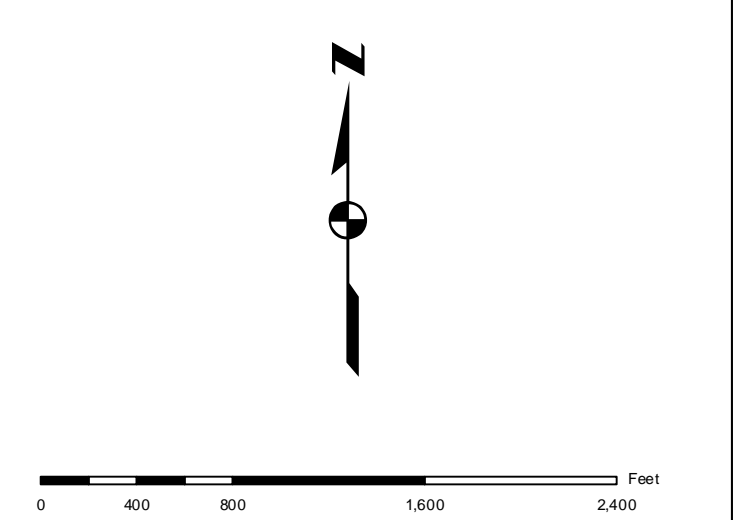
- Pinabete SMCR Permit Boundary
- BNC Mining Lease and ROWs

Baseline Vegetation Communities

- Alkali Wash (AlWa)
- Arroyo Shrubs (ArSh)
- Badlands (Bd)
- Dunes (Du)
- Sands (Sa)
- Thinbreaks (ThBr)



Coordinate System:
 NAD 1983 State Plane New Mexico West FIPS 3003
 Projection: Transverse Mercator
 Datum: North American 1927
 Units: Foot US



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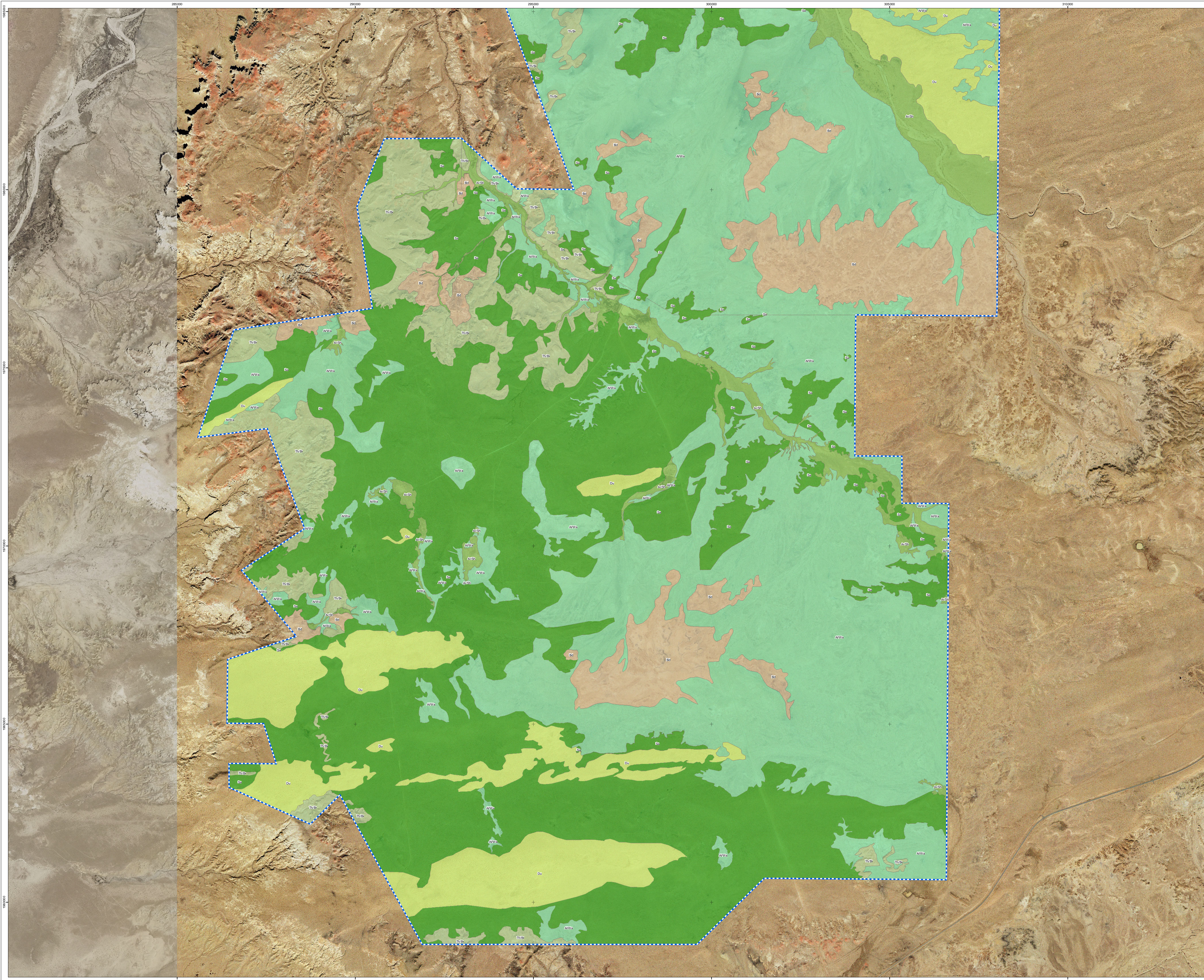
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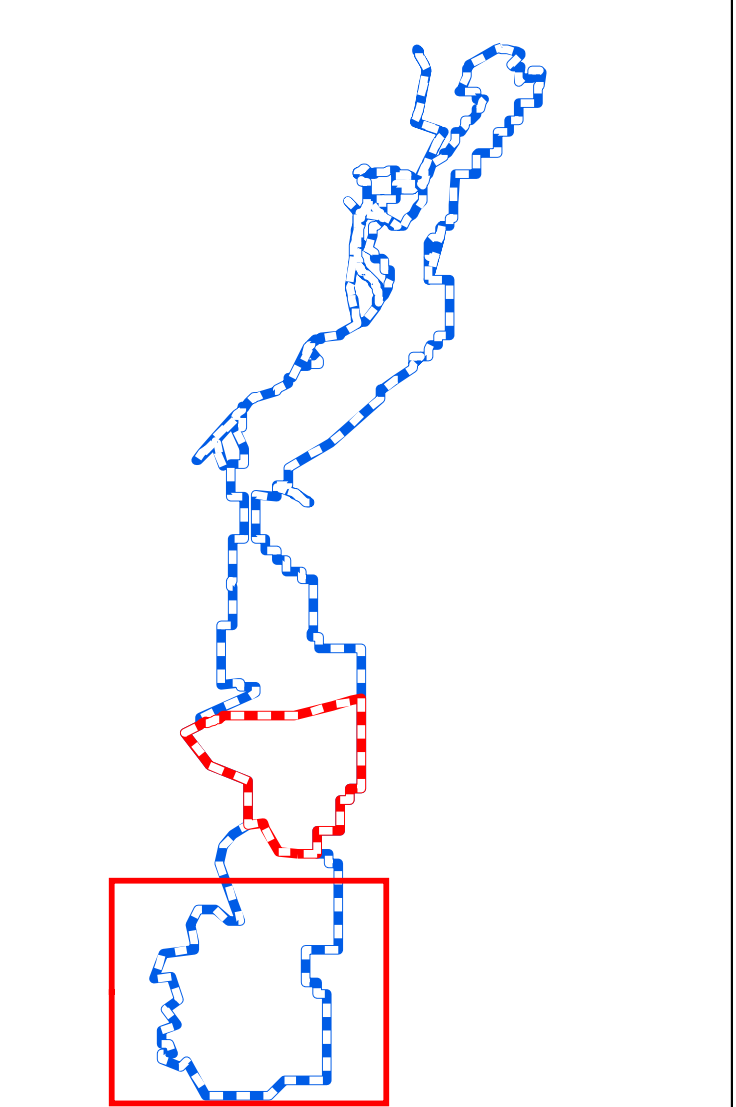
Baseline Vegetation Communities

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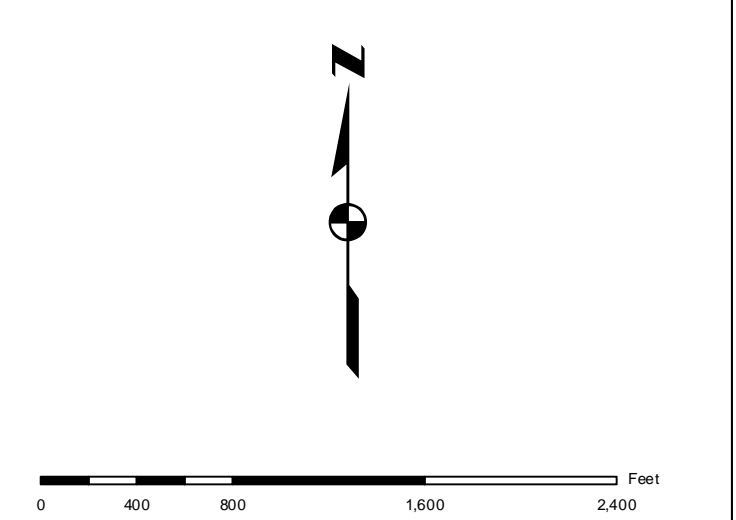
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- Legend
- Pinabete SMCRA Permit Boundary
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 Baseline Vegetation Communities

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Appendix 15.A

Vegetation Survey Navajo Mine Area 4 North 1987

VEGETATION SURVEY

Navajo Mine

Area IV North

by

Dr. M. Karl Wood

Dr. Kelly W. Allred

October 1987

VEGETATION INFORMATION
Navajo Mine
Area IV North

Table of Contents

1.1	Introduction	1
1.2	Vegetation Mapping and Sampling	1
1.3	Methodology	1
1.3.1	Vegetal Cover	2
1.3.2	Frequency	2
1.3.3	Constancy	2
1.3.4	Production	2
1.3.5	Density	3
1.3.6	Sample Adequacy	3
1.3.7	Randomization	3
1.4	Results and Discussion	4
1.4.1	Alkali Wash Range Site	4
1.4.2	Arroyo Shrub Range Site	5
1.4.3	Badlands Range Site	6
1.4.4	Dunes Range Site	7
1.4.5	Saline Sands Range Site	8
1.4.6	Sands Range Site	9
1.4.7	Thin Breaks Range Site	10
1.4.8	Sample Adequacy	11
1.5	General Plant Survey of Area IV North, Navajo Mine, with Emphasis on Rare, Threatened, or Endangered Species	12
	Appendix A	24

VEGETATION INFORMATION

1.1 Introduction

The native vegetation of the Navajo Mine Study Area is characteristic of the Colorado Plateau salt-desert shrub ecosystem. Salt-desert shrub ranges occur in Utah, Nevada, Western Colorado, Northeastern Arizona, and Northwestern New Mexico. This ecosystem contains a large number of salt tolerant species and a significant shrub component. Common shrubs present include numerous species of salt bush (Atriplex spp.), rabbitbrush (Chrysothamnus spp.), Mormon tea (Ephedra spp.), and snakeweed (Gutierrezia sarothrae). The grass community is generally dominated by the warm season species of galleta (Hilaria jamesii) and alkali sacaton (Sporobolus airoides) and the annual, cheatgrass (Bromus tectorum). The only cool-season grass of any significance is Indian ricegrass (Oryzopsis hymenoides). Prevalent forb species include ribscale (Atriplex powellii), globemallow (Sphaeralcea spp.), buck-wheat (Eriogonum spp.), and Russian thistle (Salsola iberica).

1.2 Vegetation Mapping and Sampling

The first step characterizing the vegetation on the Navajo Mine Study Area was to produce a map that divided areas into representative units. This was accomplished by producing a range site map for the entire study area. Range sites are separate vegetation communities found on rangelands and are defined as follows:

A distinctive kind of rangeland, which in the absence of abnormal disturbance and physical site deterioration has the potential to support a native plant community typified by an association of species different from that of other sites. This differentiation is based upon significant differences in kind or proportion of species, or total productivity (Society for Range Management, 1974. A Glossary of Terms Used in Range Management. 2nd Ed. Belke Printing Co. Denver).

Site-specific range sites were identified on the Study Area by aerial photography interpretation followed by ground truthing. Pace transects were run on undisturbed areas to obtain data on species composition and frequency of species occurrence. This information along with site-specific data on soils, geology, and topography were used to delineate individual range sites.

The map showing the distribution and extent of the seven range sites found on the Study Area are presented at the end of the report.

Sampling of the vegetation on the seven range sites occurred in July and August of 1987. This report will characterize the vegetation of the Study Area based on the 1987 data. This data is presented in its entirety as tables at the end of the report.

1.3 Methodology

Personnel of Buchanan Consultants Ltd. collected the data necessary to complete the following information:

1. Vegetation basal cover, frequency, and constancy for each species in the herbaceous stratum for each plant community.
2. Total annual production for each species in the herbaceous stratum for each plant community.
3. Basal cover, frequency, constancy, and density for each species in the shrub stratum for each plant community in which the shrub stratum is present.
4. Total production for each palatable species in the shrub stratum for each plant community in which the shrub stratum is present.

The following methodologies were utilized to assure that data was collected in a timely and statistically adequate manner.

1.3.1 Vegetal Cover

Vegetal cover by species for grasses, forbs, and shrubs was determined by utilizing a 30 meter line intercept transect. Continuous readings recording intercepted length of live vegetation were taken along the entire length of the transect. The intercepted length of each plant was recorded to the nearest 1 mm. Each transect counted as one sample.

1.3.2 Frequency

Frequency was obtained by species for grasses, forbs, and shrubs. The 30 meter tape was divided into ten subplots each 3 meters in length. The number of subplots, in which a given species was present, was recorded as a percentage.

1.3.3 Constancy

Constancy was calculated for each species by dividing the number of transects in which a species was recorded by the total number of transects within each vegetative type. Constancy values were recorded as a percentage.

1.3.4 Production

Production for grasses, forbs, and shrubs was harvested by species within a 10 cm x 10 m quadrat (1 m²). The longest edge of the quadrat was placed to the right of and adjacent to a previously selected random location along the 30 meter tape. All plant biomass within the vertical projection of the quadrat was clipped regardless of rooting location. The clipped green weight was recorded to the nearest one tenth gram. Sample adequacy for production was based on these field weights. Each quadrat counted as one sample.

The clipped biomass was oven-dried at 60° C to a constant weight and recorded to the nearest one hundredth gram. All calculations of Animal Unit Months (AUMs) are reported on a per acre basis using the oven-dried weights. Animal Unit Month figures were computed by multiplying production by their appropriate Proper Use Factor (PUF). PUF values for each species were supplied by the Bureau of Indian Affairs, Shiprock Agency and the Bureau of Land Management, Farmington Resource Area Office. The products of PUF values times production/acre values

for each species were totaled by vegetation type.

AUMs per acre for each vegetation type was then calculated using the formula:

$$\text{AUM/acre} = \frac{(\text{PUF} \times \text{production})/\text{acre}}{28 \text{ lbs/day} \times 30 \text{ days/month}}$$

1.3.5 Density

Density for shrubs was determined from counting the number of rooted individuals by species within one meter of either side of the 30 meter transect. Data are expressed in numbers per acre or hectare.

1.3.6 Sample Adequacy

Sample adequacy for vegetal cover and production was determined based on the formula:

$$N = \frac{Z^2 s^2}{(d x)^2}$$

Where: N = Number of samples (minimum sample size)

s = Sample standard deviation

d = Precision level for desired percentage of the sample mean (expressed as a decimal).

x = Sample mean

Z = Value for specified confidence level.

The values of z and d are 1.345 and 0.20, respectively.

If, after 40 samples, sample adequacy had not been met at the desired level of accuracy, no further sampling was conducted for that range site and the sample size was considered adequate.

1.3.7 Randomization

Selection of the starting point, direction of the line intercept transect and the location of the production quadrant along the transect was completely random. The starting point for the line transect was determined by overlaying the vegetative map with a grid, assigning coordinate axes and then selecting the coordinate values from a random numbers table. A minimum of 15 sampling points was selected for each vegetative type. Following collection of data from these 15 sampling points, sample adequacy was calculated for vegetative cover and production for each vegetation type. If additional sampling points were needed to meet sample adequacy, the random selection procedure was repeated.

Direction of the transect was randomly selected by running the transect in the direction of the position of the watch second hand at the exact time that the starting point for the line transect was located in the field. If the transect extended into another vegetative type, at that point another random direction was chosen by the above method to

continue the transect to its 30 meter length.

Location of the production quadrat along the line transect was determined by selection of numbers from a random numbers table. This number was determined prior to going to the field.

1.4 Results and Discussion

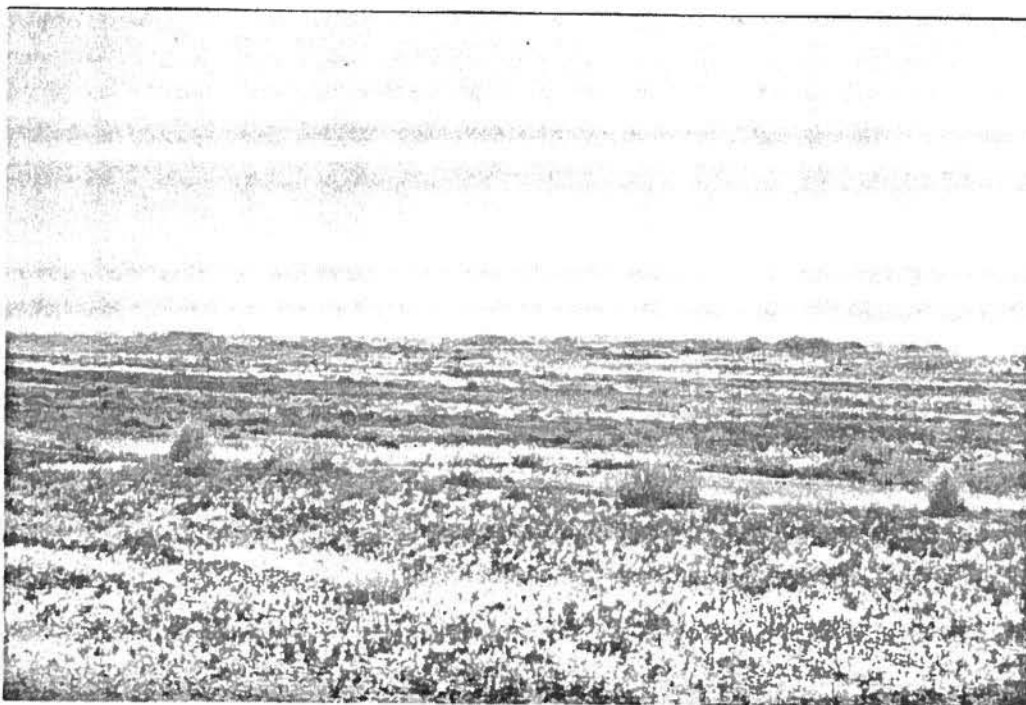
The Navajo Mine Study Area is delineated into seven range sites:

1. Alkali Wash
2. Arroyo Shrub
3. Badlands
4. Dunes
5. Saline Sands
6. Sands
7. Thin Breaks

No vegetation was found in areas delineated as River Wash on the maps.

Table 1-1 summarizes the cover and shrub density data for the 1987 survey. Table 1-2 summarizes the production or phytomass and carrying capacity data. The following sections are a discussion of the data from each range site.

1.4.1 Alkali Wash Range Site



Alkali Wash range sites occupy approximately 42.2 percent of the study area and are typically located in washes and major drainages as well as at the base of Badlands. Terrain is nearly level to moderately sloping ranging from zero to three percent. The soils are shallow and unsuitable for salvage because of heavy clays and high sodic levels.

Table 1.1. Summary of cover and shrub density for all sites

Summary	ACREAGE	COVER (%)					SHRUB DENSITY			
		Foliar		Basal	Standard		#/m square		#/ha	#/acre
		mm	mean	mm	mean	deviation	Mean	Std. dev.	Mean	Mean
Alkali Wash	1135	69814	5.81	27873	2.31	5.82	0.416	0.974	2850	1153
Arroyo Shrub	104	129130	10.68	52062	4.34	8.73	0.738	1.593	7962	2978
Badlands	786	39633	3.3	13911	1.17	3.23	0.125	0.264	1250	506
Dunes	75	101265	8.44	43186	3.58	6.23	0.691	0.963	6949	2813
Saline Sands	37	74472	6.09	45809	3.83	4.88	0.269	0.543	2688	1087
Sands	146	75149	6.19	35171	2.94	4.93	1.646	1.798	15569	6301
Thin Breaks	387	85342	7.11	42173	3.49	5.34	0.782	1.079	7832	3171

Table 1.2. Summary of production (phytomass) and carrying capacity for all sites.

All Sites	GREEN PHYTO MASS		DRY PHYTO MASS				CARRYING CAPACITY			
	g/m square		g/m square		kg/ha	lb/ac	AUM'S/acre			
	Mean	Std. dev.	Mean	Std. dev.	Mean	Mean	Cattle	Sheep	Horses	Deer
Alkali Wash	97.03	261.58	65.45	168.92	654.33	584.04	0.1435	0.1468	0.1084	0.0937
Arroyo Shrub	271.61	676.43	156.06	375.28	1560.44	1392.62	0.3031	0.3534	0.3141	0.0765
Badlands	75.19	257.61	44.24	146.3	442.32	394.78	0.0958	0.1431	0.1032	0.047
Dunes	224.95	556.3	137.11	322.64	1370.83	1223.57	0.3108	0.3272	0.2928	0.0187
Saline Sands	153.8	271.36	102.37	182.66	1023.78	913.81	0.4599	0.4631	0.4573	0.0142
Sands	172.06	393.67	102.77	244.01	1027.71	917.33	0.2731	0.293	0.277	0.042
Thin Breaks	169.49	369.41	117.52	248.09	1175.05	1048.53	0.2293	0.3907	0.2931	0.1045

These conditions made the site very unproductive.

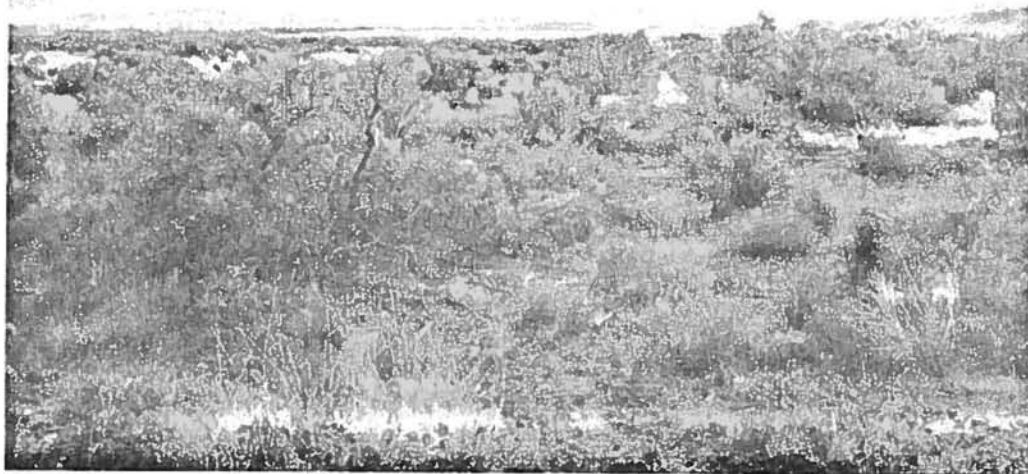
Total vegetation cover on the range site was 2.31 percent with 1.62 percent perennial vegetation and 0.69 percent contributed by annuals. The site is dominated by the annual species of Salsola iberica, Atriplex powellii, and Halogeton glomeratus which comprise 1.0, 0.12, and 0.13 percent cover, respectively. The highest cover values for perennials were recorded for Atriplex obovata (0.65 percent), and Sporobolus airoides (0.45 percent).

The Alkali Wash range site had a total mean production of 584 pounds per acre. Annuals made up 355 pounds per acre with perennials contributing 229 pounds per acre. Highest producing annual species were Salsola iberica and Atriplex powellii at 156 and 114 pounds per acre, respectively. Atriplex obovata had 117 pounds per acre. Atriplex confertifolia had 32 pounds per acre while Suaeda torreyana and Atriplex cuneata had 32 and 29 pounds per acre, respectively. Sporobolus airoides had 18 pounds per acre which was the highest producing perennial grass.

The average shrub density for this site was 1683 plants per acre. Atriplex obovata had a mean density of 1153 per acre. Atriplex corrugata and Atriplex cuneata each had a density of 179 per acre.

The computer printouts for this range site can be found at the end of this report.

1.4.2 Arroyo Shrub Range Site



Arroyo Shrub range sites are found on level or nearly level (zero to 2 percent slopes) terrain located next to stream beds in major drainages, such as Cottonwood Wash, and occupy approximately 3.9 percent of the

Study Area. The soils are stratified sands and often have high Sodium Adsorption Ratio values. Production is still high on the site because of the deep, well-drained soil and proximity to water.

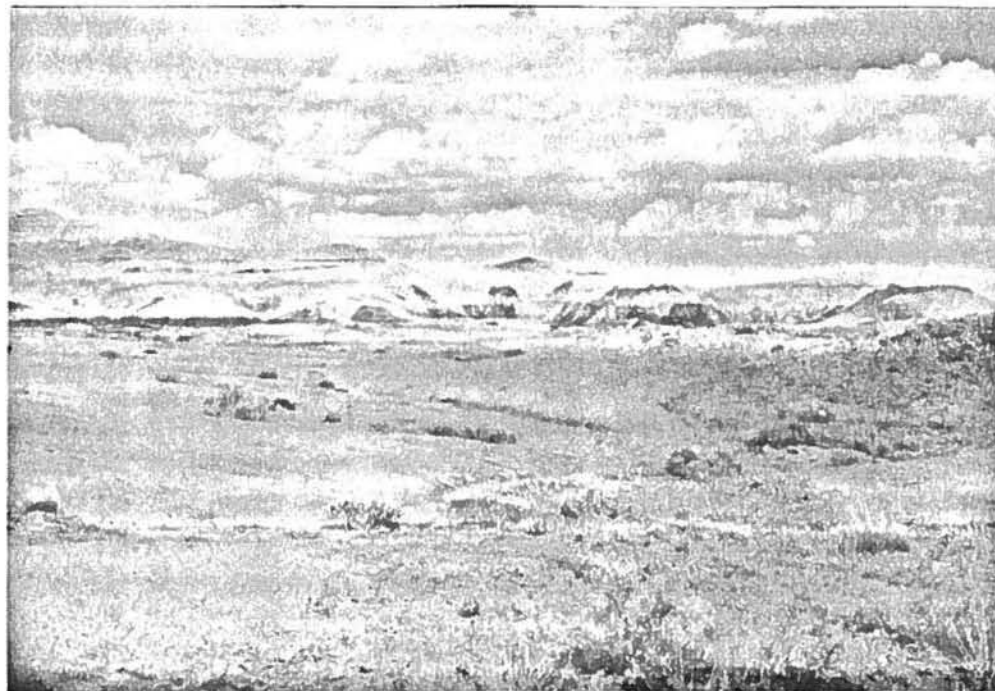
Total vegetation cover mean was 4.34 percent. Perennial vegetation made up 3.61 percent with annuals contributing 0.73 percent. Bromus tectorum had 0.47 percent cover while Vulpia octoflora had 0.18 percent. Forb cover was negligible. Perennial grasses with the most cover were Sporobolus airoides (1.07 percent), Hilaria jamesii (0.6 percent), and Oryzopsis hymenoides (0.27 percent).

Total production on this site averaged 1,393 pounds per acre. Perennial vegetation comprised 1,194 pounds per acre with annual vegetation making up 199 pounds per acre. The highest perennial production values were for Sporobolus airoides (116 pounds per acre), Sarcobatus vermiculatus (253 pounds per acre), Chrysothamnus nauseosus (348 pounds per acre), and Gutierrezia sarothrae at 118 pounds per acre.

Shrub density was the third highest of the seven range sites with a mean value of 2,978 plants per acre. Gutierrezia sarothrae had a mean density of 1,150 plants per acre followed by Atriplex obovata at 958 plants per acre.

The computer printouts for this range site can be found at the end of this report.

1.4.3 Badlands Range Site



The Badland range sites consist of exposed, weathered shales with steep to moderately undulating topography (10 to 60 percent). These sites, generally occur between plateau edges and major drainages and form

approximately 29.2 percent of the Study Area. This is the most unproductive of the seven range sites, and none of the soil material is suitable for salvage because of the high clay content and high sodium values.

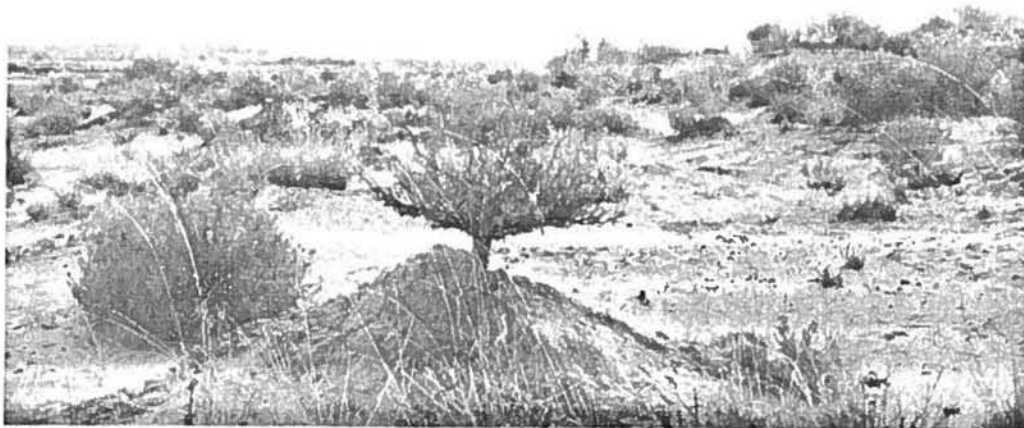
Total vegetation cover on this site averaged 1.17 percent. Annual vegetation made up 0.42 percent and perennial vegetation comprised 0.75 percent of the total cover. The highest cover values were recorded by the Atriplex species. Cover for Atriplex powellii was 0.17 percent, Atriplex obovata was 0.28 percent, Atriplex confertifolia was 0.16 percent, Atriplex cuneata was 0.11 percent, and Atriplex corrugata was 0.09 percent.

Total production was 395 pounds per acre. Nearly half of this was from annuals (143 pounds per acre) and only 24.8 pounds was from perennial grasses. Shrubs of the genus Atriplex made up 227 pounds per acre.

Shrub density on Badlands was low in comparison to the other sites at 506 plants per acre. Atriplex obovata had the highest shrub density of 266 plants per acre followed by Atriplex cuneata at 155 plants per acre.

The computer printouts for this range site can be found at the end of the report.

1.4.4 Dunes Range Site



The Dunes range site is the second most productive found on the Study Area. It is the most productive for desirable forage plants. Dunes form gently rolling terrain (zero to 5 percent) located on the leeward side of ridges, bluffs, or plateaus. Dunes soils are deep and composed

of well-drained sands. Dunes range sites comprise approximately 2.8 percent of the Study Area.

Total vegetation cover of these sites was relatively high at 3.58 percent. All of the cover was perennial vegetation. The highest cover values were for grasses Muhlenbergia pungens (1.27 percent), Oryzopsis hymenoides (0.59 percent), Sporobolus airoides (0.27 percent), and Aristida purpurea (0.23 percent). Four shrubs were found in nearly equal amounts and consisted of Ephedra torreyana (0.25 percent), Eriogonum leptoclodon (0.22 percent), Chrysothamnus pulchellus (0.19 percent), and Gutierrezia sarothrae (0.16 percent).

Total production on the Dunes range site averaged 1,224 pounds per acre, with perennials making up 1,223 pounds per acre and annuals only 1 pound. Penstemon strictus was the highest producing perennial forb with 4.58 pounds per acre while Oryzopsis hymenoides and Muhlenbergia pungens were the highest producing grasses with 170 and 105 pounds per acre, respectively.

Shrub species had a density value of 2,813 plants per acre on the Dunes range sites. Gutierrezia sarothrae had the highest value of 1,096 plants per acre followed by Eriogonum leptoclodon with 710 plants per acre.

The computer printouts for this range site can be found at the end of this report.

1.4.5 Saline Sands Range Site



The Saline Sands range sites form the smallest expanse in the Study Area. Total area occupied by this vegetation type is approximately

1.39 percent of the Study Area. Terrain is level to gently rolling (zero to 5 percent slopes). The site in this Study Area is located downwind from strongly alkali affected sites (i.e., Badlands, Alkali Wash) or surrounding such sites. Soil types are moderately deep and soils of these sites tend to be alkaline in nature, thereby supporting vegetation species which are moderately salt tolerant.

Total vegetation cover on this site was second highest for all seven sites at 3.83 percent. Perennial vegetation made up 3.47 percent with perennial grasses comprising 3.35 percent. Cover of the perennial vegetation was dominated by grass species as follows: Sporobolus airoides (2.25 percent), Oryzopsis hymenoides (0.64 percent), and Hilaria jamesii (0.31 percent).

The only annual producing any significant cover was Vulpia octoflora at 0.12 percent.

Production of all vegetation on the Saline Sands range site averaged 914 pounds per acre. Sporobolus airoides (431 pounds per acre) and Oryzopsis hymenoides (238 pounds per acre) made up most of the production for the site.

Shrub density on this range site was 1089 plants per acre. Gutierrezia sarothrae had the majority of density with 682 plants per acre.

The computer printouts for this range site can be found at the end of this report.

1.4.6 Sands Range Site



The Sands range sites are usually located on the leeward and lower

windward side of ridges and plateaus occupying approximately 5.44 percent of the Study Area. Soils, aeolian in nature, are moderately deep and well-drained. Terrain is flat to gentle, rolling slopes (zero to 5 percent).

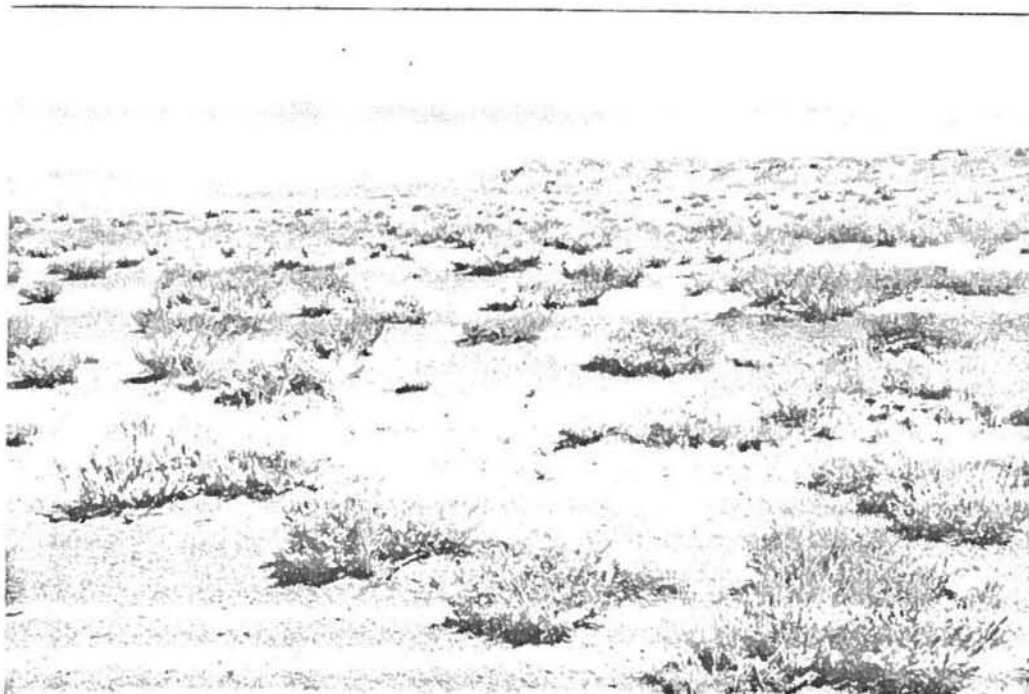
The Sands range site had a total vegetation cover of 2.94 percent. Annual vegetation contributed only 0.14 percent. Much of the total cover came from four species: Oryzopsis hymenoides (0.52 percent), Sporobolus airoides (0.61 percent), Hilaria jamesii (0.44 percent), and Gutierrezia sarothrae (0.59 percent).

Total production on this range site averaged 917 pounds per acre. Perennial vegetation contributed 834 pounds per acre with annuals having only 83 pounds per acre. The highest producing annual species was Salsola iberica at 37 pounds per acre. The six top producing perennials are: Oryzopsis hymenoides (162 pounds per acre), Sporobolus airoides (124 pounds per acre), Hilaria jamesii (73 pounds per acre), Gutierrezia sarothrae (275 pounds per acre), Atriplex confertifolia (63 pounds per acre), and Atriplex obovata (61 pounds per acre).

The Sands range site had the highest shrub density of the seven range sites at 6,301 plants per acre. The majority of these plants were Gutierrezia sarothrae with 5,319 plants per acre.

The computer printouts for this range site can be found at the end of this report.

1.4.7 Thin Breaks Range Site



Thin breaks topography includes exposed sandstone outcrops and associated thin soils of the immediate surrounding area. Thin breaks

range sites occupy approximately 14.4 percent of the Study Area. These sites usually occur along ridges and rock outcrops between plateaus and major drainages or plateaus and Badlands, as well as butte and mesa tops. Slopes vary from 2 to 9 percent. Typical soils are shallow sandy deposits overlaying sandstone. The soil surface is usually covered with thin, broken fragments of sandstone.

Thin breaks range site had a total vegetation cover value of 3.49 percent. Perennial vegetation species made up 3.39 percent while annuals constituted the remainder or 0.10 percent. Perennials with the highest cover values were: Sporobolus airoides (0.62 percent), Hilaria jamesii (0.47 percent), Atriplex confertifolia (1.50 percent), and Atriplex obovata (0.46 percent). None of the annuals had any substantial cover values.

Total plant production on this site averaged 1,048 pounds per acre with perennials contributing 1,018 pounds per acre and annuals 30 pounds per acre. Top producing perennial species included Sporobolus airoides (100 pounds per acre), Atriplex confertifolia (573 pounds per acre), and Atriplex obovata (181 pounds per acre). Of the annuals Atriplex powellii had 13 pounds per acre and Salsola iberica had 7 pounds per acre.

Shrub density on the Thin breaks range site averaged 3,171 plants per acre. Atriplex confertifolia was the most abundant with 1,685 plants per acre or more than half of the total. Other abundant shrubs were Atriplex obovata (641 plants per acre) and Gutierrezia sarothrae (432 plants per acre).

The computer printouts for this range site can be found at the end of this report.

1.4.8 Sample Adequacy

Sample adequacy for production and cover on all the range sites, except for cover on Saline Sands range site, was met by taking 40 samples as explained in Section 1.3.6. Because of miscalculation or counting error in the field, 46 samples were taken for Sands range site. All 46 samples were used in calculations for the Sands range site in this report. Because of the tremendous variability between transects, statistical sample adequacy requirements on some range sites would have required several hundred samples. Discussions with O.S.M. on this issue at other UII projects in New Mexico resulted in an agreement that 40 samples would be the maximum number of samples taken on any one range site. Cover on Saline Sands met statistical sample adequacy by taking 34 samples.

GENERAL PLANT SURVEY OF AREA IV NORTH, NAVAJO MINE,
WITH EMPHASIS ON RARE, THREATENED, OR ENDANGERED SPECIES

21-25 July 1987

Prepared for: Buchanan Consultants

Prepared by: Kelly W. Allred, Ph.D., Plant Taxonomist, Box 3I, New
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TABLE OF CONTENTS

	Page
INTRODUCTION	14
Objective	14
Methods	14
Previous Work	14
SPECIES OF SPECIAL CONCERN	15
Found	15
Not Found	15
LIST OF VASCULAR PLANT SPECIES FOUND ON THE STUDY SITE	18
REFERENCES	23

INTRODUCTION

This document reports the findings of a plant survey taken 21-25 July 1987 on Area IV North of the Navajo Mine, owned by BHP-Utah International, Inc. The study site lies about 15 miles south of Fruitland, New Mexico, and about 10 miles southeast of The Hogback. It is bounded roughly on the north by the Cottonwood Arroyo and on the south by the Pinabete Arroyo. It is approximately 3.5 miles at the longest point and 4 miles at the widest point, and comprises approximately 10 square miles. Elevation ranges from about 5300 ft. to about 5600 ft. above sea level. The native vegetation is typical of the Colorado Plateau salt-desert shrub ecosystem, with the dominant plants being species of Atriplex, Bromus, Chrysothamnus, Gutierrezia, Hilaria, Oryzopsis, Sarcobatus, and Sporobolus. Topography includes flat plains and washes, mesas and buttes, eroded talus slopes, and rounded badland hills and knolls.

Objective: To document the occurrence of the plant species found on the study area, with particular emphasis placed on rare, threatened, or endangered species.

Methods: Based on previous work done at the mine (see below), a review of pertinent literature (see References), and personal knowledge and expertise, a preliminary list of "possible species of special concern" was drawn up (see Species of Special Concern, below). In particular, the plant survey by Richard Spellenberg in 1983 of Areas I-III of the Navajo Mine was a valuable reference. In addition, habitats were identified where the species of special concern might occur. At the study site, all types of vegetation (range types) were surveyed, with special attention paid to potential habitats of the species of special concern. The survey was done entirely by foot. For plants already well-known to the author, identification was done in the field; other plants were collected, pressed, and identified later with the aid of appropriate manuals, monographs, and herbarium specimens. These specimens are deposited in the Range Science Herbarium, Department of Animal and Range Sciences, New Mexico State University, Las Cruces. Notes were taken regarding vegetation type, soils or substrate, topography, abundance, and associated plant species. Color photographs were also taken of many plants and habitats. A significant difficulty encountered in the survey was the timing relative to the growing season. Some spring-flowering plants may have already fruited and died and may have been missed in the survey. However, as many dead plants as possible were identified. Also, many of the fall-flowering species had not yet begun to bloom.

For further information about species of special concern, contact the Heritage Program, New Mexico Department of Natural Resources, Villagra Building, Santa Fe, NM 87503 (attn. Paul Knight), 827-7865

Previous Work: In November 1983 Richard Spellenberg prepared "A Report On the Plant Species Present On the Navajo Mine, With Special Emphasis On Threatened Or Endangered Species." For this he surveyed approximately 45 square miles of land to the north of the present study site, comprising Areas I-III of the Navajo Mine. He identified species of special concern and reported on those species found in his study area. He also supplied a complete listing of all

species found on the area, with notes on occurrence and abundance. His work was utilized heavily in gaining a preliminary understanding of the plants on the present study site. In order to easily compare the study areas, this report will refer to his findings. In 1986, Dr. Spellenberg also prepared for the mine "An Annotated List of the Plant Species on the Navajo, San Juan, and La Plata Coal Mines, Utah International, Inc." Acknowledgment is herein given for his contribution to this report.

SPECIES OF SPECIAL CONCERN

This section reports on the the species of special concern that may occur on the study site. The locations of species that were found are marked on the orthophotos of Area IV North, maps 8 and 9.

FOUND:

Denothera caespitosa ssp. navajoensis (Onagraceae)

Classification: Species of special concern

Source: New Mexico Heritage Program

Denothera caespitosa was encountered infrequently in the thin breaks and badlands range types. The plants were past flowering but still carried the fruiting capsules and could be identified as subsp. navajoensis. According to the recent revision of this group by Wagner et al. (1985), this subspecies forms small colonies on soils derived from clays, shale, sandstone, and gypsum. In New Mexico it is found only in San Juan County and central Sandoval County, but it is more common in the Colorado Plateau region of east-central Utah, northern Arizona, and western Colorado.

Platyschkuhria integrifolia var. oblongifolia (Asteraceae)

Synonyms: Platyschkuhria oblongifolia, Bahia oblongifolia

Classification: Species of special concern

Source: New Mexico Heritage Program

The most recent treatment of this species group (Ellison 1971) classifies our plant as a variety of the wider ranging Platyschkuhria integrifolia. Subspecies oblongifolia is found in desert shrub communities in all four states of the Four Corners area and is closely related to the more northern var. desertorum. Our subspecies was found somewhat frequently in the thin breaks, but infrequently in the badlands, arroyo shrub, and sand range types.

NOT FOUND:

Astragalus fucatus (Fabaceae)

Classification: Species of special concern

Source: New Mexico Heritage Program

Although not located in this survey, this species was found by Spellenberg in loose sand along the east side of the Navajo Mine.

Astragalus hallii var. hallii (Fabaceae)

Astragalus humillimus (Fabaceae)

Astragalus kentrophyta var. neomexicana (Fabaceae)

Astragalus micromerius (Fabaceae)

Astragalus monumentalis var. cottamii (Fabaceae)

Astragalus monumentalis var. monumentalis (Fabaceae)

Astragalus naturitensis (Fabaceae)

Astragalus oocalycis (Fabaceae)

Atriplex pleiantha (Chenopodiaceae)

Classification: Federal candidate, category 2

Source: Spellenberg's 1983 report, New Mexico Heritage Program

Spellenberg found this species north of our study area in badlands and alkali wash range types, and it has been found in other areas as well since 1983. These range types in area IV-north were searched very carefully, especially areas with Atriplex saccaria, a known cohabitant. The species was not found. It is possible, though it seems unlikely, that plants had dried and were not recognized. Spellenberg (personal communication) thought that this species would not be present in our study area.

Camissonia scapoidea var. scapoidea (Onagraceae)

Classification: Species of special concern

Source: Spellenberg's 1983 report, New Mexico Heritage Program

Although this species was not found during the present survey, Spellenberg found it on the north banks along Cottonwood Arroyo in sandy soil. It is a spring-flowering annual, likely withered by late July when the survey was made, and to be expected in the sandy washes at the north portion of area IV-north. It has been found in several localities in the northwest corner of New Mexico, and is common to the north.

Castilleja chromosa (Scrophulariaceae)

Cercocarpus intricatus (Rosaceae)

Cleome multicaulis (Capparidaceae)

Eriogonum ovalifolium (Polygonaceae)

Gilia formosa (Polomoniaceae)

Mimulus eastwoodiae (Scrophulariaceae)

Pediocactus knowltonii (Cactaceae)

Penstemon strictus var. strictus (Scrophulariaceae)

Phacelia splendens (Hydrophyllaceae)

Sclerocactus mesae-verdae (Cactaceae)

Classification: Federal threatened
Source: Federal Register, 1980

The badlands and shale formations of the area were searched very carefully for this species. All previous searches have failed to find this cactus on the mine lease, and we did not find it in area IV-North.

Sclerocactus whipplei var. heilii (Cactaceae)

Sclerocactus whipplei var. reevesii (Cactaceae)

Sclerocactus new species, as yet undescribed (Cactaceae)

Ken Heil has recently found an undescribed species of Sclerocactus near Sheep Springs. It is very tiny and apparently allied to S. mesae-verdae (Spellenberg, personal communication). No cactus was found in this survey that could be this new species.

Veronica micromeria (Scrophulariaceae)

Wyethia scabra var. canescens (Asteraceae)

LIST OF VASCULAR PLANT SPECIES FOUND ON THE STUDY SITE

A list is presented of the vascular plants found in area IV-North in this survey. The species are arranged alphabetically within families. Following each species is an estimate of its occurrence by range type. The range types are abbreviated as follows:

pond = stock ponds and drains
 rw = river wash
 alwa = alkali wash
 arsh = arroyo shrub
 sa = sands (including saline sands and calcareous sands)
 du = sand dunes
 thbr = thin breaks
 bd = badlands

Frequency of occurrence is estimated following Spellenberg's 1980 report, as follows:

COMMON = part of the dominant vegetation; encountered regularly and often.

abbreviation: all upper case and underlined (POND)

OCCASIONAL = encountered several times during a search, but not regularly part of the dominant vegetation.

abbreviation: all upper case (POND)

uncommon = rarely encountered during the search

abbreviation: all lower case (pond)

The frequency of the annuals and herbaceous perennials is likely underestimated because of die-off during the time of search.

An asterisk (*) notes species found that have not been recorded previously for the Navajo Mine.

APIACEAE (Carrot Fam.)

Cymopterus sp. sa, bd

ASCLEPIADACEAE (Milweed Fam.)

Asclepias sp. sa

ASTERACEAE (Sunflower Fam.)

Ambrosia acanthicarpa RW, SA, DU
 (= *Franseria* a.)

Artemisia bigelovii sa, thbr

Artemisia dracunculus RW, alwa
 (= *A. dracunculoides*)

Artemisia filifolia sa, du

Artemisia ludoviciana
 subsp. *mexicana* RW

**Bahia woodhousei* thbr

Brickellia oblongifolia SA, du, THBR, bd

<i>Chrysothamnus nauseosus</i> subsp. <i>graveolens</i>	<u>RW</u> , alwa, <u>ARSH</u> ,
<i>Chrysothamnus pulchellus</i> subsp. <i>baileyi</i>	sa, DU
<i>Chrysothamnus greenei</i>	SA
<i>Conyza canadensis</i>	POND, alwa
<i>Dicoria brandegei</i>	RW, DU
<i>Gaillardia pinnatifida</i>	sa
<i>Grindelia squarrosa</i>	POND, alwa, sa, thbr
<i>Gutierrezia sarothrae</i>	ALWA, ARSH, <u>SA</u> , <u>DU</u> , THBR
* <i>Isocoma tenuisecta</i>	rw, arsh
* <i>Iva axillaris</i>	<u>POND</u>
<i>Lactuca serriola</i>	arsh
<i>Leucelene ericoides</i>	alwa, arsh, <u>SA</u> , <u>DU</u> , bd
<i>Machaeranthera canescens</i>	sa, DU, thbr, bd
<i>Platyschkuhria integrifolia</i> var. <i>oblongifolia</i> (= <i>Bahia oblongifolia</i>)	arsh, sa, THBR, bd
<i>Senecio douglasii</i> var. <i>longilobus</i>	pond, alwa, sa, du
<i>Stephanomeria exigua</i>	arwh, arsh, sa, du
<i>Townsendia fendleri</i>	du
BORAGINACEAE (Borago Fam.)	
<i>Cryptantha crassisejala</i> var. <i>elacantha</i>	<u>ALWA</u> , ARSH, SA, du, THBR, bd
BRASSICACEAE (Mustard Fam.)	
<i>Descurainia pinnata</i>	alwa, arsh, sa, du
<i>Sisymbrium altissimum</i>	ALWA, ARSH, thbr, BD
CACTACEAE (Cactus Fam.)	
<i>Opuntia polyacantha</i>	arsh, SA
<i>Sclerocactus whipplei</i> var. <i>intermedius</i>	arsh, sa, thbr, bd
CAPPARIDACEAE (Caper Fam.)	
<i>Cleome lutea</i>	rw, ALWA, ARSH, sa, du, bd

CHENOPODIACEAE (Goosefoot Fam.)

<i>Atriplex argentea</i> subsp. <i>argentea</i>	pond
<i>Atriplex canescens</i>	alwa, ARSH, SA, DU, THBR, bd
<i>Atriplex confertifolia</i>	<u>ALWA</u> , ARSH, SA, THBR, <u>BD</u>
<i>Atriplex corrugata</i>	ALWA, ARSH, THBR, BD
<i>Atriplex gardneri</i> var. <i>cuneata</i> (= <i>A. cuneata</i> , <i>A.</i> <i>nuttallii</i> var. <i>cuneata</i>)	alwa, arsh, BD, THBR
<i>Atriplex obovata</i>	<u>ALWA</u> , arsh, thbr, BD
<i>Atriplex powellii</i>	POND, ALWA, ARSH, SA, <u>BD</u>
<i>Atriplex saccaria</i>	arsh, <u>BD</u>
<i>Chenopodium leptophyllum</i>	<u>POND</u>
<i>Ceratoides lanata</i>	sa
<i>Halogeton glomeratus</i>	<u>ALWA</u> , thbr, BD
<i>Kochia scoparia</i>	pond
<i>Salsola iberica</i> (= <i>S. kali</i>)	POND, RW, <u>ALWA</u> , ARSH, <u>SA</u> , du, THBR, BD
<i>Sarcobatus vermiculatus</i>	<u>ALWA</u> , <u>ARSH</u> , sa, bd
<i>Suaeda torreyana</i>	pond, <u>ALWA</u> , ARSH, BD

CONVOLVULACEAE (Morning-glory Fam.)

**Evolvulus pilosus* DU

EPHEDRACEAE (Mormon Tea Fam.)

<i>Ephedra torreyana</i>	ARSH, SA, THBR
<i>Ephedra viridis</i>	thbr

EUPHORBIACEAE (Spurge Fam.)

<i>Euphorbia missurica</i> var. <i>intermedia</i>	DU
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FABACEAE (Pea Fam.)

<i>Astragalus mollissimus</i> var. <i>thompsonae</i>	sa
<i>Astragalus sabulonum</i>	sa, du
<i>Dalea lanata</i> (= <i>D. terminalis</i>)	SA

**Glycyrrhiza lepidota* RW

<i>Hoffmanseggia jamesii</i>	sa
<i>Parryella filifolia</i>	SA, <u>DU</u>
<i>Psoralea lanceolata</i>	<u>RW</u>
HYDROPHYLLACEAE (Waterleaf Fam.)	
<i>Nama hispidum</i> var. <i>hispidum</i>	sa
<i>Phacelia crenulata</i> var. <i>corrugata</i>	ALWA, ARSH, sa, thbr
LILIACEAE (Lily Fam.)	
<i>Allium macropetalum</i>	arwa
<i>Yucca angustissima</i>	SA, thbr
LINACEAE (Flax Fam.)	
<i>Linum aristatum</i>	SA
LOASACEAE (Loasa Fam.)	
<i>Mentzelia albicaulis</i>	ALWA, ARSH, <u>SA</u> , THBR, BD
<i>Mentzelia multiflora</i>	sa, thbr, BD
MALVACEAE (Mallow Fam.)	
<i>Sphaeralcea coccinea</i>	<u>SA</u> , du, THBR, bd
<i>Sphaeralcea parviflora</i>	alwa, arsh, <u>SA</u> , DU
ONAGRACEAE (Evening Primrose Fam.)	
<i>Oenothera caespitosa</i> subsp. <i>navajoensis</i>	thbr, bd
<i>Oenothera pallida</i>	SA
OROBANCHACEAE (Broomrape Fam.)	
<i>Orobanche ludoviciana</i>	SA, du
PLANTAGINACEAE (Plantain Fam.)	
<i>Plantago patagonica</i> (= <i>P. purshii</i>)	RW, ALWA, ARSH, SA, du, thbr, bd
POACEAE (Grass Fam.)	
* <i>Agropyron cristatum</i>	alwa
<i>Agropyron smithii</i>	RW
<i>Aristida purpurea</i> var. <i>fendleriana</i>	SA, DU
* <i>Aristida purpurea</i> var. <i>nealleyi</i>	sa
<i>Bromus rubens</i>	alwa, arsh
<i>Bromus tectorum</i>	<u>ALWA</u> , <u>ARSH</u> , SA, THBR, BD
<i>Distichlis spicata</i>	RW

<i>Hilaria jamesii</i>	<u>ALWA</u> , ARSH, <u>SA</u> , THBR, BD
<i>Hordeum jubatum</i>	RW. ALWA
<i>Hordeum pusillum</i>	<u>ALWA</u> , ARSH
<i>Muhlenbergia pungens</i>	SA, <u>DU</u>
<i>Oryzopsis hymenoides</i>	RW, <u>ALWA</u> , ARSH, <u>SA</u> , <u>DU</u> , THBR, bd
<i>Sitanion hystrix</i>	RW, ALWA, ARSH, <u>SA</u>
<i>Sporobolus airoides</i>	<u>ALWA</u> , <u>ARSH</u> , SA, THBR, BD
<i>Sporobolus contractus</i>	arsh, SA, DU
<i>Sporobolus cryptandrus</i>	rw, sa
<i>Sporobolus giganteus</i>	rw, SA, DU
<i>Stipa comata</i> var. <i>comata</i>	SA
<i>Vulpia ocotflora</i>	ALWA, ARSH, <u>SA</u> , <u>DU</u> , THBR, bd
POLEMONIACEAE (Phlox Fam.)	
<i>Ipomopsis gunnisonii</i>	sa, thbr
<i>Ipomopsis longiflora</i>	sa
POLYGONACEAE (Buckwheat Fam.)	
<i>Eriogonum divaricatum</i>	BD
<i>Eriogonum gordonii</i>	<u>BD</u>
<i>Eriogonum hookeri</i>	thbr
<i>Eriogonum leptocladon</i>	<u>SA</u> , <u>DU</u>
<i>Eriogonum salsuginosum</i>	ARSH, THBR, BD
<i>Eriogonum scabrellum</i>	BD
<i>Polygonum aviculare</i>	POND
<i>Rumex hymenosepalus</i>	SA, DU
SCROPHULARIACEAE (Snapdragon Fam.)	
<i>Penstemon strictus?</i>	SA, <u>DU</u>
SOLANACEAE (Potato Fam.)	
<i>Lycium pallidum</i>	ALWA, ARSH
TAMARICACEAE (Saltcedar Fam.)	
<i>Tamarix ramosissima</i> (= <i>T. pentandra</i>)	<u>RW</u> , ARSH
VERBENACEAE (Verbena Fam.)	
<i>Verbena bracteata</i>	POND

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APPENDIX A

Site: Alkali Wash

	Foliar		COVER (%)				CONSTANCY		FREQUENCY		DENSITY		
	mm	mean	Basal mm	Standard mean	Percentage deviation	Percentage of Group	Percentage of Total	%	%	#/m square Mean	#/ha Std.dev.	#/acr Mean	#/acr Mean
Annual Forbs													
<i>Salsola iberica</i>	11244	0.54	1192	0.1	0.13	27	4.2	75	40.75				
<i>Atriplex powellii</i>	7728	0.64	1422	0.12	0.25	32.2	5.1	87.5	39.25				
<i>Halogeton glomeratus</i>	3984	0.33	1506	0.13	0.35	34.1	5.4	32.5	18.25				
<i>Descurainia pinnata</i>	672	0.35	169	0.01	0.04	3.8	0.6	37.5	9.5				
<i>Eriogonum gordonii</i>	228	0.02	46	0	0.01	1	0.2	22.5	9				
<i>Eriogonum saleuginosum</i>	156	0.01	31	0	0.01	0.7	0.1	20	4.75				
<i>Plantago patagonica</i>	96	0.01	24	0	0.01	0.5	0.1	15	2.25				
<i>Eriogonum scaberrimum</i>	36	0	7	0	0	0.2	0	2.5	0.25				
<i>Atriplex saccaria</i>	36	0	7	0	0	0.2	0	2.5	0.5				
<i>Phacelia crenulata</i>	12	0	3	0	0	0.1	0	2.5	0.25				
var. <i>corrugata</i>													
<i>Cleome lutea</i>	12	0	3	0	0	0.1	0	5	0.5				
<i>Sisymbrium altissimum</i>	12	0	8	0	0.01	0.2	0	2.5	0.25				
<i>Allium macropetalum</i>	12	0	3	0	0	0.1	0	5	0.5				
Total	24228	2.01	4420	0.36	0.81	100.2	15.9						
Annual Grasses													
<i>Bromus tectorum</i>	7572	0.63	3710	0.31	0.84	92.2	13.3	70	28.25				
<i>Hordeum pusillum</i>	262	0.02	148	0.01	0.05	3.7	0.5	10	2.5				
<i>Vulpia octoflora</i>	168	0.01	158	0.01	0.05	4.2	0.6	7.5	0.75				
Total	8002	0.66	4026	0.33	0.95	100.1	14.4						
Perennial Forb													
<i>Chaeralea parviflora</i>	12	0	6	0	0	100	0	2.5	0.25				
Total	12	0	6	0	0	100	0						
Perennial Grasses													
<i>Sporobolus airoides</i>	7632	0.64	5434	0.45	0.97	79.5	19.5	45	10.75				
<i>Hilaria jamesii</i>	1236	0.1	921	0.07	0.28	12	2.9	10	1				
<i>Dryopsis hymenoides</i>	1080	0.09	567	0.05	0.2	8.3	2	20	3.75				
<i>Sitanion hystrix</i>	24	0	14	0	0.01	0.2	0.1	2.5	0.25				
Total	9972	0.83	6836	0.57	1.46	100	24.5						
Shrubs													
<i>Atriplex obovata</i>	16044	1.34	7813	0.65	1.04	62.1	28	87.5	34.5	0.259	0.431	2950	1153
<i>Atriplex corrugata</i>	3216	0.27	1376	0.12	0.65	10.9	4.9	5	2	0.044	0.266	442	179
<i>Atriplex confertifolia</i>	3130	0.27	1491	0.12	0.38	11.8	5.3	12.5	2.5	0.02	0.07	135	79
<i>Suaeda torreyana</i>	2832	0.24	1135	0.1	0.33	9	4.1	15	6.5	0.017	0.043	172	69
<i>Atriplex cuneata</i>	2208	0.18	733	0.06	0.19	5.8	2.6	15	3.75	0.044	0.144	442	179
<i>Gutierrezia sarothrae</i>	120	0.01	35	0	0.01	0.3	0.1	5	0.5	0.004	0.014	42	17
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0.092	0.306	17	7
Total	27600	2.51	12595	1.05	2.6	99.9	45.2			0.416	0.974	4161	1683
Grand Total	69814	5.81	27873	2.31	5.82		100						

SITE: Alkali Wash

	GREEN PHYTMASS		DRY PHYTMASS		lb/ac	Percentage of Group	Percentage of Total	CARRYING CAPACITY				
	g/m square		g/m square					Mean	Cattle	AUM'S/acre		
	Mean	Std.dev	Mean	Std.dev.						Sheep	Horses	Deer
Annual Forbs												
<i>Salsola iberica</i>	21.43	33.99	15.5	23.6	155.97	139.22	46	23.8	0.0663	0.0663	0.0663	0.0653
<i>Atriplex powellii</i>	13	27.19	11.42	22.1	114.15	101.89	33.7	17.4	0.0243	0.0243	0.0243	0.0243
<i>Halogeton glauceratus</i>	13.35	35.63	5.43	15.5	54.33	43.5	16	8.3	0	0	0	0
<i>Descurainia pinnata</i>	0.7	2.53	0.89	3.39	8.88	7.92	2.6	1.4	0	0	0	0
<i>Eriogonum gordonii</i>	0.13	0.34	0.32	1.19	3.23	2.88	1	0.5	0.0005	0.0005	0.0005	0.0004
<i>Eriogonum salsuginosum</i>	0.03	0.16	0.06	0.33	0.6	0.54	0.2	0.1	0.0001	0.0001	0.0001	0
<i>Plantago patagonica</i>	0.05	0.22	0.17	0.9	1.65	1.47	0.5	0.3	0.0002	0.0002	0.0002	0.0002
<i>Eriogonum scaprellum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Phacelia cuenulata</i>	0	0	0	0	0	0	0	0	0	0	0	0
var. <i>corrugata</i>												
<i>Cleome lutea</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sisymbrium alttissimum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Allium macropetalum</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	48.71	99.95	33.59	67.06	358.61	302.42	100	51.8	0.0914	0.0914	0.0914	0.0912
Annual Grasses												
<i>Bromus tectorum</i>	6.03	15.97	5.93	15.76	59.33	52.96	100	9.1	0	0	0	0
<i>Hordeum pusillum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Vulpia octoflora</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	6.03	15.97	5.93	15.76	59.33	52.96	100	9.1	0	0	0	0
Perennial Forb												
<i>Sphaeralcea parviflora</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Perennial Grasses												
<i>Sporobolus airoides</i>	2.05	3.04	1.98	7.96	19.77	17.65	80.7	3	0.0105	0.0105	0.0105	0
<i>Hilaria jamesii</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Oryzopsis hymenoides</i>	0.5	3.16	0.47	2.99	4.73	4.22	19.3	0.7	0.0028	0.0028	0.0028	0
<i>Sitanion hystrix</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	2.55	11.2	2.45	10.95	24.5	21.87	100	3.7	0.0133	0.0133	0.0133	0
Shrubs												
<i>Atriplex obovata</i>	21.03	47.97	13.18	28.63	131.79	117.62	56.9	20.1	0.028	0.042	0.028	0.014
<i>Atriplex corrugata</i>	0.9	4	0.42	2.63	4.21	3.75	1.8	0.6	0.0009	0.0013	0.0009	0.0004
<i>Atriplex confertifolia</i>	4.93	25.46	3.58	17.9	35.75	31.91	15.4	5.5	0.004	0.012	0.008	0.004
<i>Suaeda torreyana</i>	6	24.12	3.2	13.04	32	28.55	13.8	4.9	0	0	0	0
<i>Atriplex cuneata</i>	6.83	32.91	2.8	12.95	27.95	24.95	12.1	4.3	0.0059	0.0088	0.0059	0.003
<i>Gutierrezia sarothrae</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	39.74	134.46	23.18	75.15	231.69	206.79	100	35.4	0.0388	0.0421	0.037	0.025
Grand Total	97.53	261.53	65.45	158.92	654.33	584.04			0.1435	0.1468	0.1384	0.0937

Site: Arroyo Shrub

	COVER (%)					CONSTANCY		FREQUENCY		DENSITY			
	Foliar mm	mean	Basal mm	mean	Std.Dev.	Percentage of Group	Percentage of Total	%	%	#/m square Mean	Std. dev.	#/m ² Mean	#/ac Mean
Annual Forbs													
Salsola iberica	5328	0.44	565	0.05	0.04	63.64	1.09	60	27.25				
Descurainia pinnata	996	0.08	249	0.02	0.05	27.91	0.48	52.5	13.75				
Halogeton glomeratus	156	0.01	59	0.01	0.02	6.61	0.11	5	1.25				
Eriogonum salsuginosum	36	0	7	0	0	0.78	0.01	5	0.5				
Eriogonum scabrellum	24	0	5	0	0	0.55	0.01	2.5	0.25				
Astragalus sabulonum	12	0	1	0	0	0.11	0	2.5	0.25				
Atriplex powellii	11	0	2	0	0	0.22	0	2.5	0.25				
Plantago paragonica	10	0	2	0	0	0.22	0	2.5	0.25				
Mentzelia albicaulis	5	0	1	0	0	0.11	0	2.5	0.25				
Eriogonum gordonii	4	0	1	0	0	0.11	0	7.5	0.75				
Total	6582	0.53	892	0.08	0.11	99.97	1.71						
Annual Grasses													
Bromus tectorum	11448	0.95	5610	0.47	0.58	71.17	10.78	82.5	57.25				
Vulpia octoflora	2136	0.18	2136	0.18	0.76	27.1	4.1	17.5	7.75				
Hordeum pusillum	240	0.02	135	0.01	0.03	1.73	0.26	20	2				
Total	13824	1.15	7882	0.66	1.35	100	15.14						
Perennial Forbs													
Grindelia squarrosa	168	0.01	37	0	0.01	27.84	0.07	7.5	0.75				
Sphaeralcea parviflora	144	0.01	67	0.01	0.01	54.03	0.13	10	1				
Penstemon strictus	48	0	20	0	0.02	16.13	0.04	2.5	0.25				
Total	360	0.02	124	0.01	0.04	100	0.24						
Perennial Grasses													
Sporobolus airoides	18048	1.5	12850	1.07	1.61	55.07	24.58	55	14.75				
Hilaria jamesii	10788	0.9	7163	0.6	0.89	30.7	13.76	52.5	16				
Oryzopsis hymenoides	6216	0.52	3263	0.27	0.48	13.98	6.27	72.5	20				
Sporobolus giganteus	96	0.01	58	0	0.03	0.25	0.11	2.5	0.25				
Total	35148	2.93	23334	1.95	3.01	100	44.82						
Shrubs													
Sarcobatus vermiculatus	22476	1.87	3518	0.3	0.36	18.25	6.95	67.5	17	0.112	0.106	1117	452
Chrysothamnus nauseosus	14028	1.17	3619	0.3	0.62	18.25	6.95	27.5	8.75	0.047	0.095	467	189
Gutierrezia sarothrae	13200	1.1	3920	0.33	0.67	19.77	7.53	27.5	11	0.284	0.605	282	1150
Atriplex obovata	10788	0.9	5254	0.44	1.42	25.5	10.09	32.5	8.75	0.237	0.672	2367	958
Atriplex canescens	6144	0.51	1352	0.11	0.24	6.82	2.65	32.5	5.25	0.057	0.048	367	148
Atriplex confertifolia	1268	0.11	642	0.05	0.17	3.24	1.23	10	1.25	0.015	0.035	150	61
Suaeda torreyana	1296	0.11	520	0.04	0.27	2.62	1	2.5	0.75	0.011	0.033	137	56
Parryella filifolia	1008	0.08	252	0.02	0.13	1.27	0.48	2.5	0.25	0.001	0.005	8	3
Yucca angustissima	816	0.07	422	0.04	0.22	2.13	0.81	2.5	0.25	0.001	0.005	8	3
Ephedra torreyana	804	0.07	137	0.01	0.07	0.67	0.26	2.5	0.25	0.001	0.004	8	3
Atriplex cuneata	276	0.02	92	0.01	0.05	0.46	0.18	2.5	0.25	0.001	0.005	8	3
Isocoma tenuisecta	12	0	2	0	0	0.01	0	2.5	0.25	0.001	0.004	7	3
Artemisia dracunculus	0	0	0	0	0	0	0	0	0	0.001	0.003	4	2
Atriplex corrugata	0	0	0	0	0	0	0	0	0	0.001	0.005	8	3
Eriogonum leptocladon	0	0	0	0	0	0	0	0	0	0.001	0.005	8	3
Total	72216	6.02	19830	1.65	4.22	100.01	38.09			0.751	1.63	7568	3037
Grand Total	128130	10.68	52062	4.34	8.73		100						

Site: Arroyo Shrub

	GREEN PHYTMASS		DRY PHYTMASS				CARRYING CAPACITY					
	g/m square		g/m square		kg/ha	lb/ac	Percentage	Percentage	AUM'S/acre			
	Mean	Std.dev.	Mean	Std.dev.	Mean	Mean	of Group	of Total	Cattle	Sheep	Horses	Deer
Annual Forbs												
<i>Salsola iberica</i>	12.08	23.79	5.7	11.3	57	50.88	94	3.7	0.0242	0.0242	0.0242	0.0242
<i>Descurainia pinnata</i>	0.1	0.38	0.36	1.51	3.63	3.24	6	0.2	0	0	0	0
<i>Halogeton glomeratus</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum salsuginosum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum scabrellum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Astragalus sabulonum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex powellii</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Plantago patagonica</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Mentzelia albicaulis</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum gordonii</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	12.18	24.17	6.06	12.31	60.63	54.12	100	3.9	0.0242	0.0242	0.0242	0.0242
Annual Grasses												
<i>Bromus tectorum</i>	15.18	19.01	14.55	17.39	143.5	129.67	90.1	9.3	0	0	0	0
<i>Vulpia octoflora</i>	1	3.9	1.08	3.95	10.8	9.64	6.7	0.7	0	0	0	0
<i>Hordeum pusillum</i>	0.58	3.48	0.53	2.82	5.25	4.69	3.3	0.3	0.0022	0.0022	0.0022	0
Total	16.76	25.39	16.16	24.66	161.55	144.2	100.1	10.3	0.0022	0.0022	0.0022	0
Perennial Forbs												
<i>Grindelia squarrosa</i>	0.92	6.17	0.47	2.96	4.68	4.17	51.9	0.3	0	0	0	0
<i>Sphaeralcea parviflora</i>	0.48	3	0.43	2.74	4.33	3.86	48.1	0.3	0.0005	0.0005	0.0005	0.0002
<i>Penstemon strictus</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	1.46	9.17	0.9	5.7	9.01	8.03	100	0.6	0.0005	0.0005	0.0005	0.0002
Perennial Grasses												
<i>Sporobolus airoides</i>	17.4	39.33	13.02	28.39	130.15	115.17	43.6	8.3	0.0691	0.0691	0.0691	0
<i>Hilaria jamesii</i>	11.53	19.79	9.98	16.56	99.82	89.1	33.4	6.4	0.0477	0.0424	0.0424	0
<i>Oryzopsis hymenoides</i>	6.58	16.11	6.3	13.97	62.98	56.21	21.1	4	0.0368	0.0368	0.0368	0
<i>Sporobolus giganteus</i>	0.88	5.53	0.59	3.73	5.9	5.27	2	0.4	0.0022	0.0022	0.0022	0
Total	36.44	80.76	29.89	62.65	298.85	266.75	100.1	19.2	0.1558	0.1503	0.1505	0
Shrubs												
<i>Sarcobatus vermiculatus</i>	66.48	118	28.35	49.03	283.48	252.03	27.5	18.2	0.0151	0.0502	0.0302	0
<i>Chrysothamnus nauseosus</i>	73.18	196.5	39.01	107.64	390.03	348.16	37.9	25	0.0415	0.0522	0.0415	0.0208
<i>Gutierrezia sarothrae</i>	19.2	55.32	13.17	36.14	131.73	117.55	12.8	8.4	0	0	0	0
<i>Atriplex obovata</i>	23.2	65	12.1	32.22	121.02	106.03	11.7	7.8	0.0257	0.0386	0.0257	0.0128
<i>Atriplex canescens</i>	14.98	52.23	7.14	23.76	71.4	63.73	6.9	4.6	0.0341	0.0379	0.0341	0.0152
<i>Atriplex confertifolia</i>	2.13	13.44	1.17	7.37	11.65	10.4	1.1	0.7	0.0012	0.0036	0.0024	0.0012
<i>Suaeda torreyana</i>	1.25	7.91	0.18	1.11	1.75	1.56	0.2	0.1	0	0	0	0
<i>Parryella filifolia</i>	3.25	20.56	1.29	8.16	12.9	11.52	1.3	0.8	0.0014	0.0014	0.0014	0.0014
<i>Yucca angustissima</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra torreyana</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex cuneata</i>	1.1	6.98	0.64	4.03	6.33	5.69	0.6	0.4	0.0014	0.0021	0.0014	0.0007
<i>Isocoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia dracunculul</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex corrugata</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	204.77	535.94	103.05	269.46	1030.4	919.72	100	66	0.1204	0.176	0.1367	0.0521
Grand Total	271.61	676.43	156.06	375.28	1550.4	1392.8		190	0.3031	0.3534	0.3141	0.0765

Site: Badlands

	Foliar		COVER (%)				CONSTANCY FREQUENCY		DENSITY				
	mm	mean	Basal m	mean	Std.Dev.	Percentage of Group	Percentage of Total	%	%	#/m square Mean	#/ha Std.dev.	#/acre Mean	#/acre Mean
Annual Forbs													
<i>Atriplex powellii</i>	10920	0.91	2009	0.17	0.2	48.26	14.44	80	41.5				
<i>Salsola iberica</i>	3609	0.3	582	0.03	0.02	9.18	2.75	57.5	21				
<i>Eriogonum salsuginosum</i>	1322	0.11	1056	0.08	0.18	25.37	7.59	50	15.5				
<i>Atriplex saccaria</i>	1320	0.11	243	0.02	0.06	5.84	1.75	20	4.5				
<i>Halogeton gloeratus</i>	367	0.03	135	0.01	0.04	3.27	0.98	15	2.75				
<i>Plantago patagonica</i>	362	0.03	54	0.01	0.02	1.3	0.39	10	3.25				
<i>Descurainia pinnata</i>	248	0.02	60	0.01	0.01	1.44	0.43	12.5	2.25				
<i>Eriogonum gordonii</i>	245	0.02	144	0.01	0.04	3.46	1.04	15	5.25				
<i>Eriogonum scabrellum</i>	240	0.02	79	0.01	0	1.9	0.57	2.5	0.5				
<i>Allium macropetalum</i>	12	0	6	0	0	0	0	5	0.5				
<i>Sisymbrium altissimum</i>	21	0	10	0	0.01	0	0	5	0.5				
Total	18666	1.56	4163	0.36	0.62	100.02	29.93						
Annual Grasses													
<i>Bromus tectorum</i>	1442	0.12	706	0.06	0.15	100	5.08	32.5	9.25				
<i>Vulpia octoflora</i>	0	0	0	0	0	0	0	2.5	0.25				
Total	1442	0.12	706	0.06	0.15	100	5.08						
Perennial Forb													
<i>Sphaeralcea parviflora</i>	241	0.02	112	0.01	0.05	100	0.8	5	1				
Total	241	0.02	112	0.01	0.05	100	0.8						
Perennial Grasses													
<i>Sitanion hystrix</i>	482	0.04	288	0.02	0.1	23.45	2.07	7.5	0.75				
<i>Corobolus airoides</i>	1320	0.11	940	0.08	0.41	76.55	6.76	10	2				
Total	1802	0.15	1228	0.1	0.51	100	8.83						
Shrubs													
<i>Atriplex obovata</i>	6960	0.58	3390	0.28	0.52	44.02	24.37	35	26	0.066	0.086	658	266
<i>Atriplex confertifolia</i>	4203	0.35	1970	0.16	0.73	25.56	14.16	7.5	1.5	0.008	0.02	82	33
<i>Atriplex cuneata</i>	3968	0.33	1315	0.11	0.43	17.07	9.45	12.5	3.25	0.039	0.124	383	155
<i>Atriplex corrugata</i>	2401	0.2	1027	0.09	0.22	13.33	7.38	17.5	2.75	0.011	0.024	112	45
<i>Gutierrezia sarothrae</i>	0	0	0	0	0	0	0	0	0	0	0.003	3	1
<i>Opuntia polyacantha</i>	0	0	0	0	0	0	0	0	0	0	0.003	3	1
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0.001	0.004	3	3
Total	17532	1.46	7702	0.64	1.9	100	55.36			0.125	0.264	1249	504
Grand Total	39683	3.3	13911	1.17	3.23		100						

Site: Badlands

	GREEN PHYTO MASS		DRY PHYTO MASS				CARRYING CAPACITY					
	g/m square		g/m square		kg/ha	lb/ac	Percentage	Percentage	AUM'S/acre			
	Mean	Std.dev.	Mean	Std.dev.	Mean	Mean	of Group	of Total	Cattle	Sheep	Horses	Deer
Annual Forbs												
<i>Atriplex powellii</i>	17.05	24.99	11.5	15.92	115	102.65	77.1	26	0.0244	0.0366	0.0244	0.0122
<i>Salsola iberica</i>	3.08	7.87	1.37	3.12	13.73	12.25	9.2	3.1	0.0059	0.0059	0.0059	0.0059
<i>Eriogonum salsuginosum</i>	1.23	3.98	0.79	2.65	7.68	7.03	5.3	1.8	0.0013	0.0013	0.0013	0.0009
<i>Atriplex saccaria</i>	0.45	1.78	0.25	1.01	2.48	2.21	1.7	0.6	0.0005	0.0008	0.0005	0.0002
<i>Halogeton glozeratus</i>	0.08	0.47	0.14	0.61	1.35	1.21	0.9	0.3	0	0	0	0
<i>Plantago patagonica</i>	0.9	5.69	0.2	1.23	1.95	1.74	1.3	0.4	0.0002	0.0002	0.0002	0.0002
<i>Descurainia pinnata</i>	0.45	2.54	0.24	1.38	2.4	2.14	1.6	0.5	0	0	0	0
<i>Eriogonum gordonii</i>	0.95	3.92	0.31	1.47	3.13	2.79	2.1	0.7	0.0004	0.0004	0.0004	0.0005
<i>Eriogonum scabrellum</i>	0.48	3	0.13	0.84	1.33	1.18	0.9	0.3	0.0002	0.0002	0.0002	0.0002
<i>Allium macropetalus</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sisymbrium altissimum</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	24.67	54.24	14.93	28.13	149.25	133.2	100.1	33.7	0.0328	0.0453	0.0328	0.0198
Annual Grasses												
<i>Bromus tectorum</i>	2.28	7.09	1.1	4.24	10.98	9.8	100	2.5	0	0	0	0
<i>Vulpia octoflora</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	2.28	7.09	1.1	4.24	10.98	9.8	100	2.5	0	0	0	0
Perennial Forb												
<i>Sphaeralcea parviflora</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Perennial Grasses												
<i>Sitanion hystrix</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Horobolus airoides</i>	4.38	20.75	2.78	14.33	27.8	24.81	100	6.3	0.0148	0.0148	0.0148	0
Total	4.38	20.75	2.78	14.33	27.8	24.81	100	6.3	0.0148	0.0148	0.0148	0
Shrubs												
<i>Atriplex obovata</i>	18.46	44.17	10.82	26.73	109.23	96.6	42.6	24.5	0.023	0.034	0.023	0.011
<i>Atriplex confertifolia</i>	11.18	70.68	6.21	37.33	62.08	55.41	24.4	14	0.0074	0.0222	0.0148	0.0074
<i>Atriplex cuneata</i>	8.85	37.05	5.88	24.26	58.83	52.51	23.1	13.3	0.0125	0.0188	0.0125	0.0062
<i>Atriplex corrugata</i>	5.35	23.63	2.52	11.28	25.15	22.45	9.9	5.7	0.0053	0.006	0.0053	0.0026
<i>Gutierrezia sarothrae</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Opuntia polyacantha</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	43.86	175.53	25.43	99.6	254.29	226.97	100	57.5	0.0482	0.093	0.0556	0.0272
Grand Total	75.19	257.61	44.24	146.3	442.32	394.78	100	100	0.0958	0.1431	0.1032	0.047

Site: Dune

	COVER (%)					CONSTANCY FREQUENCY				DENSITY			
	Foliar		Basal		Percentage of Group	Percentage of Total	%	%	#/m square Mean	#/ha Mean	#/acre Mean		
	mm	mean	mm	mean								Std.Dev.	
Annual Forbs													
<i>Ambrosia acanthicarpa</i>	317	0.03	17	0	0	47.2	0.04	22.5	3				
<i>Descurainia pinnata</i>	33	0	8	0	0	22.2	0.02	7.5	1.25				
<i>Salsola iberica</i>	15	0	2	0	0	5.6	0	5	0.5				
<i>Ipomopsis gunnisonii</i>	10	0	3	0	0	8.3	0	2.5	0.25				
<i>Dithyrea wislizenii</i>	10	0	5	0	0	13.9	0	2.5	0.25				
<i>Euphorbia missurica</i>	2	0	1	0	0	2.8	0	2.5	0.25				
var. <i>intermedia</i>													
Total	397	0.03	36	0	0	100	0.08						
Annual Grass													
<i>Bromus tectorum</i>	7	0	3	0	0	100	0	5	6.5				
Total	7	0	3	0	0	100	0						
Perennial Forbs													
<i>Penstemon strictus</i>	527	0.04	214	0.02	0.04	39.9	0.5	30	4				
<i>Evolvulus pilosus</i>	478	0.04	145	0.01	0.04	27	0.34	12.5	3				
<i>Dalea lanata</i>	225	0.02	22	0	0.01	4.1	0.05	15	2				
<i>Oenothera pallida</i>	174	0.02	58	0.01	0.02	10.8	0.13	7.5	1.5				
<i>Leucelene ericoides</i>	75	0.01	38	0	0.01	7.1	0.09	7.5	0.75				
<i>Dalea sp.</i>	65	0.01	32	0	0.02	6	0.07	2	0.25				
<i>Sphaeralcea parviflora</i>	61	0.01	28	0	0.01	5.2	0.06	10	1				
Total	1625	0.14	537	0.04	0.15	100.1	1.24						
Perennial Grasses													
<i>Phlenbergia pungens</i>	17480	1.46	15208	1.27	2.47	51.2	35.22	57.5	19.25				
<i>Oryzopsis hymenoides</i>	13574	1.13	7126	0.59	0.41	24	16.5	100	75.5				
<i>Sporobolus airoides</i>	4624	0.38	3292	0.27	0.57	11.1	7.62	57.5	19.25				
<i>Aristida purpurea</i>	3255	0.27	2786	0.23	0.33	9.4	6.45	55	9.75				
<i>Hilaria jamesii</i>	1091	0.09	724	0.06	0.12	2.4	1.68	27.5	9				
<i>Sporobolus giganteus</i>	933	0.08	565	0.05	0.13	1.9	1.31	20	3.25				
Total	40957	3.41	29701	2.47	4.03	100	68.77						
Shrubs													
<i>Ephedra torreyana</i>	17350	1.45	2950	0.25	0.31	22.9	6.83	67.5	14.25	0.057	0.047	571	231
<i>Eriogonum leptocladon</i>	11887	0.99	2686	0.22	0.29	20.8	6.22	80	32.75	0.172	0.166	1754	710
<i>Chrysothamnus pulchellus</i>	10537	0.88	2276	0.19	0.28	17.6	5.27	52.5	11.25	0.084	0.104	838	339
<i>Gutierrezia sarothrae</i>	6442	0.54	1913	0.16	0.32	14.8	4.43	62.5	14.25	0.271	0.372	2708	1096
<i>Chrysothamnus nauseosus</i>	3967	0.33	1023	0.08	0.34	7.9	2.37	12.5	2.25	0.014	0.032	142	57
<i>Artemisia filifolia</i>	3319	0.28	770	0.06	0.22	6	1.73	12.5	2	0.019	0.073	192	78
<i>Atriplex canescens</i>	1540	0.13	339	0.03	0.09	2.6	0.78	15	2.25	0.015	0.021	154	62
<i>Isocoma tenuisecta</i>	1180	0.1	229	0.02	0.1	1.8	0.53	7	0.75	0.007	0.029	71	29
<i>Chrysothamnus greenii</i>	1143	0.1	251	0.02	0.1	1.9	0.58	10	2	0.016	0.048	158	64
<i>Yucca angustissima</i>	814	0.07	420	0.04	0.1	3.3	0.97	17.5	2	0.032	0.053	320	130
<i>Atriplex confertifolia</i>	110	0.01	52	0	0	0.4	0.12	2.5	0.25	0.003	0.014	29	12
<i>Atriplex sbovata</i>	0	0	0	0	0	0	0	0	0	0.001	0.004	12	5
Total	58289	4.86	12909	1.07	2.15	100	29.39			0.691	0.963	6949	2813
Grand Total	101265	8.44	43186	3.58	6.33		100						
Grand Total	101265	8.44	43186	3.58	6.33		100						

Site: Dunes

	GREEN PHYTMASS		DRY PHYTMASS				CARRYING CAPACITY					
	g/m square		g/m square		kg/ha	lb/ac	Percentage	Percentage	AUM'S/acre			
	Mean	Std.dev.	Mean	Std.dev.	Mean	Mean	of Group	of Total	Cattle	Sheep	Horses	Deer
Annual Forbs												
<i>Ambrosia acanthicarpa</i>	0.4	2.53	0.09	0.57	0.9	0.8	100	0.1	0	0	0	0
<i>Descurainia pinnata</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Salsola iberica</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ipomopsis gunnisonii</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dithyrea wislizenii</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Euphorbia missurica</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.4	2.53	0.09	0.57	0.9	0.8	100	0.1	0	0	0	0
Annual Grass												
<i>Bromus tectorum</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	100	0	0	0	0	0
Perennial Forbs												
<i>Penstemon strictus</i>	0.45	2.85	0.51	2.18	5.13	4.58	49.7	0.4	0.0003	0.000	0.0003	0.000
<i>Evolvulus pilosus</i>	0.55	2.47	0.24	1.09	2.35	2.1	22	0.2	0.0003	0.000	0.0003	0.000
<i>Dalea lanata</i>	0.62	2.82	0.13	0.61	1.3	1.16	12.1	0.1	0	0	0	0
<i>Oenothera pallida</i>	0.62	3.66	0.19	0.87	1.93	1.72	18	0.1	0	0	0	0
<i>Leucelene ericoides</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dalea sp.</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sphaeralcea parviflora</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	2.01	11.8	1.07	4.75	10.71	9.56	100	0.8	0.0006	0.000	0.0006	0.000
Perennial Grasses												
<i>Muhlenbergia pungens</i>	17.02	35.61	11.77	25.61	117.7	105.06	27.1	8.6	0.0125	0.012	0.0125	0.006
<i>Cynopsis hymenoides</i>	28.8	25.34	19.12	19	191.18	170.64	44	13.9	0.1117	0.111	0.1117	0
<i>Sporobolus airoides</i>	9.4	26.27	6.31	18.21	63.08	56.3	14.5	4.6	0.0335	0.033	0.0335	0
<i>Aristida purpurea</i>	5.02	11.98	2.93	7.8	29.3	26.15	6.6	2.2	0.0047	0.004	0.0047	0
<i>Hilaria jamesii</i>	2.98	7.82	1.42	3.79	14.18	12.65	3.3	1	0.0068	0.006	0.0068	0
<i>Sporobolus giganteus</i>	3.32	12.92	1.84	6.09	18.35	16.39	4.2	1.3	0.0066	0.006	0.0066	0
Total	66.54	119.94	43.39	80.5	433.79	387.18	100	31.6	0.175	0.175	0.1752	0.006
Shrubs												
<i>Ephedra torreyana</i>	46.47	98.66	33.28	65.26	332.78	297.04	36	24.3	0.0707	0.070	0.0707	0.070
<i>Eriogonum leptocladon</i>	26.3	51.83	15.94	32.95	159.55	142.24	17.2	11.6	0.0254	0.025	0.0254	0.016
<i>Chrysothamnus pulchellus</i>	21.85	44.21	12.94	25.71	129.35	115.46	14	9.4	0.0137	0.020	0.0137	0.006
<i>Gutierrezia sarothrae</i>	19.9	38.24	10.01	19.39	100.13	89.37	10.8	7.3	0	0	0	0
<i>Chrysothamnus nauseosus</i>	23	92.13	12.04	46.35	120.43	107.49	13	8.8	0.0128	0.019	0.0128	0.006
<i>Artemisia filifolia</i>	4	22.28	1.67	9.62	16.7	14.91	1.8	1.2	0.0036	0.005	0.0036	0.000
<i>Atriplex canescens</i>	2.3	14.55	1.37	8.65	13.68	12.21	1.5	1	0.0065	0.007	0.0065	0.002
<i>Isocoma tenuisecta</i>	6.08	34.88	3.06	17.74	30.55	27.27	3.3	2.2	0	0	0	0
<i>Chrysothamnus Greenei</i>	0.38	1.69	0.23	1.03	2.33	2.08	0.3	0.2	0.0002	0.000	0.0002	0.000
<i>Yucca angustissima</i>	2.42	15.34	1.52	6.97	15.15	13.52	1.6	1.1	0.0008	0.000	0.0008	0.000
<i>Atriplex confertifolia</i>	1.3	8.22	0.5	3.15	4.98	4.44	0.5	0.4	0.0005	0.001	0.001	0.000
<i>Atriplex obovata</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	156	422.03	92.56	236.82	925.43	826.03	100	67.5	0.1342	0.151	0.117	0.011
Grand Total	224.95	556.3	137.11	322.64	1370.8	1223.5		100	0.3108	0.327	0.2923	0.018
Grand Total	224.95	556.3	137.11	322.64	1370.8	1223.5		100	0.3108	0.327	0.2923	0.018

Site: Saline Sands

	COVER (%)					CONSTANCY		FREQUENCY		DENSITY			
	Foliar		Basal		Std.Dev.	Percentage of Group	Percentage of Total	%	%	#/m square		#/ha	#/acre
mm	mean	mm	mean	Mean						Std.dev.	Mean	Mean	
Annual Forbs													
<i>Cryptantha crassisejala</i>	1224	0.1	678	0.06	0.06	73.1	1.5	45.7	14.35				
<i>Salsola iberica</i>	576	0.05	61	0.01	0.01	6.6	0.1	19.6	5.65				
<i>Descurainia pinnata</i>	348	0.03	67	0.01	0.03	9.4	0.2	30.4	5.65				
<i>Plantago patagonica</i>	324	0.03	81	0.01	0.03	8.7	0.2	23.9	5				
<i>Ambrosia acanthicarpa</i>	252	0.02	14	0	0	1.5	0	21.7	3.04				
<i>Nana hispidum</i>	24	0	6	0	0	0.6	0	2.2	0.22				
<i>Eriogonum gordonii</i>	0	0	0	0	0	0	0	2.2	0.22				
Total	2748	0.33	927	0.03	0.13	99.9	2						
Annual Grasses													
<i>Bromus tectorum</i>	2400	0.2	1176	0.1	0.38	44.9	2.6	43.5	16.3				
<i>Vulpia octoflora</i>	1416	0.12	1416	0.12	0.18	54	3.1	76.1	28.04				
<i>Bromus rubens</i>	60	0.01	29	0	0.02	1.1	0.1	4.3	0.87				
Total	3876	0.33	2621	0.22	0.58	100	5.7						
Perennial Forbs													
<i>Penstemon strictus</i>	1128	0.09	459	0.04	0.09	67.3	1	26.3	5.95				
<i>Sphaeralcea parviflora</i>	612	0.05	153	0.01	0.06	22.4	0.3	23.9	3.91				
<i>Sphaeralcea coccinea</i>	252	0.02	63	0.01	0.02	9.2	0.1	19.6	3.25				
<i>Oenothera pallida</i>	24	0	7	0	0	1	0	2.2	0.22				
Total	2016	0.16	682	0.06	0.17	99.9	1.5						
Perennial Grasses													
<i>Sporobolus airoides</i>	37944	3.16	27016	2.25	1.57	67.5	59	95.7	81.74				
<i>Trizopsis hymenoides</i>	14508	1.21	7617	0.64	0.52	19	16.6	95.7	66.48				
<i>Ailaria jamesii</i>	5520	0.46	3655	0.31	0.33	9.2	8	52.2	15.3				
<i>Aristida purpurea</i>	1908	0.15	1633	0.14	0.53	4.1	3.5	17.4	5.87				
<i>Sporobolus cryptandrus</i>	34	0.01	60	0.01	0.04	0.1	0.1	2.2	0.22				
<i>Sporobolus giganteus</i>	36	0	22	0	0.01	0.1	0	2.2	0.22				
Total	6000	4.84	40014	3.35	3.6	100	87.3						
Shrubs													
<i>Ephedra torreyana</i>	2376	0.2	404	0.03	0.1	25.8	0.9	17.4	2.17	0.012	0.022	120	48
<i>Gutierrezia sarothrae</i>	1224	0.1	364	0.03	0.06	23.3	0.8	32.6	7.37	0.168	0.266	1685	682
<i>Atriplex obovata</i>	612	0.05	298	0.03	0.08	19	0.7	13	1.74	0.021	0.055	210	85
<i>Atriplex canescens</i>	576	0.05	127	0.01	0.04	6.1	0.3	10.9	1.52	0.018	0.026	181	73
<i>Atriplex confertifolia</i>	576	0.05	270	0.02	0.08	17.3	0.6	21.7	2.37	0.024	0.053	243	98
<i>Eriogonum leptocladon</i>	192	0.02	43	0	0.02	2.7	0.1	2.2	0.43	0.005	0.032	54	22
<i>Isocoma tenuisecta</i>	144	0.01	26	0	0.02	1.8	0.1	2.2	0.43	0.003	0.017	25	10
<i>Opuntia polyacantha</i>	48	0	10	0	0	0.5	0	6.3	0.65	0.001	0.002	4	2
<i>Lycium pallidum</i>	36	0	11	0	0	0.7	0	4.3	0.65	0.011	0.04	105	43
<i>Chrysothamnus nauseosus</i>	24	0	6	0	0	0.4	0	2.2	0.22	0.001	0.003	7	3
<i>Sarcobatus vermiculatus</i>	23	0	4	0	0	0.3	0	4.3	0.43	0.003	0.007	25	10
<i>Yucca angustissima</i>	0	0	0	0	0	0	0	0	0	0.003	0.022	33	13
Total	5831	0.43	1545	0.12	0.4	100	3.4			0.27	0.545	2598	1089
Grand Total	74471	6.09	45809	3.83	4.88		100						

Site: Saline Sands

	GREEN PHYTMASS		DRY PHYTMASS				CARRYING CAPACITY					
	g/m square Mean	Std.dev.	g/m square Mean	Std.dev.	kg/ha Mean	lb/ac Mean	Percentage of Group	Percentage of Total	AUM'S/acre			
								Cattle	Sheep	Horses	Deer	
Annual Forbs												
<i>Cryptantha crassisejala</i>	2.78	10.58	2.18	8.73	21.63	19.48	68.6	2.1	0	0	0	0
<i>Salsola iberica</i>	0.54	2.83	0.14	0.73	1.41	1.26	4.4	0.1	0.0006	0.0006	0.0006	0.0006
<i>Descurainia pinnata</i>	0.87	5.7	0.75	5.06	7.45	6.66	23.4	0.7	0	0	0	0
<i>Plantago patagonica</i>	0.17	1.18	0.07	0.49	0.72	0.64	2.3	0.1	0.0001	0.0001	0.0001	0.0001
<i>Ambrosia acanthicarpa</i>	0.54	3.67	0.04	0.28	0.41	0.37	1.3	0	0	0	0	0
<i>Nama hispidum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum gordonii</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	4.9	24.18	3.18	15.29	31.83	28.41	100	2.1	0.0007	0.0007	0.0007	0.0007
Annual Grasses												
<i>Bromus tectorum</i>	1.59	4.05	0.97	2.56	9.74	8.69	24.5	1	0	0	0	0
<i>Vulpia octoflora</i>	5.02	9.99	2.81	6.61	28.11	25.09	70.9	2.7	0	0	0	0
<i>Bromus rubens</i>	0.22	1.47	0.19	1.25	1.85	1.65	4.7	0.2	0	0	0	0
Total	6.83	15.51	3.97	10.42	39.7	35.43	100	3.9	0	0	0	0
Perennial Forbs												
<i>Penstemon strictus</i>	3.22	9.51	1.06	5.65	10.61	9.47	90.4	1	0.0006	0.0012	0.0006	0.0012
<i>Sphaeralcea parviflora</i>	0.3	2.06	0.11	0.77	1.13	1.01	9.6	0.1	0.0001	0.0001	0.0001	0
<i>Sphaeralcea coccinea</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Oenothera pallida</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	3.52	11.57	1.17	4.42	11.74	10.48	100	1.1	0.0007	0.0013	0.0007	0.0012
Perennial Grasses												
<i>Sporobolus airoides</i>	71.28	51.36	48.3	38.04	463	431.13	58.5	47.2	0.2566	0.2566	0.2566	0
<i>Lyzopsis hymenoides</i>	38.07	46.01	26.72	37.48	267.17	238.48	32.4	26.1	0.1561	0.1561	0.1561	0
<i>Hilaria jamesii</i>	5.96	12.18	3.92	8.34	39.24	35.02	4.8	3.8	0.0188	0.0167	0.0157	0
<i>Aristida purpurea</i>	4.85	20.17	3.58	15.46	35.76	31.92	4.3	3.5	0.0057	0.0057	0.0057	0
<i>Sporobolus cryptandrus</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sporobolus giganteus</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	120.16	129.72	82.52	99.32	825.17	736.55	100	80.6	0.4372	0.4351	0.4351	0
Shrubs												
<i>Ephedra torreyana</i>	5.46	28.53	3.3	17.45	33.02	29.48	28.6	3.2	0.007	0.007	0.005	0.007
<i>Gutierrezia sarothrae</i>	5.11	14.83	2.87	8.33	28.72	25.63	24.9	2.8	0	0	0	0
<i>Atriplex obovata</i>	2.28	10.94	1.41	6.69	14.07	12.55	12.2	1.4	0.003	0.004	0.003	0.002
<i>Atriplex canescens</i>	3.5	17.45	2.04	10.64	20.39	18.2	17.7	2	0.0098	0.0109	0.0098	0.0022
<i>Atriplex confertifolia</i>	1.76	7.13	1.07	4.38	10.7	9.55	7.3	1	0.0011	0.0033	0.0022	0.0011
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Isocoma tenuisecta</i>	0.23	1.92	0.06	0.41	0.61	0.54	0.5	0.1	0	0	0	0
<i>Opuntia polyacantha</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	1.41	9.58	0.76	5.31	7.83	6.99	5.8	0.8	0.0004	0.0008	0.0008	0
<i>Yucca angustissima</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	18.39	90.38	11.33	53.21	115.34	102.94	100	11.3	0.0213	0.025	0.0232	0.0123
Grand Total	153.8	271.36	102.37	182.66	1023.7	913.91	100	0.4599	0.4651	0.4573	0.0142	

Site: Sands

	COVER (%)					CONSTANCY FREQUENCY		DENSITY					
	Foliar mm	mean	Basal mm	mean	Std.Dev.	Percentage of Group	Percentage of Total	%	%	#/m square Mean	Std.dev.	#/ha Mean	#/acre Mean
Annual Forbs													
<i>Salsola iberica</i>	2280	0.17	242	0.02	0.07	59	6.7	20.6	7.94				
<i>Descurainia pinnata</i>	372	0.03	93	0.01	0.02	22.7	0.3	26.5	7.94				
<i>Nama hispidum</i>	96	0.01	24	0	0.01	5.9	0.1	11.8	1.18				
<i>Allium macropetalum</i>	48	0	13	0	0.01	3.2	0	2.9	0.29				
<i>Cryptantha crassiseptala</i>	48	0	27	0	0.01	6.6	0.1	11.8	1.77				
<i>Atriplex saccaria</i>	36	0	7	0	0	1.7	0	2.9	0.29				
<i>Dithyrea wislizenii</i>	12	0	3	0	0	0.7	0	2.9	0.29				
<i>Ambrosia acanthicarpa</i>	12	0	1	0	0	0.2	0	2.9	0.29				
<i>Sisymbrium altissimum</i>	0	0	0	0	0	0	0	0	0				
Total	2904	0.23	410	0.03	0.12	100	1.2						
Annual Grasses													
<i>Bromus tectorum</i>	1488	0.12	729	0.06	0.26	54.9	2.1	36.2	11.77				
<i>Vulpia octoflora</i>	600	0.05	600	0.05	0.14	45.1	1.7	32.4	10				
Total	2088	0.17	1329	0.11	0.4	100	3.8						
Perennial Forbs													
<i>Pentemon strictus</i>	528	0.04	215	0.02	0.06	71	0.6	20.6	4.12				
<i>Leucelene ericoides</i>	168	0.01	84	0.01	0.02	27.7	0.2	14.7	2.35				
<i>Delea lanata</i>	36	0	4	0	0	1.3	0	2.9	0.59				
<i>Sphaeralcea parviflora</i>	12	0	0	0	0	0	0	5.9	0.59				
Total	744	0.05	303	0.03	0.08	100	0.9						
Perennial Grasses													
<i>Cryzopsis hymenoides</i>	11892	0.99	6243	0.52	0.66	28.4	17.8	91.2	62.06				
<i>Sporobolus airoides</i>	10248	0.85	7297	0.61	0.77	33.2	18.3	73.5	30.88				
<i>Hilaria jamesii</i>	7944	0.66	5275	0.44	0.59	24	15.4	70.6	40				
<i>Aristida purpurea</i>	2448	0.2	2095	0.18	0.57	9.5	6.1	29.4	8.24				
<i>Muhlenbergia pungens</i>	1008	0.08	877	0.07	0.23	4	2.5	11.8	2.35				
<i>Sporobolus cryptandrus</i>	132	0.01	94	0.01	0.05	0.4	0.3	2.9	0.59				
<i>Sporobolus giganteus</i>	132	0.01	80	0.01	0.04	0.4	0.2	2.9	0.88				
Total	33804	2.8	21961	1.34	2.91	99.9	62.4						
Shrubs													
<i>Butierrezia sarothrae</i>	24012	2	7132	0.59	0.53	63.9	20.3	79.4	52.35	1.314	1.219	13142	5319
<i>Atriplex confertifolia</i>	3864	0.32	1812	0.15	0.25	16.2	5.2	38.4	7.94	0.087	0.139	873	353
<i>Ephedra torreyana</i>	2496	0.21	424	0.04	0.09	3.8	1.2	26.5	3.53	0.023	0.041	284	115
<i>Atriplex obovata</i>	2436	0.2	1136	0.1	0.36	10.6	3.4	11.3	1.76	0.018	0.054	176	71
<i>Eriogonum leptocladon</i>	2088	0.17	472	0.04	0.13	4.2	1.3	17.6	6.47	0.07	0.196	676	282
<i>Chrysothamnus pulchellus</i>	396	0.03	86	0.01	0.03	0.8	0.2	17.6	3.53	0.016	0.048	157	63
<i>Atriplex canescens</i>	132	0.01	29	0	0.01	0.3	0.1	5.9	0.59	0.011	0.026	113	46
<i>Lycium pallidum</i>	48	0	13	0	0.01	0.1	0	2.9	0.29	0.01	0.057	93	40
<i>Atriplex cuneata</i>	36	0	12	0	0.01	0.1	0	2.9	0.29	0.001	0.009	15	6
<i>Yucca angustissima</i>	0	0	0	0	0	0	0	0	0	0.001	0.009	15	6
Total	35508	2.94	11166	0.93	1.42	100	31.8			1.646	1.776	15569	6301
Grand Total	75143	6.19	25171	2.94	4.93		100.1						

Site: Sands

	GREEN PHYTMASS		DRY PHYTMASS				CARRYING CAPACITY					
	g/m square		g/m square		kg/ha	lb/ac	Percentage	Percentage	AUM'S/acre			
	Mean	Std.dev.	Mean	Std.dev.	Mean	Mean	of Group	of Total	Cattle	Sheep	Horses	Deer
Annual Forbs												
<i>Salsola iberica</i>	11.12	31.45	4.14	12.27	41.44	36.99	70.8	4	0.0176	0.0176	0.0176	0.0176
<i>Descurainia pinnata</i>	1.71	5.7	1.39	4.72	13.94	12.44	23.8	1.4	0	0	0	0
<i>Nana hispidum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Allium macropetalum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cryptantha crassisepta</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dithyrea wislizenii</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ambrosia acanthicarpa</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sisymbrium altissimum</i>	0.53	3.09	0.32	1.84	3.15	2.81	5.4	0.3	0	0	0	0
Total	13.35	49.25	5.85	18.63	58.53	52.24	100	5.7	0.0176	0.0176	0.0176	0.0176
Annual Grasses												
<i>Bromus tectorum</i>	1.44	6.01	0.98	4.19	9.82	8.77	67.9	1	0	0	0	0
<i>Vulpia octoflora</i>	1.24	6.36	0.47	2.01	4.65	4.15	32.1	0.5	0	0	0	0
Total	2.68	12.39	1.45	6.2	14.47	12.92	100	1.4	0	0	0	0
Perennial Forbs												
<i>Penstemon strictus</i>	0.97	5.66	0.13	0.74	1.26	1.13	100	0.1	0.0001	0.0001	0.0001	0.0001
<i>Leuceleone ericoides</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dalea lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sphaeralcea parviflora</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.97	5.66	0.13	0.74	1.26	1.13	100	0.1	0.0001	0.0001	0.0001	0.0001
Perennial Grasses												
<i>Dryopsis hyemoides</i>	28.09	29.29	18.19	25.1	181.68	162.35	40.8	17.7	0.1063	0.1063	0.1063	0
<i>Sporobolus airoides</i>	22.74	40.18	13.89	28.29	138.91	123.99	32.2	13.5	0.0738	0.0738	0.0738	0
<i>Hilaria jamesii</i>	13.59	21.59	8.15	13.36	81.53	72.77	13.3	7.9	0.039	0.035	0.035	0
<i>Aristida purpurea</i>	1.88	5.97	1.36	4.45	13.59	12.13	3	1.3	0.0022	0.0022	0.0022	0
<i>Muhlenbergia pungens</i>	3.97	13.72	2.97	10.02	29.71	26.52	6.7	2.9	0.0032	0.0032	0.0032	0.0016
<i>Sporobolus cryptandrus</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sporobolus giganteus</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	70.27	110.15	44.56	81.22	445.62	397.76	100	43.4	0.2245	0.221	0.221	0.0016
Shrubs												
<i>Gutierrezia sarothrae</i>	48.06	65.37	30.87	48.22	308.79	275.63	60.8	30	0	0	0	0
<i>Atriplex confertifolia</i>	11.68	45.74	7.06	29.65	70.56	62.96	13.9	6.9	0.0075	0.023	0.015	0.0075
<i>Ephedra torreyana</i>	5.12	20.9	3.1	12.65	31	27.67	6.1	3	0.0066	0.0066	0.0066	0.0066
<i>Atriplex obovata</i>	14.65	70.79	6.89	33.12	68.65	61.46	13.5	6.7	0.0146	0.022	0.0146	0.0073
<i>Eriogonum leptocladon</i>	1.56	6.69	1.22	5.12	12.24	10.92	2.4	1.2	0	0	0	0
<i>Chrysothamnus pulchellus</i>	2.71	8.9	1	4.55	10.03	8.95	2	1	0.0011	0.002	0.0011	0.0005
<i>Atriplex canescens</i>	0.21	1.2	0.22	1.29	2.21	1.97	0.4	0.2	0.0011	0.0014	0.0011	0.0005
<i>Lycium pallidum</i>	0.79	4.63	0.42	2.42	4.15	3.7	0.8	0.4	0	0	0	0
<i>Atriplex cuneata</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Yucca angustissima</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	84.78	225.22	50.78	137.02	507.83	453.28	100	49.4	0.0309	0.054	0.038	0.022
Grand Total	172.05	393.67	102.77	244.01	1027.7	917.33		100	0.2731	0.293	0.277	0.042

Site: Thin Breaks

	COVER (%)						CONSTANCY FREQUENCY		DENSITY				
	Foliar		Basal		Std.Dev.	Percentage of Group	Percentage of Total	%	%	#/square		#/ha	#/acre
	m	mean	m	mean						Mean	Std.dev.	Mean	Mean
Annual Forbs													
<i>Atriplex powellii</i>	304	0.07	148	0.01	0.04	24.5	0.4	15	8.25				
<i>Halogeton glomeratus</i>	600	0.05	227	0.02	0.06	37.5	0.5	17.5	5.25				
<i>Salsola iberica</i>	600	0.05	64	0.01	0.01	11.5	0.2	22.5	8				
<i>Descurainia pinnata</i>	276	0.02	59	0.01	0.02	11.4	0.2	32.5	4.5				
<i>Atriplex saccaria</i>	132	0.01	26	0	0.01	4.3	0.1	2.5	1.25				
<i>Eriogonum salsuginosum</i>	84	0.01	17	0	0	2.8	0	10	3.25				
<i>Eriogonum gordonii</i>	60	0.01	12	0	0	2	0	5	2.25				
<i>Sisymbrium altissimum</i>	48	0	33	0	0.01	5.5	0.1	5	1				
<i>Phacelia crenulata</i>	24	0	6	0	0	1	0	5	0.5				
var. <i>corrugata</i>													
<i>Plantago patagonica</i>	12	0	3	0	0	0.5	0	7.5	0.75				
Total	2640	0.22	605	0.05	0.15	100.1	1.4						
Annual Grasses													
<i>Bromus tectorum</i>	1272	0.11	623	0.05	0.15	97.8	1.5	62.5	16.5				
<i>Vulpia octoflora</i>	24	0	14	0	0	2.2	0	7.5	0.75				
Total	1296	0.11	637	0.05	0.15	100	1.5						
Perennial Forbs													
<i>Platyschkurnia integrif</i>	936	0.08	285	0.02	0.06	53.5	0.7	20	4				
var. <i>oblongifolia</i>													
<i>Sphaeralcea carviflora</i>	348	0.03	155	0.01	0.03	36.4	0.4	22.5	2.75				
Total	1284	0.11	448	0.03	0.09	100	1.1						
Perennial Grasses													
<i>Sporobolus airoides</i>	10440	0.87	7433	0.62	0.8	52.7	17.6	67.5	23.75				
<i>Pilaria jamesii</i>	8562	0.71	5589	0.47	0.82	40.3	12.5	65	21.25				
<i>Dryozosis hyemoides</i>	1824	0.16	939	0.08	0.24	7	2.3	35	6.75				
Total	20892	1.74	14111	1.17	1.86	100	33.5						
Shrubs													
<i>Atriplex confertifolia</i>	33484	3.21	15049	1.5	1.41	63.4	42.2	95	39	0.415	0.302	4152	1685
<i>Atriplex obovata</i>	11443	0.95	5575	0.46	0.96	21.1	13.2	40	11.5	0.158	0.272	1583	641
<i>Ephedra torreyana</i>	2380	0.24	490	0.04	0.11	1.7	1.2	15	4.5	0.017	0.041	171	69
<i>Atriplex cuneata</i>	2448	0.2	813	0.07	0.23	3.1	1.9	7.5	2	0.037	0.12	371	150
<i>Gutierrezia sarothrae</i>	2088	0.17	620	0.05	0.13	2.4	1.5	32.5	6.5	0.107	0.183	1057	432
<i>Atriplex corrugata</i>	1896	0.16	811	0.07	0.2	3.1	1.9	12.5	2.25	0.045	0.143	458	185
<i>Suaeda torreyana</i>	36	0	14	0	0	0.1	0	2.5	0.25	0	0.003	4	2
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	0.005	4	2
<i>Chrysothamnus nauseosus</i>	0	0	0	0	0	0	0	0	0	0.001	0.008	12	5
Total	59230	4.93	25372	2.19	3.09	100.1	62.5			0.782	1.079	7632	3171
Grand Total	85342	7.11	42173	3.49	5.34		100						

Site: Thin Breaks

	GREEN PHYTMASS		DRY PHYTMASS				CARRYING CAPACITY					
	g/m square		g/m square		kg/ha	lb/ac	Percentage	Percentage	AUM'S/acre			
	Mean	Std.dev.	Mean	Std.dev.	Mean	Mean	of Group	of Total	Cattle	Sheep	Horses	Beef
Annual Forbs												
<i>Atriplex powellii</i>	1.33	3.2	1.49	5.78	14.85	13.25	49.3	1.5	0.0032	0.0048	0.0032	0.0015
<i>Halogeton glomeratus</i>	1.68	10.5	0.08	0.47	0.75	0.87	2.5	0.1	0	0	0	0
<i>Salsola iberica</i>	1.48	4.54	0.77	2.15	7.68	6.95	25.5	0.7	0.0033	0.0033	0.0033	0.0033
<i>Descurainia pinnata</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex saccaria</i>	0	0	0.06	0.4	0.65	0.55	2.1	0.1	0.0001	0.0002	0.0001	0
<i>Eriogonum salsuginosum</i>	0.12	0.52	0.07	0.41	0.65	0.58	2.2	0.1	0.0001	0.0001	0.0001	0.0001
<i>Eriogonum gordonii</i>	0	0	0.55	2.54	5.55	4.95	18.4	0.5	0.001	0.001	0.001	0.001
<i>Sisymbrium altissimum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Phacelia crenulata</i>	0	0	0	0	0	0	0	0	0	0	0	0
var. <i>corrugata</i>												
<i>Plantago patagonica</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	4.86	21.8	3.03	12.15	30.11	26.87	100	2.5	0.0077	0.0094	0.0077	0.006
Annual Grasses												
<i>Bromus tectorum</i>	0.35	1.55	0.41	1.57	4.08	3.64	100	0.3	0	0	0	0
<i>Vulpia octoflora</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.35	1.55	0.41	1.57	4.08	3.64	100	0.3	0	0	0	0
Perennial Forbs												
<i>Platyschekeria integrif</i>	1.45	6.15	0.74	2.67	7.43	6.53	59.8	0.6	0.0008	0.0008	0.0008	0.0008
var. <i>oblongifolia</i>												
<i>Sphaeralcea parviflora</i>	1.1	6.95	0.72	4.55	7.2	6.43	49.2	0.6	0.0008	0.0008	0.0008	0.0004
Total	2.55	13.12	1.46	7.44	14.65	12.96	100	1.2	0.0016	0.0016	0.0016	0.0012
Perennial Grasses												
<i>Sporobolus airoides</i>	14.95	23.12	11.23	16.55	112.33	100.25	64.3	9.6	0.0597	0.0597	0.0597	0
<i>Hilaria jamesii</i>	4.62	11.1	4.02	6.63	40.23	35.91	23	3.4	0.0192	0.0171	0.0171	0
<i>Oryzopsis hymenoides</i>	2.33	7.1	2.2	6.49	22	19.64	12.5	1.9	0.0129	0.0129	0.0129	0
Total	22.15	41.32	17.45	31.67	174.56	155.81	99.9	14.9	0.0918	0.0897	0.0897	0
Shrubs												
<i>Atriplex confertifolia</i>	91.48	137.7	64.22	94.11	642.23	573.65	27.5	54.7	0.0222	0.0246	0.1254	0.0582
<i>Atriplex obovata</i>	32.12	93.27	20.29	60.69	202.9	181.11	21.3	17.3	0.0431	0.0646	0.0431	0.0215
<i>Ephedra torreyana</i>	6.8	22.74	4.27	14.49	42.68	38.07	4.5	3.6	0.0091	0.0091	0.0058	0.0091
<i>Atriplex cuneata</i>	3.2	15.58	2.09	10.32	20.63	19.62	2.2	1.8	0.0044	0.0068	0.0044	0.0022
<i>Gutierrezia sarothrae</i>	3.58	11.62	2.71	8.61	27.05	24.13	2.3	2.3	0	0	0	0
<i>Atriplex corrugata</i>	2.4	10.6	1.59	7.04	15.93	14.22	1.7	1.4	0.0034	0.0051	0.0034	0.0017
<i>Suaeda torreyana</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total	139.53	291.61	95.17	195.26	951.67	849.45	100	81	0.1282	0.29	0.1941	0.1027
Grand Total	169.49	369.41	117.52	248.09	1175.0	1043.3		100	0.2293	0.3907	0.2931	0.1045



Appendix 16-I
1986 Vegetation Data

MARCH 10, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-1

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

ALKALI WASH

N (COVER) = 40
N (PROD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. - KG/HA LB/AC		% OF GROUP PROD.	% OF TOTAL PROD.	CONST.	FREQ.	DENSITY /HA /AC	
*** ANNUAL FORB ***												
SALSOLA KALI/SALSOLA IBERICA	3658	0.30	34.51	17.82	31.05	27.70	42.83	16.77	95.00	55.25		
DESCURAINIA PINNATA	2857	0.24	26.95	13.92	10.07	9.99	13.90	5.44	67.50	35.75		
ATRIPLEX POWELLII	1310	0.11	12.36	6.38	15.47	13.81	21.34	8.36	55.00	23.25		
LAPPULA REDOWSKII	822	0.07	7.75	4.00	6.70	5.98	9.24	3.62	62.50	17.75		
ERIGERON FLEXUM	524	0.04	4.94	2.55	0.47	0.42	0.66	0.26	20.00	9.50		
CRYPTANTHA CRASSISEPALA	290	0.02	2.64	1.36	1.22	1.09	1.69	0.66	10.00	3.75		
HALOGETON GLOMERATUS	266	0.02	2.51	1.30	2.85	2.54	3.93	1.54	15.00	5.00		
MENTZELIA ALBICAULIS	218	0.02	2.06	1.06	0.32	0.29	0.45	0.18	22.50	6.25		
PLANTAGO PATAGONICA	140	0.01	1.32	0.68	0.65	0.58	0.90	0.35	15.00	3.75		
PHACELIA CORRUGATA	126	0.01	1.19	0.61	2.02	1.81	2.79	1.09	20.00	2.50		
CLEOME LIJTEA	77	0.01	0.73	0.38	0.17	0.16	0.24	0.09	15.00	2.25		
CHAENACTIS STEVOIDES	68	0.01	0.64	0.33	0.75	0.67	1.03	0.41	10.00	2.75		
ERIOGONUM DIVARICATUM	58	0.00	0.55	0.28	0.30	0.27	0.41	0.16	7.50	2.50		
IPOMOPSIS LONGIFLORA	57	0.00	0.54	0.28	0.20	0.18	0.28	0.11	12.50	2.00		
IPOMOPSIS GUNNISONII	46	0.00	0.43	0.22	0.00	0.00	0.00	0.00	10.00	1.75		
TOWNSENDIA ANNUA	36	0.00	0.34	0.18	0.07	0.07	0.10	0.04	2.50	0.75		
GILIA LEPTOMERIA	32	0.00	0.30	0.16	0.02	0.02	0.03	0.01	7.50	1.50		
ERIOGONUM SALSUGINOSUM	20	0.00	0.19	0.10	0.00	0.00	0.00	0.00	5.00	0.50		
DESCURAINIA SOPHIA	5	0.00	0.05	0.02	0.00	0.00	0.00	0.00	2.50	0.25		
IPOMOPSIS POLYCLADON	0	0.00	0.00	0.00	0.12	0.11	0.17	0.07	0.00	0.00		
*** ANNUAL FORB TOTALS:	10600	0.86	100.00	51.63	72.50	64.68	99.99	39.16				
*** ANNUAL GRASS ***												
BROMIUS TECTORUM	633	0.05	46.44	3.08	1.37	1.23	35.48	0.74	50.00	12.75		
HORDEUM PUSILLUM	409	0.03	30.01	1.99	0.95	0.76	21.94	0.46	12.50	5.25		
VULPIA OCTOFLORA	314	0.03	23.04	1.53	1.65	1.47	42.58	0.89	12.50	4.25		
BROMIUS RUBENS	7	0.00	0.51	0.03	0.00	0.00	0.00	0.00	2.50	0.25		
*** ANNUAL GRASS TOTALS:	1363	0.11	100.00	6.64	3.97	3.46	100.00	2.09				
*** PERENNIAL FORB ***												
BAHIA OBLONGIFOLIA	58	0.00	65.91	0.28	0.87	0.78	100.00	0.47	2.50	0.25		
SPHAERALCEA COCCINEA	30	0.00	34.09	0.15	0.00	0.00	0.00	0.00	5.00	0.75		
*** PERENNIAL FORB TOTALS:	98	0.00	100.00	0.43	0.97	0.78	100.00	0.47				
*** PERENNIAL GRASS ***												
SPOROBOLIUS AIROIDES	1151	0.10	58.25	5.61	15.12	13.49	74.42	8.17	32.50	8.00		
ORYZOPSIS HYMENDIDES	413	0.03	20.90	2.01	3.75	3.35	19.45	2.03	25.00	7.50		
HILARIA JAMESII	347	0.03	17.56	1.69	0.57	0.51	2.83	0.31	25.00	5.00		
SITANION HYSTRIX	36	0.00	1.82	0.19	0.40	0.36	1.97	0.22	5.00	0.50		
HORDEUM JUBATUM	29	0.00	1.47	0.14	0.47	0.42	2.34	0.26	2.50	1.00		
*** PERENNIAL GRASS TOTALS:	1976	0.16	100.00	9.62	20.32	18.13	100.01	10.98				

MARCH 10, 1997

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-2

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

ALKALI WASH

N (COVER) = 40
N (PROD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. -		% OF GROUP PROD.	% OF TOTAL PROD.	CONST.	FREQ.	DENSITY	
					KG/HA	LB/AC					/HA	/AC
*** PERENNIAL SHRUB ***												
ATRIPLEX CUNEATA	2494	0.21	38.35	12.15	38.00	33.90	43.39	20.52	37.50	9.00	400.0	161.9
ATRIPLEX CONFERTIFOLIA	1624	0.14	24.97	7.91	12.10	10.80	13.82	6.54	22.50	6.50	416.7	168.6
SACROBATUS VERMICULATUS	1126	0.09	17.32	5.48	7.70	6.87	8.79	4.16	12.50	2.25	45.8	18.5
ATRIPLEX CORRUGATA	659	0.05	10.13	3.21	22.02	19.65	25.15	11.90	7.50	2.75	158.3	64.1
ATRIPLEX OBOVATA	380	0.03	5.84	1.85	6.37	5.69	7.28	3.44	7.50	0.75	45.8	18.5
GUTIERREZIA SAROTHRAE	170	0.01	2.61	0.83	1.37	1.23	1.57	0.74	5.00	1.00	145.8	59.0
ATRIPLEX CANESCENS	50	0.00	0.77	0.24	0.00	0.00	0.00	0.00	7.50	1.00	70.8	28.7
OPUNTIA POLYACANTHA	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.5	5.1
*** PERENNIAL SHRUB TOTALS:	6503	0.53	99.99	31.68	87.57	78.13	100.00	47.30			1295.8	524.4
ALKALI WASH	20530	1.66		100.00	185.15	165.19		100.00			1295.8	524.4

MARCH 10, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-3

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

ARROYO SHRUB

N (COVER) = 40
N (PRDD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. KG/HA	- LB/AC	% OF GROUP PRDD.	% OF TOTAL PRDD.	CONST.	FREQ.	DENSITY /HA	/AC
*** ANNUAL FORB												
SALSOLA KALI/SALSOLA IBERICA	2654	0.22	40.52	7.87	19.37	17.29	43.74	5.89	82.50	41.00		
DESCURAINIA PINNATA	1836	0.15	28.03	5.44	8.00	7.14	19.06	2.43	75.00	33.50		
LAPPULA REDONSKII	964	0.08	14.72	2.86	11.75	10.48	26.52	3.57	55.00	20.50		
GILIA LEPTOMERIA	307	0.03	4.69	0.91	0.40	0.36	0.90	0.12	25.00	9.00		
AMBROSIA ACANTHICARPA	189	0.02	2.89	0.56	0.95	0.85	2.14	0.29	12.50	3.00		
CRYPTANTHA CRASSISEPALA	118	0.01	1.80	0.35	2.10	1.87	4.74	0.64	17.50	3.00		
CHAENACTIS STEVOIDES	104	0.01	1.59	0.31	0.30	0.27	0.68	0.09	10.00	2.50		
EUPHORBIA GLYPTOSPERMA	96	0.01	1.47	0.28	0.37	0.33	0.85	0.11	7.50	3.25		
CHENOPODIUM INCANUM	69	0.01	1.05	0.20	0.00	0.00	0.00	0.00	5.00	1.25		
VERBENA BRACTEATA	53	0.00	0.81	0.16	0.47	0.42	1.07	0.14	7.50	1.75		
PHACELIA CORRUGATA	41	0.00	0.63	0.12	0.10	0.09	0.23	0.03	2.50	1.00		
PLANTAGO PATAGONICA	32	0.00	0.49	0.09	0.12	0.11	0.28	0.04	10.00	1.50		
MENTZELIA ALBICALLIS	30	0.00	0.46	0.09	0.05	0.04	0.11	0.02	10.00	1.50		
TOWNSENDIA ANNUA	23	0.00	0.35	0.07	0.10	0.09	0.23	0.03	5.00	1.25		
ERIGERON FLEXUM	20	0.00	0.31	0.06	0.12	0.11	0.28	0.04	5.00	1.00		
MALCOMIA AFRICANA	14	0.00	0.21	0.04	0.00	0.00	0.00	0.00	2.50	0.25		
IPOMOPSIS GUNNISONII	0	0.00	0.00	0.00	0.07	0.07	0.17	0.02	0.00	0.00		
*** ANNUAL FORB	TOTALS:	6550	0.54	100.02	19.42	44.30	39.52	100.00	13.46			
*** ANNUAL GRASS												
BROMUS TECTORUM	2560	0.21	56.19	7.59	8.87	7.92	50.93	2.70	82.50	41.25		
VULPIA OCTOFLORA	1972	0.16	43.28	5.85	8.45	7.54	48.49	2.57	65.00	27.75		
HORDEUM PUSILLUM	24	0.00	0.53	0.07	0.10	0.09	0.57	0.03	2.50	1.00		
*** ANNUAL GRASS	TOTALS:	4556	0.37	100.00	13.51	17.42	15.55	99.99	5.29			
*** PERENNIAL FORB												
EUPHORBIA FENDLERI	101	0.01	38.70	0.30	0.10	0.09	5.88	0.03	5.00	1.25		
SPHAERALCEA COCCINEA	95	0.01	32.57	0.25	0.27	0.25	16.18	0.08	15.00	2.00		
SPHAERALCEA PARVIFOLIA	31	0.00	11.88	0.09	0.62	0.56	36.76	0.19	10.00	1.00		
PSORALEA LANCEOLATA	20	0.00	7.66	0.06	0.00	0.00	0.00	0.00	2.50	0.25		
HOFFMANSEGGIA JAMESII	10	0.00	3.83	0.03	0.00	0.00	0.00	0.00	2.50	0.25		
PENSTEMON STRICTUS	8	0.00	3.07	0.02	0.42	0.38	25.00	0.13	2.50	0.25		
LEUCELENE ERICOIDES	6	0.00	2.30	0.02	0.07	0.07	4.41	0.02	2.50	0.25		
ASTRAGALUS CERAMICUS	0	0.00	0.00	0.00	0.20	0.18	11.76	0.06	0.00	0.00		
*** PERENNIAL FORB	TOTALS:	261	0.02	100.01	0.77	1.70	1.52	99.99	0.52			
*** PERENNIAL GRASS												
DRYZOPSIS HYMENOIDES	4943	0.41	47.22	14.65	63.20	56.39	46.26	19.20	87.50	49.75		
SPOROBOLUS AIROIDES	3227	0.27	30.83	9.57	46.95	41.89	34.36	14.27	57.50	17.75		
HILARIA JAMESII	1821	0.15	17.40	5.40	12.85	11.46	9.41	3.90	65.00	18.50		
SPOROBOLUS GIGANTEUS	233	0.02	2.23	0.69	11.50	10.26	9.42	3.49	12.50	1.50		

MARCH 10, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-4

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

ARROYO SHRUB

N (COVER) = 40
N (PRD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. -		% OF GROUP PRD.	% OF TOTAL PRD.	CONST.	FREQ.	DENSITY	
					KG/HA	LB/AC					/HA	/AC
*** PERENNIAL GRASS ***												
SITANION HYSTRIX	73	0.01	0.70	0.22	0.10	0.09	0.07	0.03	10.00	1.25		
MUHLENBERGIA PUNGENS	64	0.01	0.61	0.19	0.92	0.83	0.68	0.28	5.00	1.25		
AGROPYRON SMITHII	56	0.00	0.54	0.17	0.25	0.22	0.18	0.08	10.00	1.50		
ARISTIDA PURPUREA	37	0.00	0.35	0.11	0.95	0.76	0.62	0.26	2.50	1.50		
DISTICHLIS SPICATA	13	0.00	0.12	0.04	0.00	0.00	0.00	0.00	2.50	0.25		
*** PERENNIAL GRASS TOTALS:	10467	0.87	100.00	31.03	136.62	121.90	100.00	41.51				
*** PERENNIAL SHRUB ***												
SACROBATUS VERMICULATUS	4425	0.37	37.19	13.12	32.20	29.73	24.95	9.78	55.00	12.25	370.8	150.1
CHRYSOTHAMNUS NAUSEOSUS	4215	0.35	35.42	12.49	65.97	58.86	51.12	20.05	52.50	13.50	791.7	320.4
ATRIPLEX CANESCENS	1233	0.10	10.36	3.65	12.15	10.84	9.41	3.69	32.50	7.50	233.3	94.4
GUTIERREZIA SAROTHRAE	1128	0.09	9.48	3.34	13.12	11.71	10.17	3.99	42.50	10.25	1058.3	428.3
ATRIPLEX CUNEATA	399	0.03	3.35	1.19	3.27	2.92	2.54	1.00	15.00	3.50	162.5	65.8
ATRIPLEX CONFERTIFOLIA	306	0.03	2.57	0.91	1.85	1.65	1.43	0.56	22.50	3.00	225.0	91.1
SUAEDA TORREYANA	128	0.01	1.09	0.39	0.00	0.00	0.00	0.00	2.50	1.00	83.3	33.7
ATRIPLEX CORRUGATA	35	0.00	0.29	0.10	0.20	0.18	0.15	0.06	2.50	0.25	20.8	8.4
EPHEDRA TORREYANA	24	0.00	0.20	0.07	0.00	0.00	0.00	0.00	2.50	0.25	4.2	1.7
CERATOIDES LANATA	8	0.00	0.07	0.02	0.00	0.00	0.00	0.00	2.50	0.25	8.3	3.4
CHRYSOTHAMNUS VISCIDIFLORUS	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.3	3.4
OPUNTIA WHIPPLEI	0	0.00	0.00	0.00	0.27	0.25	0.21	0.08	0.00	0.00	8.3	3.4
YUCCA ANGUSTISSIMA	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.8	8.4
*** PERENNIAL SHRUB TOTALS:	11901	0.99	100.00	35.29	129.05	115.14	99.98	39.21			2995.8	1212.4
ARROYO SHRUB	33735	2.79		100.00	329.10	293.62		100.00			2995.8	1212.4

MARCH 10, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-5

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

BADLANDS

N (COVER) = 40
N (PROD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. -		% OF GROUP PROD.	% OF TOTAL PROD.	CONST.	FREQ.	DENSITY	
					KG/HA	LB/AC					/HA	/AC
*** ANNUAL FORB ***												
SALSOLA KALI/SALSOLA IBERICA	3767	0.31	36.84	27.80	26.42	23.58	31.89	24.03	72.50	32.50		
ATRIPLEX POWELLII	2874	0.24	28.10	21.21	35.52	31.70	42.87	32.30	67.50	34.25		
ERIGERON FLEXUM	1755	0.15	17.14	12.95	7.50	6.78	9.17	6.91	60.00	25.25		
HALOGETON GLOMERATUS	873	0.07	8.54	6.44	8.82	7.87	10.65	8.02	20.00	10.25		
DESCURAINIA PINNATA	329	0.03	3.22	2.43	1.20	1.07	1.45	1.09	35.00	7.25		
LAPPULA REDOWSKII	225	0.02	2.20	1.66	0.45	0.40	0.54	0.41	40.00	6.75		
ATRIPLEX SACCARIA	77	0.01	0.75	0.57	0.72	0.65	0.87	0.66	5.00	1.25		
MENTZELIA ALBICAULIS	67	0.01	0.66	0.49	0.22	0.20	0.27	0.20	5.00	2.25		
PHACELIA CORRUGATA	56	0.00	0.55	0.41	0.52	0.47	0.63	0.48	7.50	1.50		
PLANTAGO PATAGONICA	53	0.00	0.52	0.39	0.15	0.13	0.18	0.14	10.00	1.25		
ERIOGONUM SALSUGINOSUM	41	0.00	0.40	0.30	0.97	0.87	1.18	0.89	5.00	0.50		
CRYPTANTHA CRASSISEPALA	40	0.00	0.39	0.30	0.00	0.00	0.00	0.00	2.50	1.00		
ERIOGONUM DIVARICATUM	22	0.00	0.22	0.16	0.00	0.00	0.00	0.00	2.50	0.25		
GILIA LEPTOMERIA	13	0.00	0.13	0.10	0.00	0.00	0.00	0.00	5.00	0.50		
CLEDOME LUTEA	12	0.00	0.12	0.09	0.25	0.22	0.30	0.23	2.50	0.75		
ERIOGONUM WETHERILLI	10	0.00	0.10	0.07	0.00	0.00	0.00	0.00	2.50	0.25		
MALCOMIA AFRICANA	8	0.00	0.08	0.06	0.00	0.00	0.00	0.00	2.50	0.25		
IPOMOPSIS POLYCLADON	4	0.00	0.04	0.03	0.00	0.00	0.00	0.00	2.50	0.25		
*** ANNUAL FORB TOTALS:	10226	0.84	100.02	75.47	82.87	73.94	100.00	75.36				
*** ANNUAL GRASS ***												
VULPIA OCTOFLORA	149	0.01	55.35	1.10	0.22	0.20	10.11	0.20	7.50	2.75		
BROMIUS TECTORUM	73	0.01	32.02	0.54	1.72	1.54	77.53	1.57	15.00	2.25		
HORDEUM PUSILLUM	6	0.00	2.63	0.04	0.27	0.25	12.36	0.25	2.50	0.25		
*** ANNUAL GRASS TOTALS:	228	0.02	100.00	1.68	2.22	1.99	100.00	2.02				
*** PERENNIAL FORB ***												
SPHAERALCEA COCCINEA	35	0.00	74.47	0.26	0.45	0.40	64.29	0.41	2.50	0.25		
BAHIA OBLONGIFOLIA	12	0.00	25.53	0.09	0.25	0.22	35.71	0.23	2.50	0.25		
*** PERENNIAL FORB TOTALS:	47	0.00	100.00	0.35	0.70	0.62	100.00	0.64				
*** PERENNIAL GRASS ***												
SPOROBOLUS AIROIDES	516	0.04	99.23	3.81	3.52	3.14	100.00	3.21	12.50	2.50		
HILARIA JAMESII	4	0.00	0.77	0.03	0.00	0.00	0.00	0.00	2.50	0.25		
*** PERENNIAL GRASS TOTALS:	520	0.04	100.00	3.84	3.52	3.14	100.00	3.21				
*** PERENNIAL SHRUB ***												
ATRIPLEX CORRUGATA	833	0.07	32.95	6.15	12.12	10.82	58.72	11.03	10.00	1.00	133.3	54.0
ATRIPLEX CONFERTIFOLIA	653	0.06	26.23	4.89	2.75	2.45	13.32	2.50	20.00	3.25	216.7	87.7
ATRIPLEX CUNEATA	523	0.04	20.69	3.86	3.10	2.77	15.01	2.82	20.00	2.75	112.5	45.5

MARCH 10, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-6

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

BADLANDS

N (COVER) = 40
N (PROD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. -		% OF GROUP PROD.	% OF TOTAL PROD.	CONST.	FREQ.	DENSITY	
					KG/HA	LB/AC					/HA	/AC
*** PERENNIAL SHRUB ***												
SUAEDA TORREYANA	248	0.02	9.81	1.83	2.25	2.01	10.90	2.05	2.50	1.25	125.0	50.6
ATRIPLEX CANESCENS	195	0.02	7.71	1.44	0.00	0.00	0.00	0.00	2.50	0.25	62.5	25.3
SACROBATUS VERMICULATUS	26	0.00	1.03	0.19	0.00	0.00	0.00	0.00	2.50	0.25	8.3	3.4
ATRIPLEX OBOVATA	20	0.00	0.79	0.15	0.00	0.00	0.00	0.00	2.50	0.25	16.7	6.7
EPHEDRA VIRIDIS	20	0.00	0.79	0.15	0.00	0.00	0.00	0.00	2.50	0.50	0.0	0.0
GUTIERREZIA SAROTHRAE	0	0.00	0.00	0.00	0.42	0.38	2.06	0.39	0.00	0.00	8.3	3.4
OPUNTIA POLYACANTHA	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.2	1.7
*** PERENNIAL SHRUB TOTALS:	2528	0.21	100.00	18.64	20.65	19.42	100.01	19.78			687.5	278.2
BADLANDS	13549	1.11	100.00	109.97	98.12		100.00				687.5	278.2

MARCH 10, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-7

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

CALCAREOUS SANDS

N (COVER) = 40
N (PROD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. KG/HA	- LB/AC	% OF GROUP PROD.	% OF TOTAL PROD.	CONST.	FREQ.	DENSITY /HA /AC	
*** ANNUAL FORB												
DESCURAINIA PINNATA	6321	0.53	62.59	18.53	35.87	32.01	55.34	11.54	85.00	57.75		
SALSOLA KALI/SALSOLA IBERICA	1407	0.12	13.93	4.12	13.90	12.31	21.29	4.44	60.00	23.00		
GILIA LEPTOMERIA	827	0.07	8.19	2.42	1.47	1.32	2.28	0.47	52.50	18.75		
LAPPULA REDOWSKII	357	0.03	3.54	1.05	4.97	4.35	7.52	1.57	40.00	9.25		
CRYPTANTHA CRASSISEPALA	353	0.03	3.50	1.03	4.80	4.28	7.40	1.54	37.50	8.25		
IPOMOPSIS LONGIFLORA	255	0.02	2.53	0.75	0.62	0.56	0.96	0.20	12.50	6.75		
MENTZELIA ALBICAILIS	194	0.02	1.92	0.57	0.77	0.69	1.20	0.25	32.50	7.50		
ERIGERON FLEXUM	167	0.01	1.65	0.49	1.27	1.14	1.97	0.41	10.00	4.25		
IPOMOPSIS GUNNISONII	152	0.01	1.51	0.45	0.60	0.54	0.93	0.19	12.50	3.00		
CHAENACTIS STEVOIDES	43	0.00	0.43	0.13	0.00	0.00	0.00	0.00	7.50	1.50		
AMBROSIA ACANTHICARPA	9	0.00	0.09	0.03	0.22	0.20	0.35	0.07	2.50	0.50		
PHACELIA CORRUGATA	8	0.00	0.08	0.02	0.00	0.00	0.00	0.00	2.50	0.25		
MALCOMIA AFRICANA	6	0.00	0.06	0.02	0.25	0.22	0.39	0.08	2.50	0.25		
PLANTAGO PATAGONICA	0	0.00	0.00	0.00	0.12	0.11	0.19	0.04	0.00	0.00		
TOWNSENDIA ANNUA	0	0.00	0.00	0.00	0.12	0.11	0.19	0.04	0.00	0.00		
*** ANNUAL FORB	TOTALS:	10099	0.84	100.02	29.60	64.82	57.84	100.01	20.85			
*** ANNUAL GRASS												
BROMUS TECTORUM	321	0.03	92.52	0.94	4.62	4.13	100.00	1.49	40.00	9.50		
HORDEUM PUSILLUM	52	0.00	13.37	0.15	0.00	0.00	0.00	0.00	2.50	1.25		
VULPIA OCTOFLORA	16	0.00	4.11	0.05	0.00	0.00	0.00	0.00	5.00	0.50		
*** ANNUAL GRASS	TOTALS:	389	0.03	100.00	1.14	4.62	4.13	100.00	1.49			
*** BIENNIAL FORB												
MACHERANTHERA CANESCENS	0	0.00		0.00	0.57	0.51	100.00	0.18	0.00	0.00		
*** BIENNIAL FORB	TOTALS:	0	0.00	0.00	0.57	0.51	100.00	0.18				
*** PERENNIAL FORB												
SPHAERALCEA PARVIFOLIA	12	0.00	50.00	0.04	0.12	0.11	22.73	0.04	5.00	0.50		
LEUCELENE ERICOIDES	8	0.00	33.33	0.02	0.30	0.27	54.55	0.10	2.50	0.25		
SPHAERALCEA COCCINEA	4	0.00	16.67	0.01	0.12	0.11	22.73	0.04	2.50	0.25		
*** PERENNIAL FORB	TOTALS:	24	0.00	100.00	0.07	0.55	0.49	100.01	0.18			
*** PERENNIAL GRASS												
DRYZOPSIS HYMENOIDES	7846	0.65	47.18	23.00	80.57	71.89	53.61	25.91	100.00	68.50		
HILARIA JAMESII	4440	0.37	26.70	13.01	26.07	23.26	17.35	9.39	95.00	50.25		
SPOROBOLIUS AIROIDES	4298	0.36	25.84	12.60	42.87	38.25	28.53	13.79	50.00	26.25		
ARISTIDA PURPUREA	18	0.00	0.11	0.05	0.00	0.00	0.00	0.00	2.50	0.25		
MUHLENBERGIA PUNGENS	18	0.00	0.11	0.05	0.32	0.29	0.22	0.10	5.00	0.50		
SPOROBOLUS GIGANTEUS	10	0.00	0.05	0.03	0.00	0.00	0.00	0.00	2.50	0.25		

MARCH 10, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-8

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

CALCAREOUS SANDS

N (COVER) = 40
N (PROD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. -		% OF GROUP PROD.	% OF TOTAL PROD.	CONST.	FREQ.	DENSITY	
					KG/HA	LB/AC					/HA	/AC
*** PERENNIAL GRASS *** HORDEUM JUBATUM	0	0.00	0.00	0.00	0.45	0.40	0.30	0.14	0.00	0.00		
*** PERENNIAL GRASS TOTALS:	16630	1.38	100.00	48.75	150.30	134.10	100.01	48.34				
*** PERENNIAL SHRUB ***												
ATRIPLEX CONFERTIFOLIA	6237	0.52	99.43	18.29	77.52	69.17	85.09	24.93	97.50	41.50	2987.5	1209.0
GUTIERREZIA SAROTHRAE	617	0.05	8.85	1.81	10.77	9.61	11.97	3.47	17.50	5.50	762.5	308.6
CERATOIDES LANATA	51	0.01	0.87	0.18	1.75	1.56	1.94	0.56	5.00	0.75	104.2	42.2
ATRIPLEX CANESCENS	59	0.00	0.85	0.17	0.00	0.00	0.00	0.00	7.50	1.00	41.7	16.9
ATRIPLEX OBOVATA	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.3	3.4
DPUNTIA POLYACANTHA	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.8	8.4
*** PERENNIAL SHRUB TOTALS:	6974	0.58	100.00	20.44	90.05	80.34	100.00	28.96			3925.0	1588.4
CALCAREOUS SANDS	34116	2.83		100.00	310.92	277.40		100.00			3925.0	1588.4

MARCH 10, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-9

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

DUNES

N (COVER) = 40
N (PROD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. - KG/HA LB/AC		% OF GROUP PROD.	% OF TOTAL PROD.	CONST.	FREQ.	DENSITY /HA /AC	
*** ANNUAL FORB ***												
SALSOLA KALI/SALSOLA IBERICA	1270	0.11	39.72	3.86	15.97	14.25	47.90	4.37	52.50	19.00		
DESCURAINIA PINNATA	540	0.05	16.89	1.64	2.27	2.03	6.82	0.62	42.50	11.50		
CRYPTANTHA CRASSISEPALA	497	0.04	15.23	1.49	8.30	7.41	24.89	2.27	20.00	9.50		
ATRIPLEX SACCARIA	170	0.01	5.32	0.52	0.00	0.00	0.00	0.00	2.50	0.25		
AMBROSIA ACANTHICARPA	165	0.01	5.15	0.50	2.10	1.87	6.30	0.57	47.50	7.00		
GILIA LEPTOMERIA	142	0.01	4.44	0.43	0.52	0.47	1.57	0.14	27.50	5.75		
ASTRAGALUS SABULONUM	91	0.01	2.53	0.25	1.95	1.74	5.85	0.53	10.00	1.75		
ERIGERON FLEXUM	67	0.01	2.10	0.20	0.00	0.00	0.00	0.00	5.00	1.75		
STEPHANOMERIA EXIGUA	52	0.00	1.63	0.16	0.00	0.00	0.00	0.00	5.00	1.00		
STREPTANTHELLA LONGITRISTRIS	49	0.00	1.53	0.15	0.07	0.07	0.22	0.02	12.50	1.75		
LYGODESMIA GRANDIFLORA	31	0.00	0.97	0.09	0.00	0.00	0.00	0.00	7.50	1.00		
NAMA HISPIDUM	31	0.00	0.97	0.09	0.00	0.00	0.00	0.00	5.00	0.75		
MENTZELIA ALBICAULIS	28	0.00	0.88	0.09	0.77	0.69	2.32	0.21	2.50	1.25		
MALCOMIA AFRICANA	22	0.00	0.69	0.07	0.82	0.74	2.47	0.23	5.00	0.50		
VERBENA BRACTEATA	18	0.00	0.56	0.05	0.35	0.31	1.05	0.10	5.00	0.75		
PLANTAGO PATAGONICA	14	0.00	0.44	0.04	0.00	0.00	0.00	0.00	2.50	0.75		
DITHYRAEA WISLIZENII	9	0.00	0.29	0.03	0.00	0.00	0.00	0.00	2.50	0.50		
LAPPULA REDONSKII	9	0.00	0.28	0.03	0.10	0.09	0.30	0.03	5.00	0.50		
CHAENACTIS STEVOIDES	6	0.00	0.19	0.02	0.10	0.09	0.30	0.03	2.50	0.25		
IPOMOPSIS POLYCLADON	6	0.00	0.19	0.02	0.00	0.00	0.00	0.00	2.50	0.50		
*** ANNUAL FORB TOTALS:	3197	0.25	100.00	9.71	33.35	29.75	99.99	9.12				
*** ANNUAL GRASS ***												
VULPIA OCTOFLORA	516	0.04	76.67	1.57	1.30	1.16	45.85	0.36	40.00	12.00		
BROMUS TECTORUM	123	0.01	18.28	0.37	1.07	0.96	38.74	0.29	27.50	5.25		
BOUTELOUA BARBATA	34	0.00	5.05	0.10	0.40	0.36	14.41	0.11	2.50	0.50		
*** ANNUAL GRASS TOTALS:	673	0.05	100.00	2.04	2.77	2.48	100.00	0.76				
*** PERENNIAL FORB ***												
ERIOGONUM LEPTOPHYLLUM	352	0.03	27.91	1.07	10.15	9.06	48.62	2.77	27.50	7.00		
PENSTEMON STRICTUS	343	0.03	27.20	1.04	4.67	4.17	22.40	1.28	30.00	6.00		
LEUCILENE ERICOIDES	242	0.02	19.19	0.73	2.57	2.30	12.34	0.70	27.50	5.50		
HOFFMANSEGGIA JAMESII	157	0.01	13.24	0.51	2.42	2.16	11.62	0.66	7.50	0.75		
SPHAERALCEA PARVIFOLIA	64	0.01	5.08	0.19	0.00	0.00	0.00	0.00	12.50	1.50		
SPHAERALCEA COCCINEA	44	0.00	3.49	0.13	0.97	0.78	4.19	0.24	7.50	1.75		
ERIOGONUM LONCHOPHYLLUM	26	0.00	2.06	0.08	0.00	0.00	0.00	0.00	2.50	0.75		
LINUM ARISTATUM	23	0.00	1.82	0.07	0.17	0.16	0.84	0.05	10.00	1.25		
*** PERENNIAL FORB TOTALS:	1261	0.10	99.99	3.83	20.97	19.62	100.01	5.71				
*** PERENNIAL GRASS ***												
DRYZOPSIS HYMENOIDES	10221	0.85	61.74	31.04	132.47	118.19	71.07	36.21	97.50	78.75		

MARCH 10, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-10

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

DUNES

N (COVER) = 40
N (PROD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. -		% OF GROUP PROD.	% OF TOTAL PROD.	CONST.	FREQ.	DENSITY	
					KG/HA	LB/AC					/HA	/AC
*** PERENNIAL GRASS ***												
HILARIA JAMESII	2106	0.19	12.72	6.40	22.50	20.07	12.07	6.15	80.00	43.50		
MUHLENBERGIA PUNGENS	1674	0.14	10.11	5.08	4.75	4.24	2.55	1.30	17.50	6.75		
ARISTIDA PURPUREA	1195	0.10	7.14	3.60	13.05	11.64	7.00	3.57	22.50	9.25		
SPOROBOLUS AIROIDES	696	0.06	4.20	2.11	6.85	6.11	3.67	1.87	22.50	8.50		
HORDEUM JUBATUM	256	0.02	1.55	0.79	5.20	4.64	2.79	1.42	12.50	4.00		
SPOROBOLUS GIGANTEUS	147	0.01	0.89	0.45	0.20	0.18	0.11	0.05	22.50	3.75		
SPOROBOLUS CRYPTANDRUS	135	0.01	0.82	0.41	1.37	1.23	0.74	0.38	10.00	2.50		
MUHLENBERGIA ASPERIFOLIA	131	0.01	0.79	0.40	0.00	0.00	0.00	0.00	2.50	0.50		
AGROPYRON SMITHII	4	0.00	0.02	0.01	0.00	0.00	0.00	0.00	2.50	0.25		
*** PERENNIAL GRASS TOTALS:	16555	1.39	100.00	50.29	186.40	166.30	100.00	50.95				
*** PERENNIAL SHRUB ***												
GUTIERREZIA SAROTHRAE	4446	0.37	39.55	13.50	51.00	45.50	41.65	13.94	55.00	30.50	4125.0	1669.4
CHRYSOTHAMNUS PULCHELLUS	1617	0.13	14.39	4.91	21.72	19.38	17.74	5.94	12.50	4.00	283.3	114.7
ARTEMISIA FILIFOLIA	1463	0.12	13.01	4.44	9.97	8.90	8.15	2.73	15.00	4.50	391.7	158.5
CHRYSOTHAMNUS NAUSEOSUS	1209	0.10	10.74	3.67	11.85	10.57	9.68	3.24	25.00	3.50	191.7	77.6
CHRYSOTHAMNUS GREENEI	804	0.07	7.15	2.44	11.40	10.17	9.31	3.12	20.00	7.50	441.7	178.7
ATRIPLEX CONFERTIFOLIA	506	0.04	4.50	1.54	1.90	1.70	1.55	0.52	5.00	1.25	87.5	35.4
YUCCA ANGUSTISSIMA	362	0.03	3.22	1.10	0.00	0.00	0.00	0.00	5.00	0.50	50.0	20.2
ATRIPLEX CANESCENS	320	0.03	2.85	0.97	6.72	6.00	5.49	1.84	37.50	5.00	216.7	87.7
EPHEDRA TORREYANA	314	0.03	2.79	0.95	2.97	2.65	2.43	0.81	17.50	2.75	112.5	45.5
EPHEDRA VIRIDIS	157	0.01	1.49	0.51	4.90	4.37	4.00	1.34	12.50	1.50	137.5	55.6
DPUNTIA POLYACANTHA	28	0.00	0.25	0.09	0.00	0.00	0.00	0.00	2.50	0.25	29.2	11.8
BACCHARIS WRIGHTII	5	0.00	0.04	0.02	0.00	0.00	0.00	0.00	2.50	0.25	0.0	0.0
CERATOIDES LANATA	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.5	5.1
*** PERENNIAL SHRUB TOTALS:	11241	0.93	99.99	34.14	122.45	109.25	100.00	33.47			6079.2	2460.2
DUNES	32927	2.71	100.00	100.00	365.85	326.41		100.00			6079.2	2460.2

MARCH 10, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-11

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

SANDS

N (COVER) = 40
N (PROD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. -		% OF GROUP PROD.	% OF TOTAL PROD.	CONST.	FREQ.	DENSITY	
					KG/HA	LB/AC					/HA	/AC
*** ANNUAL FORB ***												
SALSOLA KALI/SALSOLA IBERICA	916	0.08	23.26	2.94	13.50	12.04	34.70	4.48	60.00	19.25		
PLANTAGO PATAGONICA	699	0.06	17.75	2.24	9.57	9.54	24.61	3.18	35.00	12.50		
CRYPTANTHA CRASSISEPALA	655	0.05	16.63	2.10	7.22	6.45	18.57	2.40	45.00	15.50		
GILIA LEPTOMERIA	612	0.05	15.54	1.96	2.35	2.10	6.04	0.78	47.50	14.75		
LAPPULA REDOWSKII	373	0.03	9.47	1.20	1.52	1.36	3.92	0.51	27.50	8.50		
DESCURAINIA SOPHIA	360	0.03	9.14	1.15	2.82	2.52	7.26	0.94	5.00	2.25		
DESCURAINIA PINNATA	127	0.01	3.22	0.41	0.00	0.00	0.00	0.00	20.00	3.75		
ERIGERON FLEXUM	110	0.01	2.79	0.35	1.67	1.49	4.31	0.56	5.00	2.00		
IPOMOPSIS GUNNISONII	42	0.00	1.07	0.13	0.00	0.00	0.00	0.00	7.50	1.00		
MENTZELIA ALBICAULIS	25	0.00	0.63	0.08	0.00	0.00	0.00	0.00	7.50	1.00		
ATRIPLEX POWELLII	7	0.00	0.18	0.02	0.00	0.00	0.00	0.00	2.50	0.25		
IPOMOPSIS LONGIFLORA	7	0.00	0.19	0.02	0.00	0.00	0.00	0.00	2.50	0.25		
MALCOMIA AFRICANA	5	0.00	0.13	0.02	0.22	0.20	0.58	0.07	2.50	0.25		
*** ANNUAL FORB TOTALS:	3938	0.32	99.99	12.62	38.90	34.71	99.99	12.91				
*** ANNUAL GRASS ***												
VULPIA OCTOFLORA	3453	0.29	96.08	11.07	20.27	19.09	99.51	6.73	52.50	32.50		
BROMUS TECTORUM	127	0.01	3.53	0.41	0.10	0.09	0.49	0.03	37.50	6.75		
BOUTELOUA BARBATA	14	0.00	0.39	0.04	0.00	0.00	0.00	0.00	2.50	0.25		
*** ANNUAL GRASS TOTALS:	3594	0.30	100.00	11.52	20.37	19.18	100.00	6.76				
*** PERENNIAL FORB ***												
LEUCELENE ERICOIDES	154	0.01	38.50	0.49	1.42	1.27	56.44	0.47	17.50	3.75		
BAHIA OBLONGIFOLIA	93	0.01	23.25	0.30	0.00	0.00	0.00	0.00	2.50	0.50		
PENSTEMON STRICTUS	58	0.00	14.50	0.19	0.90	0.80	35.64	0.30	12.50	1.25		
ERIOGONUM LEPTOPHYLLUM	46	0.00	11.50	0.15	0.00	0.00	0.00	0.00	5.00	0.50		
ABRONIA FRAGRANS	22	0.00	5.50	0.07	0.00	0.00	0.00	0.00	2.50	0.25		
LINUM ARISTATUM	19	0.00	4.75	0.06	0.10	0.09	3.96	0.03	5.00	0.75		
SPHAERALDEA COCCINEA	8	0.00	2.00	0.03	0.10	0.09	3.96	0.03	2.50	0.25		
*** PERENNIAL FORB TOTALS:	400	0.02	100.00	1.28	2.52	2.25	100.00	0.84				
*** PERENNIAL GRASS ***												
ORYZOPSIS HYMENOIDES	8202	0.69	46.11	26.29	67.50	60.22	44.48	22.40	85.00	49.75		
SPOROBOLUS AIROIDES	5588	0.47	31.42	17.91	53.07	47.35	34.98	17.62	72.50	39.75		
HILARIA JAMESII	3694	0.31	20.77	11.84	28.77	25.67	19.96	9.55	95.00	59.25		
ARISTIDA PURPUREA	277	0.02	1.56	0.89	2.40	2.14	1.58	0.80	20.00	4.00		
AGROPYRON SMITHII	18	0.00	0.10	0.06	0.00	0.00	0.00	0.00	2.50	0.50		
MUHLENBERGIA PUNGENS	8	0.00	0.04	0.03	0.00	0.00	0.00	0.00	2.50	0.25		
*** PERENNIAL GRASS TOTALS:	17787	1.48	100.00	57.02	151.75	135.39	100.00	50.37				

MARCH 10, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-12

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

SANDS

N (COVER) = 40
N (PROD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. -		% OF GROUP PROD.	% OF TOTAL PROD.	CONST.	FREQ.	DENSITY	
					KG/HA	LB/AC					/HA	/AC
*** PERENNIAL SHRUB ***												
GUTIERREZIA SAROTHRAE	3198	0.27	58.23	10.22	47.40	42.29	54.03	15.73	70.00	34.75	4316.7	1746.9
ATRIPLEX CONFERTIFOLIA	1006	0.08	18.37	3.22	32.60	29.09	37.16	10.82	22.50	5.50	220.8	89.4
ATRIPLEX CUNEATA	498	0.04	8.91	1.56	4.25	3.79	4.84	1.41	10.00	1.75	54.2	21.9
EPHEDRA TORREYANA	363	0.03	6.63	1.16	0.00	0.00	0.00	0.00	5.00	0.50	12.5	5.1
ATRIPLEX CANESCENS	354	0.03	6.47	1.13	3.47	3.10	3.96	1.15	15.00	2.50	112.5	45.5
EPHEDRA VIRIDIS	35	0.00	0.64	0.11	0.00	0.00	0.00	0.00	2.50	0.25	4.2	1.7
PARRYELLA FILIFOLIA	26	0.00	0.47	0.08	0.00	0.00	0.00	0.00	2.50	0.50	20.8	8.4
SACROBATUS VERMICULATUS	15	0.00	0.27	0.05	0.00	0.00	0.00	0.00	2.50	0.25	16.7	6.7
ATRIPLEX CORRUGATA	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.7	6.7
ATRIPLEX OBOVATA	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.5	5.1
CERATOIDES LANATA	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.5	5.1
CHRYSOTHAMNUS NAUSEOSUS	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.8	8.4
OPUNTIA POLYACANTHA	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.3	13.5
YUCCA ANGUSTISSIMA	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.3	3.4
*** PERENNIAL SHRUB TOTALS:	5475	0.45	99.99	17.55	87.72	78.27	99.99	29.12			4862.5	1967.8
SANDS	31194	2.57		100.00	301.27	268.79		100.00			4862.5	1967.8

MARCH 1987

NAVAJO MOUNTAIN
VEGETATION DATA REPORTING
1986

16-I-13

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

SALINE SANDS

N (COVER) = 40
N (PROD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. -		% OF GROUP PROD.	% OF TOTAL PROD.	CONST.	FREQ.	DENSITY	
					KG/HA	LB/AC					/HA	/AC
*** ANNUAL FORB ***												
SALSOLA KALI/SALSOLA IBERICA	1933	0.16	37.86	5.23	10.77	9.61	41.52	4.11	60.00	24.75		
DESCURAINIA PINNATA	875	0.07	17.14	2.37	2.75	2.45	10.60	1.05	50.00	18.50		
CRYPTANTHA CRASSISEPALA	857	0.07	16.98	2.34	6.42	5.73	24.76	2.45	45.00	13.25		
GILIA LEPTOMERIA	700	0.06	13.71	1.89	1.70	1.52	6.55	0.65	47.50	20.75		
LAPPULA REDOWSKII	145	0.01	2.84	0.39	1.67	1.49	6.45	0.64	27.50	4.00		
ERIGERON FLEXUM	136	0.01	2.66	0.37	0.00	0.00	0.00	0.00	7.50	2.00		
PLANTAGO PATAGONICA	117	0.01	2.29	0.32	1.40	1.25	5.39	0.53	20.00	3.75		
PHACELIA CORRUGATA	106	0.01	2.08	0.29	0.25	0.22	0.96	0.10	15.00	3.50		
MALCOMIA AFRICANA	92	0.01	1.61	0.22	0.00	0.00	0.00	0.00	10.00	1.00		
IPOMOPSIS POLYCLADON	50	0.00	0.98	0.14	0.32	0.29	1.25	0.12	7.50	1.50		
CHENOPODIUM INCANUM	30	0.00	0.59	0.09	0.00	0.00	0.00	0.00	2.50	0.25		
MENTZELIA ALBICAILIS	20	0.00	0.39	0.05	0.00	0.00	0.00	0.00	7.50	0.75		
IPOMOPSIS GUNNISONII	11	0.00	0.22	0.03	0.25	0.22	0.96	0.10	5.00	0.50		
ATRIPLEX POWELLII	9	0.00	0.18	0.02	0.10	0.09	0.39	0.04	5.00	0.50		
IPOMOPSIS LONGIFLORA	8	0.00	0.16	0.02	0.05	0.04	0.19	0.02	2.50	0.25		
HALOGETON GLOMERATUS	5	0.00	0.10	0.01	0.25	0.22	0.96	0.10	2.50	0.25		
CHAENACTIS STEVOIDES	4	0.00	0.09	0.01	0.00	0.00	0.00	0.00	2.50	0.25		
ERIOGONUM DIVARICATUM	3	0.00	0.06	0.01	0.00	0.00	0.00	0.00	2.50	0.25		
CLEOME LUTEA	2	0.00	0.04	0.01	0.00	0.00	0.00	0.00	2.50	0.25		
ERIOGONUM SALSUGINOSUM	2	0.00	0.04	0.01	0.00	0.00	0.00	0.00	2.50	0.25		
*** ANNUAL FORB TOTALS:	5105	0.41	100.01	13.80	25.95	23.15	99.98	9.89				
*** ANNUAL GRASS ***												
VULPIA OCTOFLORA	5098	0.42	92.01	13.76	17.57	15.68	90.36	6.70	55.00	35.00		
BROMUS TECTORUM	442	0.04	7.99	1.20	1.87	1.67	9.64	0.71	42.50	10.25		
*** ANNUAL GRASS TOTALS:	5530	0.46	100.00	14.95	19.45	17.35	100.00	7.41				
*** PERENNIAL FORB ***												
SPHAERALCEA COCCINEA	73	0.01	94.89	0.20	0.00	0.00	0.00	0.00	7.50	0.75		
LEUCELENE ERICOIDES	13	0.00	15.12	0.04	0.00	0.00	0.00	0.00	2.50	0.25		
SPHAERALCEA PARVIFOLIA	0	0.00	0.00	0.00	0.10	0.09	100.00	0.04	0.00	0.00		
*** PERENNIAL FORB TOTALS:	96	0.01	100.00	0.23	0.10	0.09	100.00	0.04				
*** PERENNIAL GRASS ***												
SPOROBOLUS AIROIDES	10934	0.91	50.96	29.57	74.62	66.58	49.62	28.45	85.00	51.25		
ORYZOPSIS HYMENOIDES	6467	0.54	30.14	17.49	55.42	49.45	36.85	21.13	75.00	40.75		
HILARIA JAMESII	3856	0.32	17.97	10.43	19.32	17.24	12.85	7.37	85.00	43.75		
ARISTIDA PURPUREA	201	0.02	0.94	0.54	1.02	0.91	0.68	0.39	10.00	1.75		
*** PERENNIAL GRASS TOTALS:	21458	1.79	100.01	58.02	150.40	134.19	100.00	57.33				

MARCH 10, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-14

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

SALINE SANDS

N (COVER) = 40
N (PROD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. -		% OF GROUP PROD.	% OF TOTAL PROD.	CONST.	FREQ.	DENSITY	
					KG/HA	LB/AC					/HA	/AC
*** PERENNIAL SHRUB ***												
ATRIPLEX CONFERTIFOLIA	1365	0.11	28.43	3.69	10.17	9.08	15.32	3.88	27.50	7.75	425.0	172.0
SACROBATUS VERMICULATUS	1315	0.11	27.38	3.56	25.50	22.75	38.39	9.72	7.50	1.00	16.7	6.7
GUTIERREZIA SAROTHRAE	1278	0.11	26.61	3.46	19.07	17.02	28.72	7.27	30.00	9.50	1150.0	465.4
ATRIPLEX CUNEATA	532	0.04	11.08	1.44	7.52	6.71	11.33	2.87	10.00	2.50	145.8	59.0
ATRIPLEX OBOVATA	150	0.01	3.12	0.41	4.15	3.70	6.25	1.58	2.50	0.75	54.2	21.9
CERATOIDES LANATA	95	0.01	1.98	0.26	0.00	0.00	0.00	0.00	2.50	0.25	25.0	10.1
OPUNTIA POLYACANTHA	42	0.00	0.87	0.11	0.00	0.00	0.00	0.00	2.50	0.25	20.8	8.4
ATRIPLEX CANESCENS	25	0.00	0.52	0.07	0.00	0.00	0.00	0.00	5.00	0.50	16.7	6.7
CHRYSOTHAMNUS MAUSEDUS	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.7	6.7
EPHEDRA TORREYANA	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.2	1.7
LYCIUM PALLIDUM	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.5	5.1
*** PERENNIAL SHRUB TOTALS:	4802	0.39	99.99	12.99	66.42	59.26	100.01	25.32			1887.5	763.9
SALINE SANDS	36981	3.06	100.00	100.00	262.32	234.04		100.00			1887.5	763.9

MARCH 10, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-15

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

THINBREAKS

N (COVER) = 40
N (PROD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. -		% OF GROUP PROD.	% OF TOTAL PROD.	CONST.	FREQ.	DENSITY	
					KG/HA	LB/AC					/HA	/AC
*** ANNUAL FORB ***												
SALSOLA KALI/SALSOLA IBERICA	3204	0.27	45.71	16.02	17.97	16.04	35.47	10.56	70.00	38.25		
DESCURAINIA PINNATA	734	0.06	10.47	3.67	3.97	3.55	7.84	2.33	67.50	20.75		
HALOGETON GLOMERATUS	705	0.06	10.06	3.52	8.25	7.36	16.28	4.85	35.00	12.25		
ERIGERON FLEXUM	697	0.06	9.94	3.49	2.40	2.14	4.74	1.41	32.50	11.25		
ATRIPLEX POWELLII	434	0.04	6.19	2.17	8.45	7.54	16.67	4.96	22.50	8.75		
PHACELIA CORRUGATA	414	0.03	5.91	2.07	3.92	3.41	7.55	2.25	37.50	10.75		
CHAENACTIS STEVOIDES	188	0.02	2.68	0.94	1.05	0.94	2.07	0.62	12.50	5.00		
LAPPULA REDOWSKII	156	0.01	2.37	0.83	0.32	0.29	0.64	0.19	30.00	6.75		
ERIOGONUM SALSUGINOSUM	152	0.01	2.17	0.76	0.97	0.87	1.92	0.57	5.00	2.25		
PLANTAGO PATAGONICA	102	0.01	1.46	0.51	0.95	0.76	1.68	0.50	10.00	3.75		
GILIA LEPTOMERIA	49	0.00	0.70	0.24	0.00	0.00	0.00	0.00	5.00	1.25		
AMBROSIA ACANTHICARPA	44	0.00	0.63	0.22	0.00	0.00	0.00	0.00	7.50	1.25		
ERIOGONUM DIVARICATUM	38	0.00	0.54	0.19	0.27	0.25	0.54	0.16	2.50	1.50		
IPOMOPSIS GUNNISONII	35	0.00	0.50	0.17	1.22	1.09	2.42	0.72	10.00	1.00		
MENTZELIA ALBICAILIS	21	0.00	0.30	0.10	0.12	0.11	0.25	0.07	7.50	1.00		
ATRIPLEX SACCARIA	14	0.00	0.20	0.07	0.52	0.47	1.04	0.31	2.50	0.50		
IPOMOPSIS LONGIFLORA	8	0.00	0.11	0.04	0.00	0.00	0.00	0.00	2.50	0.25		
CLEOME LUTEA	5	0.00	0.07	0.02	0.00	0.00	0.00	0.00	2.50	0.25		
IPOMOPSIS POLYCLADON	0	0.00	0.00	0.00	0.45	0.40	0.89	0.26	0.00	0.00		
*** ANNUAL FORB TOTALS:	7010	0.57	100.01	35.04	50.67	45.21	100.00	29.76				
*** ANNUAL GRASS ***												
VULPIA OCTOFLORA	257	0.02	52.05	1.33	0.40	0.36	45.71	0.23	7.50	2.25		
BROMUS TECTORUM	246	0.02	47.95	1.23	0.47	0.42	54.29	0.28	17.50	4.50		
*** ANNUAL GRASS TOTALS:	513	0.04	100.00	2.56	0.87	0.78	100.00	0.51				
*** PERENNIAL FORB ***												
BAHIA OBLONGIFOLIA	274	0.02	56.49	1.37	2.97	2.65	78.29	1.75	7.50	2.00		
SPHAERALCEA COCCINEA	141	0.01	29.07	0.70	0.82	0.74	21.71	0.48	15.00	2.00		
ASTRAGALUS LONCHOCARPUS	32	0.00	6.60	0.16	0.00	0.00	0.00	0.00	2.50	0.25		
ERIOGONUM CORYMBOSUM	16	0.00	3.30	0.08	0.00	0.00	0.00	0.00	2.50	0.25		
SPHAERALCEA PARVIFOLIA	13	0.00	2.69	0.06	0.00	0.00	0.00	0.00	2.50	0.25		
ERIOGONUM LEPTOPHYLLUM	9	0.00	1.86	0.04	0.00	0.00	0.00	0.00	2.50	0.25		
*** PERENNIAL FORB TOTALS:	485	0.03	100.00	2.42	3.80	3.39	100.00	2.23				
*** PERENNIAL GRASS ***												
SPOROBOLUS AIROIDES	1350	0.11	44.25	6.75	13.30	11.87	69.18	7.81	35.00	9.25		
HILARIA JAMESII	1048	0.09	34.35	5.24	0.87	0.78	4.55	0.51	45.00	9.25		
ORYZOPSIS HYMENOIDES	653	0.05	21.40	3.23	5.05	4.51	26.27	2.97	30.00	7.00		
*** PERENNIAL GRASS TOTALS:	3051	0.25	100.00	15.25	19.22	17.15	100.00	11.29				

MARCH 10, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

16-I-16

COVER, PRODUCTION, CONSTANCY, FREQUENCY, AND SHRUB DENSITY BY SPECIES

UNDISTURBED AREAS

THINBREAKS

N (COVER) = 40
N (PROD.) = 40

SPECIES	COVER (MM.)	COVER (%)	% OF GROUP COVER	% OF TOTAL COVER	- DRY PRODUCT. -		% OF GROUP PROD.	% OF TOTAL PROD.	CONST.	FREQ.	DENSITY	
					KG/HA	LB/AC					/HA	/AC
XXX PERENNIAL SHRUB XXX												
ATRIPLEX CONFERTIFOLIA	7056	0.59	78.87	35.27	57.60	51.39	60.19	33.83	72.50	29.25	2095.8	848.2
GUTIERREZIA SAROTHRAE	1196	0.10	13.23	5.93	11.45	10.22	11.96	6.72	37.50	9.50	812.5	328.8
ATRIPLEX CORRUGATA	294	0.02	3.29	1.47	13.10	11.69	13.69	7.69	7.50	3.75	266.7	107.9
ATRIPLEX CLINEATA	193	0.02	2.14	0.94	10.65	9.50	11.13	6.25	10.00	1.75	100.0	40.5
SUAEDA TORREYANA	163	0.01	1.82	0.81	2.47	2.21	2.59	1.45	10.00	1.00	58.3	23.6
ATRIPLEX OBOVATA	25	0.00	0.28	0.12	0.42	0.38	0.44	0.25	2.50	0.50	37.5	15.2
ATRIPLEX CANESCENS	16	0.00	0.18	0.08	0.00	0.00	0.00	0.00	2.50	0.75	33.3	13.5
OPUNTIA POLYACANTHA	13	0.00	0.15	0.06	0.00	0.00	0.00	0.00	2.50	0.25	29.2	11.8
BACCHARIS WRIGHTII	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.3	3.4
EPHEDRA TORREYANA	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.3	3.4
XXX PERENNIAL SHRUB TOTALS:	8946	0.74	100.01	44.72	95.70	85.38	100.00	54.20			3450.0	1396.2
THINBREAKS	20005	1.63		100.00	170.27	151.92		100.00			3450.0	1396.2

76-I-17

DECEMBER 15, 1987

NAVAJO MINE
VEGETATION DATA REPORTING
1986

PAGE 1

SUMMARY OF RANGE STATISTICAL TOTALS -- UNDISTURBED AREAS

	----- % COVER & (% TOTAL COVER) -----			--- DRY PRODUCTION IN #/ACRE & (% TOTAL PROD.) ---			SHRUB DENS. (UNIT/ACRE)
	HERBACEOUS	SHRUB	TOTAL	HERBACEOUS	SHRUB	TOTAL	
ALKALI WASH	1.13 (63.32)	0.53 (31.68)	1.65	57.06 (52.70)	73.13 (47.30)	155.19	524.4
ARRUYO SHRUB	1.79 (64.32)	0.98 (35.25)	2.77	178.48 (60.79)	115.14 (39.21)	293.62	1205.7
BADLANDS	0.90 (81.34)	0.21 (18.66)	1.11	79.69 (81.22)	13.42 (18.78)	98.12	278.2
CALCAREOUS SANDS	2.25 (79.56)	0.58 (20.44)	2.83	197.05 (71.04)	80.34 (28.96)	277.40	1588.4
DUNES	1.78 (65.86)	0.93 (34.14)	2.71	217.16 (66.53)	109.25 (33.47)	326.41	2460.2
SANDS	2.07 (60.26)	0.45 (17.55)	2.52	190.53 (70.80)	78.27 (29.12)	268.79	1967.8
SALINE SANDS	2.67 (87.01)	0.39 (12.99)	3.05	174.78 (74.58)	59.26 (25.32)	234.04	763.9
THINBREAKS	0.89 (55.28)	0.74 (44.72)	1.63	66.54 (43.50)	85.38 (56.20)	151.92	1396.2

Appendix 15.B

Floristic Survey and Ecological Study of BHP Area 4 North,
San Juan County, 2004

**FLORISTIC SURVEY AND ECOLOGICAL STUDY OF BHP
AREA IV, SAN JUAN COUNTY, NEW MEXICO**



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November 2004

1.0 INTRODUCTION

This vegetation resource baseline report has been prepared to update permitting information pertinent to the continuation of coal extraction in Area IV North of Navajo Mine on the Navajo Reservation, approximately 15 miles southwest of Farmington, New Mexico. Specifically, this vegetation baseline report addresses the entire existing Area IV North lease area totaling approximately 4,000 acres. This baseline data has been collected to provide the Office of Surface Mining (OSM) with current vegetation data necessary to prepare National Environmental Protection Act (NEPA) documentation for continued coal extraction in Area IV North. The data was collected in May, 2004. With this purpose in mind the following ecological research and floristic inventory objectives were deemed as essential: 1.) Conduct an ecological study estimating the structure (cover, density, and frequency) of the natural scrubland vegetation in Area IV; 2.) Undertake a floristic survey to identify all vascular plant species that occur in Area IV; 3.) Assess the presence or absence of plants with special protection or conservation status according to Federal, State, and Navajo Nation wildlife management agencies.

2.0 STUDY AREA

2.1 Location

Area IV North is found on the Hogback S, Kirtland SW, Newcomb NE, and The Pillar NW 7.5-minute USGS Quadrangles (Figure 1).

2.2 Area IV Vegetation Community Types

Ecologists categorize the natural vegetation in Area IV as Great Basin Desertscrub (Brown, 1994). This type of vegetation is known as “cold desert”, a name assigned due to the climatic combination of cold winters, low precipitation (less than 250 mm/yr), and wide fluctuations in both daily and seasonal temperature extremes. Eight months of each year have monthly rainfall averages between 12 and 17 mm. The four months with monthly rainfall amounts greater than 20 mm (20-30 mm per month) are July to October. Maximum daily temperatures remain below freezing during many days of the three coldest months: December, January and February.

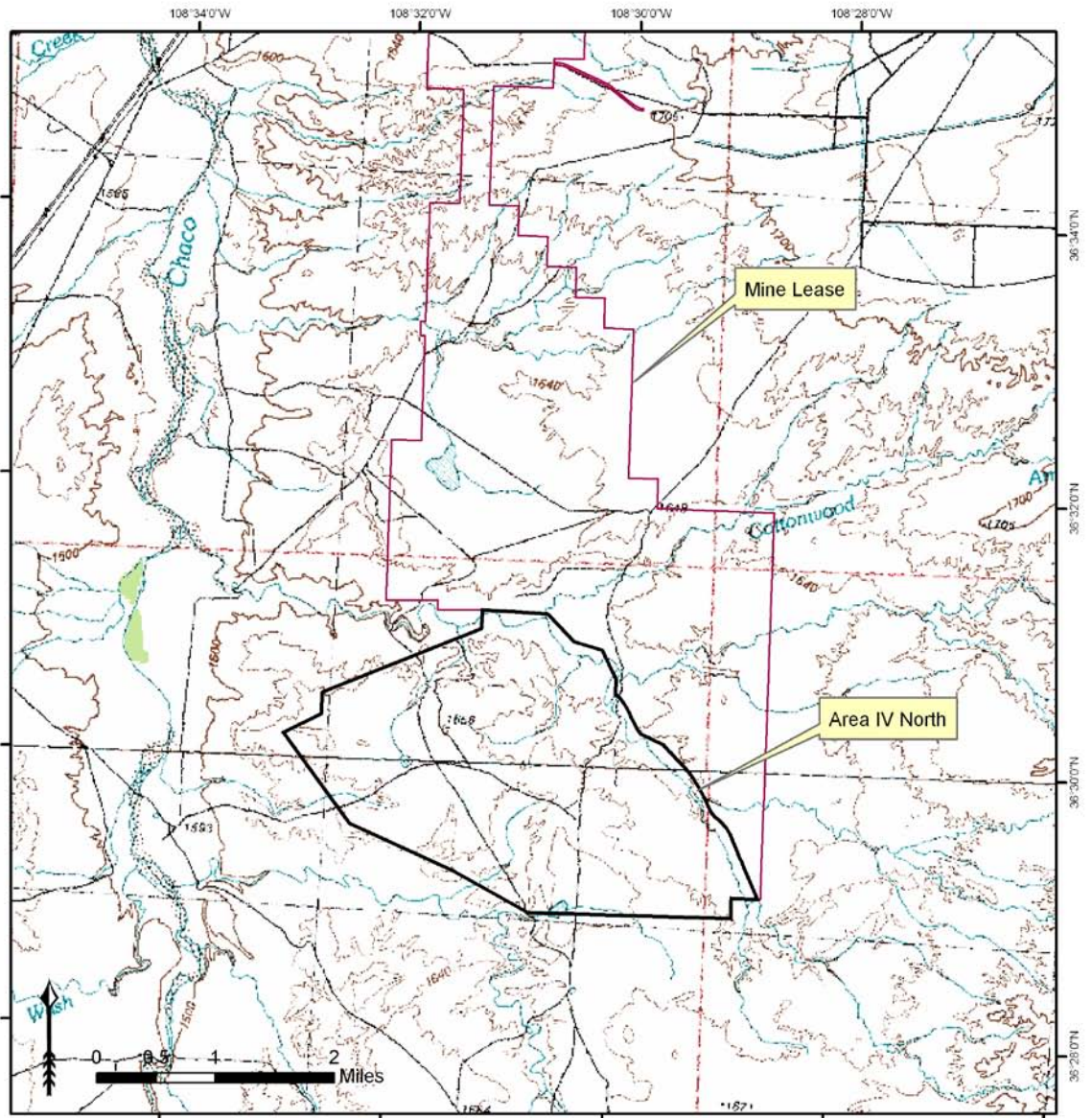


FIGURE 1

**VICINITY MAP
AREA IV NORTH**



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The Great Basin Desertscrub is characteristically dominated by halophytes and has few cacti (Brown, 1994). Both these statements are true for Area IV where six species of *Atriplex* often occur as dominants and where there are only two cacti species. The only cacti present are the infrequent *Opuntia polyacantha* (plains prickly pear) and an even more infrequent *Sclerocactus cloveriae* subsp *cloveriae* (clover fishhook cactus). *Atriplex confertifolia* (shadescale), *Atriplex gardneri* (Gardner saltbush), *Ericameria nauseosus* (rubber rabbitbrush), *Gutierrezia sarothrae* (snakeweed), *Sarcobatus vermiculatus* (black greasewood), *Pleuraphis jamesii* (galleta), and *Sporobolus airoides* (alkali sacaton) are locally common in Area IV. This makes Area IV a part of the shadescale series of the Great Basin Desertscrub (Brown, 1994).

As a whole, the plant species diversity of this Great Basin Desertscrub series is typically less than other types of desert scrublands. Within the shadescale series of the Great Basin Desertscrub (Area IV) there is considerable variation in plant species diversity among habitats. For example, sand dunes have much greater species diversity than badlands. In recognition of variations in species richness that can occur among habitats, six habitat types within the Great Basin Desertscrub of Area IV were identified from aerial photographs (Figure 2). Although many of the more than 160 plant species that occur here are present in two or more habitats, each habitat had a few unique or characteristic plant species and a few are listed as characteristic of two habitats. The following brief descriptions list a few of the more characteristic or unique plant species for each habitat. These six habitats are listed in descending order, beginning with the habitat with the greatest species richness and amount of vegetation and proceeding to the habitat with less vegetation and with fewer plant species.

2.2.1 Dunes

The deep sands of dunes allows for deep, but more consistent water availability. Since only deep-rooted perennial plants can exploit this deep water, the dunes have several unique plant species. Among the unique dune plant species are *Ericameria nauseosa* var. *arenaria* (sand rabbitbrush), *Chrysothamnus pulchellus*, *Evolvulus nuttallianus*, *Dalea leporina*, and *Caesalpinia jamesii*. Besides these species, *Abonia fragrans* and *Mentzelia pumila* are perennials that can be locally abundant on dunes.

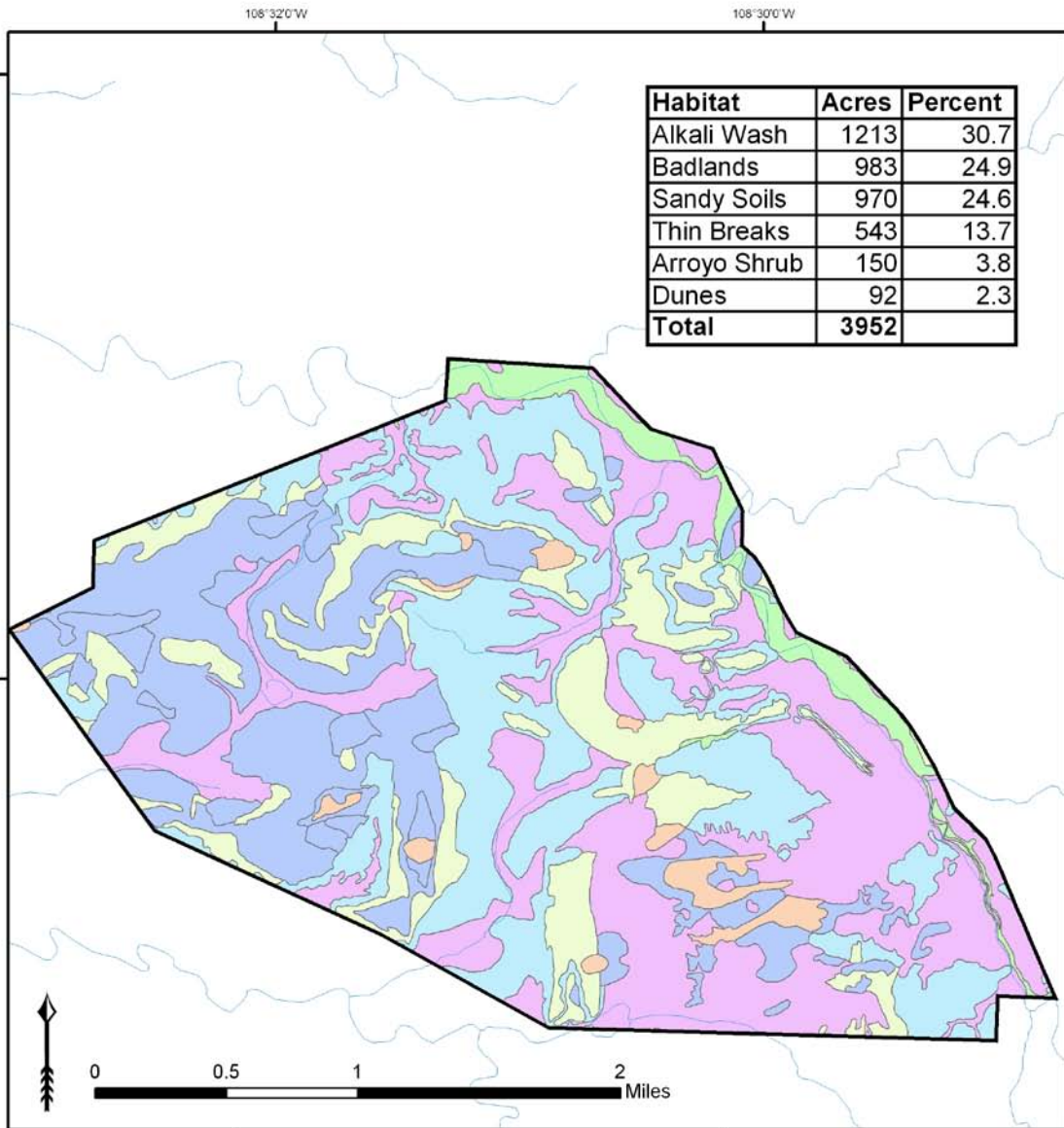


FIGURE 2

**HABITAT TYPES
AREA IV NORTH**



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Legend

Habitat Type

- Alkali Wash
- Arroyo Shrub
- Badlands
- Dunes
- Sandy Soils
- Thin Breaks

2.2.2 Sandy Soils

Sandy soils comprise the largest proportion of Area IV. As with dunes, the deeper penetration of rainwater into sandy soil allows for greater water availability and increases plant species diversity. The types of sand in this habitat can vary from saline to calcareous. This sand habitat often transitions to and can be mixed with thin break habitat. In years with high amounts of spring rainfall, such as the spring of 2004, sandy soils display an abundance of annuals, especially of *Phacelia crenulata*, *Townsendia annua*, and *Cryptantha crassisejala*. To a lesser extent *Dimorphocarpa wislizenii* (spectacle pod), *Malacothrix sonchoides* (desert dandelion), and *Streptanthella longirostris* are common. In regard to shrubs *Ephedra torreyana* (Torrey ephedra) and *Krascheninnidovia lanata* (winterfat) occur on sandy soils.

2.2.3 Arroyo Shrub

This is the habitat of major waterways, such as Pinabete and Cottonwood Creeks. Shrubs and perennials characteristic of this Area IV habitat include *Sarcobatus vermiculatus* (greasewood), *Isocoma azteca* (burroweed), *Psoralidium lanceolatum* (lemon scurf-pea), *Cycloloma atriplicifolia* (winged pigweed), *Parryella filifolia* (dune), *Lycium pallidum* (wolfberry), and *Distichlis spicata* (saltgrass). Also established along major waterways and behind checkdams is the exotic *Tamarix chinensis* (salt cedar) and the poisonous *Suckleya suckleyana* (poison suckleya).

2.2.4 Alkali Wash

This is the habitat of minor waterways. These areas can be broad and level, sometimes with small, dense patches of *Pleuraphis jamesii* (galleta) and *Sporobolus airoides* (alkali sacaton). Other plants that are locally common in alkali washes include *Chamaesaracha coronpus* (false nightshade), *Lycium pallidum* (wolfberry), *Eriogonum corymbosum* (corymb buckwheat), *Monolepis nuttalliana* (poverty weed), *Eremopyrum triticeum* (annual wheatgrass), and *Suaeda moquini* (seepweed).

2.2.5 Thin Breaks

These are rocky areas, sometimes with loose rock and sometimes with large pieces of rock, usually shale, that are firmly embedded in the ground. Thin breaks are typically upland habitats,

with surface rock as a unifying feature. Flat surface rocks allow for greater water to runoff and to accumulate in crevices or fissures between rocks. Thin-break plant species that occur in these fissures include *Artemisia bigelovii* (Bigelow sagebrush), *Brickellia oblongifolia* (Mojave brickellbush), *Euphorbia fendleri* (Fendler's spurge) and *Platyschkuhria integrifolia* (obling bahia). This habitat can abruptly shift to another habitat type or gradually shift to badlands or sandy soil habitats.

2.2.6 Badlands

The badlands have the least vegetation of any Area IV habitat. Among the more common plants along the small relief channels of these barren areas are *Atriplex gardnerii* (Gardner's saltbush), *Atriplex powellii* (Powell's saltbush), *Cleome lutea* (yellow beeplant), *Camissonia scapoidea*, and *Monolepis nuttalliana* (poverty weed). This habitat can abruptly shift to another habitat type or gradually transition to alkali wash or thin break habitats.

3.0 STUDY METHODS

Vegetation structure is essential baseline data, especially when an area is destined for revegetation. With this purpose in mind, the vegetation information of greatest interest for this study is plant cover, plant density and frequency. To estimate these aspects of vegetation structure it is necessary to obtain ecological data from field plots. The timing of this fieldwork was in May (May 5-16, 2004). This was the optimal time to estimate both annual and perennial plant cover, density and frequency.

3.1 Ecological Study

Before fieldwork began 197 plot locations were randomly designated. This number of plots allowed each plot to represent about 20 hectares, a fairly intensive sampling scheme. Plot locations were selected at random to ensure that data points were representative of the entire area. Plot locations were selected by plotting computer-generated random coordinates onto a map of Area IV. After these 197 randomly generated points were plotted on a map, the proportion of plots in each of the six major habitat types was calculated. These proportions were: 5% dune, 21% thin break, 30 % sand, 21% badland, 20% alkali wash and 8% arroyo shrub. With one exception these proportions were similar to the overall proportions of land with this habitat. The

exception was the arroyo shrub, a habitat that was somewhat under-represented by plots. To compensate for this random under sampling, two additional arroyo shrub plots were established. These two additions increased the total number of study plots in Area IV to 199 (Figure 3).

Plots points were located in the field by the use of detailed U.S. Geological Survey (USGS) 7.5-minute quadrangle maps. Global positioning systems (G.P.S.) were used to triangulate signals from satellites and thereby locate random plots in areas where landmarks were scarce. Once a plot was located a portable G.P.S. was used to determine the Universal Transverse Mercator (U.T.M.) coordinates of the plot. The U.T.M. coordinates, date, plot number, and names of the field investigators were recorded on field data sheets.

After a plot point was located in the field, a decision had to be made regarding the direction to extend a 30 m line transect, the line that would also be the central axis for a temporary plot. This direction to extend the transect line from the starting point was determined by selecting an azimuth direction from a table of randomly generated azimuth numbers. This random number was the compass heading direction where the transect line was extended. On a few occasions, the random azimuth direction extended into another habitat type. When this happened, another azimuth number was randomly selected until an azimuth heading was a line that was within a single habitat type.

To determine shrub densities, the number and species of all shrubs rooted within one meter of the 30 transect line were tallied and recorded. For each plot the shrub density figures are from this rectangular plot (30 x 2 meters in size) that covers an area of 60 m². For each shrub species present within the 30 x 2 meter plot, the height of one individual was recorded. The individual measured for height was the one closest to the beginning point of the line transect.

Next, the canopy intercept distance (cover) along the entire 30 m length of the transect line was recorded to the nearest centimeter. This was done by visually following one edge of the extended tape; imagining a millimeter thin line, along the entire length of the 30 m transect line. To facilitate data collection, the line-intercept data was recorded on the data sheet in six columns. These corresponded to 0-5, 5-10, 10-15, 15-20, 20-25, and 25-30 m intervals along the 30 m

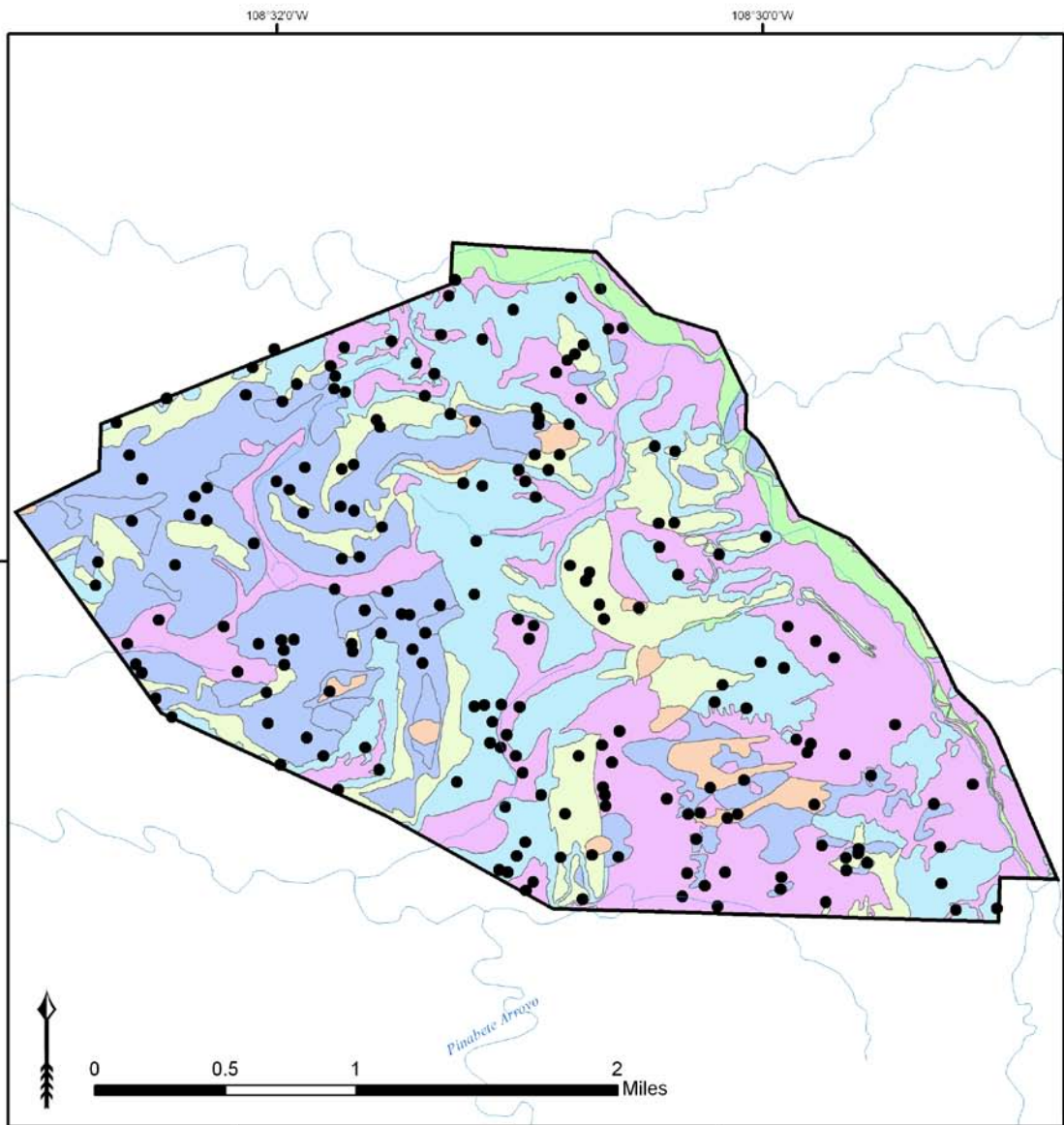


FIGURE 3

**STUDY PLOT LOCATIONS
AREA IV NORTH**



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Legend

- Randomized Study Plots

Habitat Type

- Alkali Wash
- Arroyo Shrub
- Badlands
- Dunes
- Sandy Soils
- Thin Breaks

transect line. Within each of these 5 meter intervals the amounts of rock and litter intercepted by the transect line were recorded. Rock was defined as any piece of rock larger than a grain of sand. Litter was defined as dead plant material (wood, leaves or fruits) or other organic matter, such as occasional animal droppings.

Vegetation cover (dominance) data for all living plant species was collected for these same six 5-meter intervals along the 30 m transect line. Whenever a living plant intercepted the line the distance of the intercept was recorded to the nearest centimeter. If a plant crossed the line at a distance of less than 1 cm, a minimal value of 1 cm was recorded. This assured that each plant species present along the transect line was recorded.

After the transect line was extended, care was taken to walk only along one side of the line. This is important because the rock, litter, and vegetation along the untrampled side of the line are to be used as plot locations to collect plant density, plant frequency, rock cover, litter cover, annual plant cover and perennial plant cover data. The large 30 x 2 m plot was used to collect data on shrub density and frequency, but five smaller plots, each 0.25 m² in size were used to collect density and frequency information for non-shrubs. These 5 square plots were 0.5 x 0.5 m in size and were systematically located along the untrampled side of the extended transect line at the 5.0-5.5, 10.0-10.5, 15.0-15.5, 20.0-20.5 and 25.0-25.5 m locations.

For each of these 0.25 m² plots, the species and number of every individual plant rooted inside the plot area was counted and recorded. It was recognized that the estimates of individuals were less exact for perennial grasses than for annual plants. Also within each 0.25 m² plot visual estimates of the percentage of the area covered by rock, litter, and living vegetation were made. After an estimate was made of total vegetation cover (perennial and annual plants), the amount of this total cover that was annual plants was estimated and recorded. This separate estimate for annuals is an indication of the relative importance of annual plants to total vegetation cover. Based on observer experience at the mine and in the region, the abundance of annuals in Area IV was noticeably greater in 2004 than in the previous low-rainfall years. Therefore, the proportion of annual vegetation cover to total vegetation in 2004 will reflect the cover of annuals during a year with high amounts of spring rainfall.

This fieldwork took 10 days with 3-6 investigators in the field each day (average of 4 per day). Transects were read by teams of 2 people, with an experienced botanist on each team. This amounted to a total of 40 person-days of fieldwork to collect the line transect data from Area IV.

3.2 Floristic Survey Methods

All plant species seen in Area IV during the 2 weeks of transect work were identified. This was done by either keying plants to species with the aid of regional floras (Welsh, et. al., Weber and Taylor) or by personal consultation with local plant identification experts.

Prior to the field surveys a list of all rare plants in San Juan County was secured (Table 1). Key field characters of plants were studied and a visit was made to the San Juan College herbarium to examine herbarium specimens of these rare plants. Notes were taken at the herbarium to ensure that these plants could be accurately identified if encountered during the field survey.

The 199 transects were located in all sections and in all habitats of Area IV. As these were read, a list of plants for all of Area IV was compiled. As transects were read, additional time was spent searching for plant species in species-rich habitats and in unique micro-sites such as in sand dunes, along drainages, and in soil-filled seams below rock slicks. Not including the time spent collecting the line-transect data; another 4 person-days were spent searching unique habitats and micro-sites in Area IV for plant species.

4.0 RESULTS

4.1 Rare Plants of Area IV

According to the New Mexico Rare Plant Council, there are 18 plant species in San Juan County, New Mexico listed as “rare” (Table 1). For the purpose of this baseline report, the term rare refers to a taxon that is narrowly endemic to a specific geographic feature (e.g., rock outcrops) or subset area of a phytogeographic region (e.g., southern Rocky Mountains, northern Chihuahuan desert). It can be locally abundant within its narrow range, but typically will not extend more than 100 miles in length of range. Included on this list are all federally listed threatened and endangered plants and species listed on the Navajo Endangered Species List (NESL).

Table 1. Rare Plant Species Known To Occur In San Juan County, New Mexico.

Species	Family	Federal	State of NM	Navajo Nation
* <i>Abronia bloackii</i>	Nyctaginaceae	-	Species of concern	-
<i>Aletes macdougallii</i> ssp. <i>breviradiatus</i>	Brassicaceae	-	Species of concern	-
<i>Aliciella formosa</i>	Polemoniaceae	Species of concern	Endangered	-
* <i>Asclepias sanjuanensis</i>	Asclepiadaceae	-	Species of concern	Group 4
<i>Astragalus chuskanus</i>	Fabaceae	-	Species of concern	-
<i>Astragalus cottamii</i>	Fabaceae	-	-	-
<i>Astragalus humillus</i>	Fabaceae	Endangered	Endangered	Group 2
<i>Astragalus micromerius</i>	Fabaceae	-	Species of concern	-
<i>Astragalus naturitensis</i>	Fabaceae	-	Species of concern	Group 4
<i>Astragalus oocalycis</i>	Fabaceae	-	Species of concern	-
<i>Pediocactus knowltonii</i>	Cactaceae	Endangered	Endangered	-
<i>Penstemon breviculus</i>	Scrophulariaceae		Species of concern	-
<i>Penstemon lentus</i>	Scrophulariaceae	-	-	-
<i>Phlox cluteana</i>	Polemoniaceae	-	Species of concern	-
* <i>Proatriplex pleiantha</i>	Chenopodiaceae	-	Species of concern	-
* <i>Puccinellia parshii</i>	Poaceae	Species of concern	Endangered	Group 3
<i>Sclerocactus cloveriae</i> ssp. <i>brackii</i>	Cactaceae	Species of concern	Endangered	-
<i>Sclerocactus mesae-verde</i>	Cactaceae	Threatened	Endangered	Group 3

Source: New Mexico Rare Plant Technical Council

The only plant from this table to occur in BHP Area IV is *Asclepias sanjuanensis* (Asclepiadaceae). Field survey personnel were aware of the possible occurrence all 18 plant species (Table 1). Special attention was given to four plant species (preceded by an asterisk) known to occur near Area IV. Even though the San Juan milkweed was the only one of the four species encountered, habitat and distribution information for all four rare plant species that occur near Area IV plant are summarized here.

4.1.1 *Abronia bolackii* N. D. Atwood, S. L. Welsh & K. D. Heil (Nyctaginaceae)

This rare plant species was only recently described (Atwood and others, 2002). It is known from only four locations in San Juan County, New Mexico. One of these locations is 10 miles SSW of Waterflow on the Navajo Mine Lease land west of the Neck region. This is approximately two miles from the Area IV survey area. Since this is near the Area IV survey area, special attention was given to areas with gypsiferous clay lens soils of the Ojo Alamo Formation, a preferred substrate for this plant. This species differs from *Abronia fragrans*, a common plant in Area IV, by having rhizomes, occurring in colonies, and having a shorter corolla tube. Whenever patches of *Abronia* were encountered that appeared to be clonal, these were closely examined. No *A. blackii* plants have yet been discovered in Area IV.

4.1.2 *Asclepias sanjuanensis* Heil, Porter, & Welsh (Asclepiadaeae)

This milkweed was encountered at 4 widely dispersed locations in Area IV. Eight or more individual milkweed plants were encountered at each of these locations. The stems of this perennial milkweed grow from a woody taproot and are 4-8 cm. tall. Stems are typically prostrate with leaves 2-4 cm long. Diagnostic characters of this milkweed are the white, tomentulose leaf margins, and a terminal inflorescence with a reddish-violet flowers. This milkweed flowers in April and has mature fruits in mid to late May. (Ecosphere Environmental Services, 1995). The characteristic habitat of this plant is sandy soil, sometimes occurring in pinyon-juniper woodlands. In Area IV this plant occurs in sandy soil, dune habitats and along small sandy gullies.

There are no federal, State of New Mexico or Navajo Nation protections for this species. The State recommends that these plants be protected from land use impacts when possible. The Navajo Nation Department of Fish and Wildlife (NNDFW) does not currently have sufficient information to support this species being listed as G2 or G3 on the NESL. According to Daniela Roth, NNDFW Botanist, this species may be locally abundant or more abundant than was previously thought. However, the NNDFW does request that discoveries be reported in order to further assess the status of this plant on the reservation. Based on what is currently known about this plant, it is unlikely that any special protection measures for this species would be applied by the NNDFW on mining in Area IV (Personal communication w/Daniela Roth, 2004).

4.1.3 *Proatriplex pleiantha* (W. A. Weber) Stutz & Chu (Chenopodiaceae)

Proatriplex pleiantha is an annual herb with alternate, succulent, petioled, and entire leaves (Welsh, 2003). This species has been collected from 15 locations in Montezuma County Colorado, from one location in San Juan County Utah, and from 15 locations in San Juan County New Mexico. All but four of the New Mexico collections are from between Chinle Wash and Cottonwood Arroyo. This cluster of collections for this species in San Juan County includes collections from the Navajo Mine Lease (Marron, Tascheck, Knight, Inc. and Ecosphere Environmental Service, Inc., 1991). The 1991 report summarized the taxonomic history of this rare plant species (first called *Atriplex pleiantha*), and had maps of the known locations for this plant on and near the Navajo Mine

The above cited 1991 report surveyed two areas for *P. pleiantha*: Areas A and B. Area A was a badland area situated west and adjacent to the Navajo Mine Lease, included 2,300 acres of land east of Chaco River and included the Navajo Mine Lease section known as “The Neck”. In these areas 31 of 52 *P. pleiantha* locations were reported to occur on Navajo Mine Lease lands. It is of significance that this cluster of locations is considered the “core cluster” of *P. pleiantha* individuals for San Juan County, where densities are relatively high. The other area surveyed in 1991 was 2,939 acres of land located east of the Navajo Mine, in the Cottonwood Arroyo Drainage, in an area just south of the Navajo Irrigation Project. In this area 21 locations of *P. pleiantha* were discovered, but these locations were more scattered and were less concentrated than in Area A.

Since *P. pleiantha* occurs about 2 miles northeast of Survey Area IV, it was expected to occur in this survey area. In preparation of the Area IV floristic survey the following information on the potential habitat for this plant was obtained from the literature. Stutz (1998) summarized the status of *P. pleiantha* and considered it to be abundant enough to not be officially classified as rare or threatened. In his Master of Arts thesis Foote (1989) did work on the germination success and requirements of this species. Stutz and others (1990) reported that *P. pleiantha* plants often occur in clusters within areas 10-50 m² in size. *Proatriplex pleiantha* plants located in the vicinity of Area IV region occurred in densities as great as 50-80 plants per m².

Proatriplex pleiantha is loosely associated with stratigraphic horizons of the Kirtland formation, Mancos shale, Lewis shale and Morrison formation (Adrian Hunt, Museum of Natural History expert on the Cretaceous: cited in 1991 report). The typical habitat for this plant is badland landscape, typically occurring in association with other halpophytic plants such as *Kochia americana*, *Suaeda torreyana*, *Atriplex obovata*, *Monolepis nuttalliana* and *Distichlis spicata*. Whenever these plant species were located (occasionally) and whenever these stratigraphic horizons were encountered (seldom), a more intense search was made for this plant species.

4.1.4 Puccinellia parishii A.S. Hitchc. (Poaceae)

This grass occurs in alkali swales. This grass is to be looked for among halpophytic plants such as *Kochia americana*, *Suaeda torreyana*, *Atriplex obovata*, *Monolepis nuttalliana* and *Distichlis spicata*. It has not yet been located in Area IV.

In regard to the other rare plants in San Juan County (Table 1) *Astagalus cottamii* and *Astragalus humillimus* occur about 10 miles southwest of Area IV. However, these occur on very different substrates are not expected on BHP lease lands. *Sclerocactus mesae-verde* (Mesa Verde cactus) also occurs about 6 miles WNW of the Area IV, but since it occurs on very different substrates it too is not expected to occur on BHP lease lands. The remaining 11 plant species in Table 1 occur at more distant locations of San Juan County and do not have potential to occur in Area IV.

4.2 Line Intercept Data

The BHP study area was sampled by the random placement of 199 transect lines. These fell 27% in alkali wash, 25% in sand, 23% in badlands, 18% in thin breaks, 4% in dune, and 3% in arroyo-shrub habitat (Table 2). Table 2 also indicates the vegetation intercept distances (a measure of dominance) for three lifeforms (forbs, grasses, and shrubs). For the entire site the forb lifeform was most dominant, comprising 54% of the vegetation that was intercepted. By this same measure shrubs made of 32% and grasses 15% of the vegetation intercept.

Table 2. Total line intercept distance measured at the BHP Area IV North study site compared to vegetation intercept distances for three lifeforms and six habitat types. Within each habitat the percentage of the total transect area in each lifeform is in parenthesis. The proportions in parentheses in the total vegetation column are this habitats' contribution to the total vegetation cover of the entire study site.

Habitat Type	Number Of Transects	Total Transect Distance (% of each habitat total)	Vegetation Intercept by Lifeform (m)			Total Vegetation Intercept (m) (% of all intercepts)
			Forbs	Grasses	Shrubs	
Alkali Wash	57	1,710 (27%)	26.85 (49%)	8.91 (16%)	19.52 (35%)	55.28 (23%)
Sand	49	1,470 (25%)	74.98 (61%)	20.50 (17%)	27.32 (22%)	122.80 (53%)
Badlands	45	1,350 (23%)	9.10 (62%)	1.34 (10%)	4.13 (28%)	14.57 (6.1%)
Thin Breaks	36	1,080 (18%)	8.21 (36%)	3.54 (15%)	11.14 (49%)	22.89 (9.6%)
Dune	7	210 (4%)	6.58 (50%)	1.55 (12%)	4.96 (38%)	13.09 (5.5%)
Arroyo Shrub	5	150 (3%)	3.18 (37%)	0.16 (2%)	5.23 (62%)	8.57 (3.6%)
All Habitats	199	5,970	128.9 (54%)	36.00 (15%)	72.30 (32%)	237.2 (100%)

When the total vegetation intercept (all lifeforms combined) of 237.2 m is compared with the entire length of the transect area, an area vegetation cover value of 4.00% was obtained. This 4 percent value was lower than the 5.2 percent vegetation cover obtained from quadrat data (Table 2). However, since a bias of at least 2 percent is not unusual in either sample technique, the similarity of these two estimates provides a good baseline estimate for vegetation cover at this study site.

Although forbs were the dominate lifeform overall, there were two habitats where forbs were not the most dominant vegetation (Table 2). In both the thin breaks and the arroyo shrub habitat shrubs were the dominant lifeform. Grasses were the least dominant of these three lifeforms in every habitat.

4.2.1 Shrub Height

The mean height of shrubs at the BHP study site was 23.4 cm (Table 3). This value is based on height values from randomly selected shrubs from every transect line. The two habitats with the greatest shrub densities (dune and arroyo shrub) were also the two habitats with the greatest mean shrub heights. In like fashion, the two habitats with the lowest shrub densities (badlands and thin breaks) were the two habitats with the lowest mean shrub height. There was considerable variation in shrub height among habitats, ranging from some shrubs over a meter high in the dune and arroyo shrub habitats to some shrubs that were less than 10 cm high in every habitat.

Table 3. Average shrub heights and total shrub densities (listed from the highest to the least densities) the six main vegetation types at the BHP study site.

Habitat Type	Density (shrubs / m²)	Mean shrub height (cm.) (range in ht. values)
Dune	0.94	31.5 (6-125)
Arroyo Shrub	0.34	35.0 (2-115)
Alkali Wash	0.24	26.4 (6-86)
Sand	0.16	24.8 (6-85)
Badlands	0.10	19.2 (4-61)
Thin Breaks	0.01	18.4 (4-41)
All Habitats	0.15	23.4

4.2.2 Shrub Density

The greatest shrub density was clearly at the dune habitat, where there was 0.94 shrubs/m²: nearly one shrub per square meter (Table 3). Second and third in shrub densities were the arroyo shrub and the alkali wash habitats. The sand habitat had 0.16 shrubs/m² and the badlands habitat had 0.1 shrubs/m². The habitat with the least shrubs was thin breaks, where there were only 0.01 shrubs/m².

4.2.3 Dominant Plant Species

Plant species dominance values were calculated for each life form. The rankings were based on the total line transect distance for each species. Based on the total line intercept distance for each lifeform of 54% forb, 15% grass, and 32% shrubs (Table 2), the relative dominance of forbs, grasses, and shrubs were calculated for each lifeform (Table 4).

For the entire study site two forb species made up over 50% of the forb line intersect distance (Table 4). The first was the exotic tumbleweed (*Salsola tragus*), which covered over 28% of the distance. Second was *Phacelia crenulata*, which covered over 22% of the distance. The annual, exotic *Salsola tragus* was the most dominant forb at the study site, but it was not the most dominant form at the sand or at the dune habitats. At these sites *Phacelia crenulata* and *Cryptantha crassisepala* were the most dominant forbs. Other habitat specific variations in forb dominance are apparent on Table 4. For example, *Phacelia integrifolia* and *Mentzelia pumila* were present only on the dune and the sand habitat. Eleven of the 12 most dominant forbs at the BHP study site were annual forbs. The only perennial forb (seventh in rank) was *Sphaeralcea coccinea* (scarlet globe mallow, yerba de la negrita). A total of 63 forb species were encountered and identified along the transect lines.

For the entire site two grass species made up over 75% of the grass intersect distance (Table 4). The first was *Sporobolus airoides* (alkali sacaton) at over 41% and the second was *Pleuraphis jamesii* (galleta) at over 38%. Both of these grass species are perennials. Seven of the 10 most dominant grass species were perennials. The annuals collectively made up only 5% of the grass transect distance. These annuals were the exotic *Bromus tectorum* (cheatgrass) and two native grasses: *Vulpia octoflora* (six-week fescue) and *Eremopyrum triticeum* (annual wheatgrass). The

Table 4. The most common forbs, grasses, cacti, and shrubs in each of the six BHP habitat types. For this table the most common species are those with the greatest overall line intercept distances (data is in meters). For each lifeform the species are listed in order with the species with the greatest intercept distance first. The species with the greatest relative dominance in each habitat and lifeform are indicated with an asterisk.

Plant Species	Overall	Transect Area (m)					
Top 12 Forb Species	128.9 m	Alkali Shrub	Sand	Badland	Thin Breaks	Dune	Arroyo Shrub
1. <i>Salsola tragus</i>	28.4%	13.0*	14.1	4.7*	3.8*	0.2	1.0
2. <i>Phacelia crenulata</i>	22.2%	4.4	21.6*	0.4	2.2	0.1	0
3. <i>Cryptantha crassisepala</i>	17.6%	1.8	16.9	< 0.1	0.2	3.4*	0.2
4. <i>Townsendia annua</i>	7.0%	4.2	2.3	0.8	0.9	< 0.1	1.0*
5. <i>Phacelia integrifolia</i>	4.6%	0	5.5	0	< 0.1	0.5	0
6. <i>Abronia fragrans</i>	4.4%	< 0.1	5.5	0	0	< 0.1	0
7. <i>Sphaeralcea coccinea</i>	1.8%	< 0.1	1.2	0.7	0.3	< 0.1	0
8. <i>Townsendia incana</i>	1.7%	0.2	1.2	0.8	< 0.1	0	< 0.1
8. <i>Descurainia pinnata</i>	1.3%	0.6	0.6	0.3	< 0.1	< 0.1	0.2
9. <i>Mentzelia pumila</i>	1.2%	0	0.9	0	0	0.4	0
10. <i>Lappula occidentalis</i> var. <i>cupulata</i>	< 1%	0	0	0	0.2	0	0.4
11. <i>Stephanomeria exigua</i>	< 1%	0	0	0	0	0.3	0
12. <i>Astragalus fucatus</i>	< 1%	0	0	0	0	0.2	0
51 other forbs:	9 %						

Table 5 – Continued

Cacti	1.26	Alkali Shrub	Sand	Badland	Thin Breaks	Dune	Arroyo Shrub
1. <i>Opuntia polyacantha</i>	96%	0.4*	0.7*	0.1*	0.1*	0	0
2. <i>Sclerocactus cloveriae</i>	4%	0	0	0	0.1	0	0
Top 10 Grass species	36.0 m						
1. <i>Sporobolus airoides</i>	41.5%	3.7	7.9	0.4	2.5*	0.4*	< 0.1
2. <i>Pleuraphis jamesii</i> (<i>Hilaria</i>)	38.5%	4.6*	8.0*	0.3	0.7	0.4	< 0.1
3. <i>Sporobolus cryptandrus</i>	7.8%	0.1	2.2	0.2	< 0.1	0.4	0.1*
4. <i>Sporobolus contractus</i>	2.9%	0	1.0	0	0	< 0.1	0
5. <i>Bromus tectorum</i>	2.8%	0.1	< 0.1	0.5*	< 0.1	0	0
6. <i>Achnatherum hymenoides</i> (<i>Oryzopsis</i>)	2.5%	< 0.1	0.7	0.1	0.1	0.1	0
7. <i>Vulpia octoflora</i>	1.6%	0.1	0.4	0	< 0.1	0	< 0.1
8. <i>Aristida purpurea</i>	1.3%	0	0.2	< 0.1	0.3	< 0.1	< 0.1
9. <i>Eremopyrum triticeum</i>	0.6%	0.1	0	0.1	0	0	< 0.1
10. <i>Stipa comata</i>	0.4%	0	< 0.1	0	0	0.1	0
6 other grasses:	0.1						

Table 5 – Continued

Top 11 Shrub species	72.3 m	Alkali Shrub	Sand	Badland	Thin Breaks	Dune	Arroyo Shrub
1. <i>Atriplex confertifolia</i>	26.9%	3.1	7.4	1.0	6.8*	0.7	0.5
2. <i>Gutierrezia sarothrae</i>	22.3%	0.6	12.7*	0	1.6	1.3*	0
3. <i>Atriplex obovata</i>	17.0%	6.8*	< 0.1	2.3*	1.3	0	1.9
4. <i>Sarcobatus vermiculatus</i>	9.8%	4.2	0	0	0	0	2.9*
5. <i>Ephedra torreyana</i>	5.4%	0.3	2.1	0	0.4	1.2	0
6. <i>Ericameria nauseosa</i>	4.0%	1.2	1.0	0	0	0.7	0
7. <i>Atriplex gardnerii</i>	3.1%	1.3	0	0.5	0.2	0	0
8. <i>Eriogonum leptocladon</i>	2.3%	0	1.1	0	0	0.5	0
9. <i>Atriplex canescens</i>	2.1%	0.9	0.7	< 0.1	0	0	0
10. <i>Krascheninnikovia lanata</i>	1.7%	0	1.2	0	0	0	0
11. <i>Artemisia bigelovii</i>	1.1%	0	0.1	0	0.8	0	0
8 other shrubs	4.3%						

two habitats with the least grasses (badlands and arroyo shrub) were also the only two locations where alkali sacaton and galleta were not the most common grasses. The most dominant grass on the badlands (still very infrequent) was *Bromus inermis* (cheatgrass). The most dominant grass in the arroyo shrub habitat was *Sporobolus cryptandrus* (sand dropseed). A total of 16 grass species were encountered and identified along the transect lines.

For the entire study site two shrub species made up over 50% of the shrub intersect distance (Table 4). These were *Atriplex confertifolia* (shadscale) at about 27% and *Gutierrezia sarothrae* (snakeweed) at over 22%. Despite its overall dominance, *Atriplex confertifolia* was the most dominant shrub only in the thin break habitat. *Gutierrezia sarothrae* was the most dominant

shrub in both the sand and the dune habitats. The third most dominant shrub was *Atriplex obovata* (New Mexico saltbush), a species that was the most dominant shrub in both the alkali shrub and the badland habitats. The final habitat, the arroyo shrub, had *Sarcobatus vermiculatus* (greasewood) as the most dominant shrub. A total of 19 shrub species were encountered and identified along transect lines.

Although cacti line intersect distances were included both within the shrub intercept data and as a separate lifeform category on Table 4. Cacti made up only 1.4% of the intersect area of shrubs and only 0.01 percent of the overall transect distance. Cacti are conspicuous, but were not a dominant plant at this study site.

A complete listing of vegetation documented in Area IV is provided as Attachment 1 to this baseline report.

5.0 DATA SUMMARY

The data in Tables 2-4 in this report quantify the vegetation cover by lifeform, the rock cover, the litter cover, the shrub densities, and mean shrub height data for the six habitat types. Table 4 indicates the dominant plant species by lifeform for each habitat. This table clearly shows the mosaic nature of habitat dominance by species and lifeform types. In like fashion, there is also a mosaic pattern of rock, litter, and vegetation cover amounts among the six habitats.

Further data analyses are possible on the extensive amount of data that were collected during this study. For example, statistical tests could be done to affirm the trends identified here with statistical tests. There may be significant differences in the densities or intercept distances among species, habitats, and lifeforms identified in the tables of this report. Also, relative frequency information could be obtained by tallying the occurrences of each species in the 6 sections (each 5 m) for each transect line.

Refereneces

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Transect Number: 1	N Coordinate: 4041286	E Coordinate: 722314	Habitat Type: Thin Break
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								

Grasses								
SPAI	2	1						

Shrubs/ Trees								
ATOB							16	13

Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number: 2	N Coordinate: 4043110	E Coordinate: 720790	Habitat Type: SA SA
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								

SATR	6		6		5	10		
PHCR	12		1			1,10		
TOAN	2			10	5	2,6		
DEPI		2						
CRCR		7				1		
CHSST		1	9		2	1,1		
SPPA				2				

Grasses								
SPAI		1		5	4	2,2		
VUOC	1	2	1	2	1	2		

Shrubs/ Trees								
ATCO				8	9		8	36
GUSA		9	25	15	22	4,9	183	14

Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:					
3	4041407	720846	ALKALI WASH					
Species Forbs	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
HAGL			1	1				
CHGL								
Grasses								
Shrubs/ Trees								
ATCO	9		5				66	6
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
4	404532	7021978	TH / BR

Species Forbs	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Grasses								
SPAI	30							
Shrubs/ Trees								
ATOB		13					3	13,20
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number: 5	N Coordinate: 4041626	E Coordinate: 721182	Habitat Type: SA SA
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
CRCR	4,2,5	6	3		6			
VUOC	1,2			2				
SATR	1		1		1			
PHCR	24,14	14	6,31	12,14	12,7,5	13,14,21		
TOAN	5,3	8,2,2	4		1			
SPPA		4						
PLPA		5,2						
STEX			1					
GILE							1	
Grasses								
ORHY	7	1						
SPCR	5	3						
SPAI		14	1,3					
HIJA				2				
Shrubs/ Trees								
ATCO	6						4	52
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
6	4040151	723885	ALKALI WASH

	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
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Species Forbs								
SATR		6						
HAGL					2			

Grasses								
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Shrubs/ Trees								
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ATOB							5	15,9
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Total Veg Cover								
------------------------	--	--	--	--	--	--	--	--

Bare Ground								
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Litter								
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Rock								
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Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
7A	4043082	721017	SA SA

	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
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Species Forbs								
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CRCR	15	15	20	20	15	4		
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ABFR	4							
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SPPA	2	3						
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SATR	1		1	2	20	5		
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STEX	1							
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PHIN	8	15						
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OEPA		2	2					
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CHER				2		4		
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Grasses								
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HIJA	1,1	1	2,1	5	30	8		
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SPCR	1	4			2			
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ORHY				1				
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Shrubs/ Trees								
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GUSA	1	5		3		6	64	11
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ATCO							1	33
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ATCA							3	34
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OPPO					40			
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Total Veg Cover								
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Bare Ground								
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**Litter
Rock**

Transect Number: 7B	N Coordinate: 4043082	E Coordinate: 722602	Habitat Type: SAND
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5/12
HAZ +
ADB

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
CRCR	23	33,14	20,14	18	20,7	6		
ASFU	3	2						
STLO	2				8			
CYBU	1							
SEPI		1						
STEX			2,1	2				
OEPA			3,1					
SPCOC				1				
PHCR					3,4	39		
Grasses								
BRTE	1							
SPAI		1	1			3		
HIJA		3	2,10					
SPCO				3	7			
DEPI				1				
Shrubs/ Trees								
ERLEP		4			3		29	35
GUSA						10,11	42	14
ATCO					20		3	28
ATCA					15	11	2	39
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
9	4041587	720965	SA SA

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
CRCR	6	8	7,2	3,12,4,3	23,3,1	5,7,1,9		
TOAN	2,4		1	5	2			
SATR	4,1			3	2	4,3		
PHCR	1	12,12	21,4	2	1,3	1,21		
PLPA				2	2	2,3,1,5		
OEPA					4			
CYAC					1			

Grasses								
VUOC	1,1			1				
SPCR	5,2	3	10	1	3	5		
SPAI		1						

Shrubs/ Trees								
ATCO	10		5				8	23
GUSA	7	3					9	15

Total Veg Cover	
Bare Ground	
Litter	
Rock	

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
10	4040791	723148	ALKALI WASH

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
TOAN					2,3,6	3,5		

Grasses								

Shrubs/ Trees								
ATOB							10	8
GUSA							2	
OPPO		23					1	

Total Veg Cover	
Bare Ground	
Litter	
Rock	

Transect Number: 11	N Coordinate:	4040392	E Coordinate:	722902	Habitat Type:					
	TH BR									
	Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height	
	Forbs									
	ATSA			1						
	HAGL				4					
	Grasses									
	SPCR	1			3					
	HIJA	4								
	Shrubs/ Trees									
ATCO					14	11	11	24		
GUSA							2	6		
Total Veg Cover										
Bare Ground										
Litter										
Rock										

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
12	4041042	722492	THIN BREAKS

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
TOAN		3	2,5,5					
SATR		6	5,4					
PHCR		3	28,22					
Grasses								
HIJA		14						
SPAI			4					
Shrubs/ Trees								
ATOB	15	16			3	2	12	26
ATGA	12						1	10
GUSA							2	14
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number: 13	N Coordinate: 4040924	E Coordinate: 721405	Habitat Type: SA SA					
Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SPCOC			2			3,2		
Grasses								
SPAI	1	5,2	3					
HIJA		3,3				3		
Shrubs/ Trees								
GUSA				1		8	37	14
ATCO	25	28	6,2		18		18	17
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number: 14	N Coordinate: 4041067	E Coordinate: 722425	Habitat Type: BADLAND
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
PLIN	2							
SATR				1,1,1		2		
TOAN						5		
Grasses								
Shrubs/ Trees								
ATOB		5	6		23		2	23
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
15	4040996	725406	ALKALI WASH

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
TOAN	4							
SATR	1		1		14,2	3,3,5,1		
Grasses								
ERTR	5							
SPAI	12							
Shrubs/ Trees								
ATOB				15	5		14	7,17
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
16	4043282	720820	BADLAND

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
ATPO			1					
SATR						1		
Grasses								
Shrubs/ Trees								
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number: 17	N Coordinate: 4041825	E Coordinate: 721833	Habitat Type: SA
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
CRCR	17	2						
LEER	3				1			
SATR		4						
PHCR		4						

Grasses								
HIJA	3,8,1	10	7	13	9	7		

Shrubs/ Trees								
ATCO			22				14	29
GUSA	3	12	6	4	9		177	6
EPTO							1	33

Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number: 18	N Coordinate: 4042153	E Coordinate: 722972	Habitat Type: Alkali Wash
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Forbs								
ASMO		5						
LEER		2						
PEAN				17				
PHCR					2,4	3,11		
CYAC						6		

Grasses								
HIJA		3				5		
SPAI				2,4				

Shrubs/ Trees								
EPTO						26	2	22
ATCO		9,21	27		36	2	16	22
GUSA							21	11

Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number: 19	N Coordinate: 4042099	E Coordinate: 722951	Habitat Type: Alkali Wash						
Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height	
Forbs									
TOAN	1	1	3	4,1					
SATR		4,2	3						
PHCO		6		7,16,18,8	6	3,7			
DEPI			1						
ASMO					7				
STLO						1			
ATSA			1						
Grasses									
SPAI					1	3			
Shrubs/ Trees									
ATCO	2						7	23	
Total Veg Cover									
Bare Ground									
Litter									
Rock									

Transect Number: 20	N Coordinate: 4042411	E Coordinate: 721190	Habitat Type: SAND						
Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height	
PHCR	20,33,13	10,13	11,14		8	3			
SATR	2,15	18	1,4	2	3	22			
SPCOC		6							
TOAN			4						
Grasses									
SPAI		5	1						
ORHY			1						
Shrubs/ Trees									
ATCO							2		
GUSA							5		
Total Veg Cover									
Bare Ground									
Litter									
Rock									
Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:						

21	4041896	724210	ALKALI WASH					
Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR	2				1			
CRCR	1							
Grasses								
Shrubs/ Trees								
ATOB			2		5		6	15,12
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number: 22	N Coordinate: 4041895	E Coordinate: 722064	Habitat Type: SAND DUNE					
Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
CRCR	8,17	4	5,1	10,2	9,7,8	4,17		
EVNU	1		4	5				
STEX			5	1	1			
LEER			1					
GAPI				5				
ABFR				3				
SATR						1		
Grasses								
SPCR	5,5	1,5	3		2	3		
STCO			7	5				
HIJA			2			4		
ORHY					2	2		
ARPU						2		
Shrubs/ Trees								
ATCO						26,48	6	23
ATCA							1	23
EPTO	1			35	1		2	41
GUSA			2	15			31	9
Total Veg Cover								
Bare Ground								
Litter								
Rock								
Transect Number: 23	N Coordinate: 4042688	E Coordinate: 722539	Habitat Type: BADLAND					

	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Species								
Forbs								
SATR				1				
ATPO						1		
LARE						1		
Grasses								
Shrubs/ Trees								
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
24	4043369	722688	BADLAND

	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Species								
Forbs								
Grasses								
Shrubs/ Trees								
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
25	4041212	720355	THIN BREAKS

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR		2	1	1	2,2,1	3		
TOAN						7		

Grasses								
SPAI	4,3	5	3		1,3	2		

Shrubs/ Trees								
ATCO					7		8	25
GUSA							4	13

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
26	4042310	723761	BADLAND

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR	2,1		1	2	2			
CLLU			2	6	2			
ATPO			3					
CRCR				1				

Grasses								

Shrubs/ Trees								
ATOB	4						1	22,16

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number: 28	N Coordinate: 4043141	E Coordinate: 722583	Habitat Type: BADLAND
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
DEPI		3						
MEAL		2						
SATR		4,6	12			2		
TOAN		3						
PHIV			3					

Grasses

Shrubs/ Trees								
ATCO			26			10	8	10

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number: 29	N Coordinate: 4041334	E Coordinate: 724905	Habitat Type: ALKALI WASH
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR	5,4	7	12	6	2,2			
TOAN		20	3	28	3,8	67		
CLLU				1				
PLPA						2		

Grasses

Shrubs/ Trees								
SPAI	1				10,2			
ATGA		10						
HIJA		15	9					

Shrubs/ Trees								
ATOB						20		21,15

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:				Density	Height
30	4043314	721940	ALKALI WASH					
Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m		
Forbs								
SATR	17	25,13	17,9	6,3,9,4	9,9	6		
CHIN	4	3	3	4	2	1		
SLLU						3,3		
DEPI		8						
ABFR		2						
MEAL					2			
Grasses								

Shrubs/ Trees								
ATCO				28,2			2	28
SAVE					28		1	55
ATGA							1	10

Total Veg Cover								
Bare Ground								
Litter								
Rock								
Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:				Density	Height
31	4041961	723044	Alkali Wash					
Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m		
Forbs								
TOAN			4			3		
CRCR				5		1		
SATR			2	7,1,3	1	2,1		
LYGR					6			
PHCR	2	1,7	17,13	7,1	4	6		
LEER	1,6,13	2						
OEAL				3		3		
CHST					5			
PLPA						5,3		
Grasses								
HIJA	6	2						
SPAI	1		3					
Shrubs/ Trees								
GUSA		3					24	8
ATOB							3	28
ATCO		5,8	11				14	27
Total Veg Cover								

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:					
34	4041872	723076	Alkali Wash	15-20 m	20-25 m	25-30 m	Density	Height
Species	0-5 m	5-10 m	10-15 m					
Forbs								
TOAN	1,12	8						
SATR		2						
CRCR		2						
PHCR		3						
Grasses								
HIJA		9						
SPAI				1				
VUOC					1			
Shrubs/ Trees								
OPPO							1	14
TESP						25	2	41
ATOB	29						5	21
ATCO		6				29	5	24
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:					
35	4042954	723325	BD	15-20 m	20-25 m	25-30 m	Density	Height
Species	0-5 m	5-10 m	10-15 m					
Forbs								
SATR		5,11,1,4	4,8,1	1		4		
CHST		3	6			3		
PHCR		8				2		
AGGL		4						
EUGL			3					
DEPI			4			3		
MEAL			1					
TOAN			2			9,2,3		
STEX						2		
PUPA						3		
SPCOC						8,13		
Grasses								
SPAI			2					
Shrubs/ Trees								
ATOB			2	8	18,7	9	8	16

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number: 36	N Coordinate: 4041537	E Coordinate: 720158	Habitat Type: Alkali Wash						
	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height	
Forbs									
SATR	11	9	4		2	7			
TOAN	4					24			
DEPI	1	1				2			
MEAL			1						
PLPA						5			
CRCR						1			
Grasses									
HIJA				7	15				
SPAI				5					
Shrubs/ Trees									
ATCA				10			2	72	
ATCO						5	2	34	
CHNAG					57		2	62	

Total Veg Cover
Bare Ground
Litter
Rock
Transect Number:
37
Species Forbs
Grasses
Shrubs/ Trees
Total Veg Cover
Bare Ground
Litter
Rock

N Coordinate:	E Coordinate:	Habitat Type:						
0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height	

Transect Number: 38	N Coordinate: 4043174	E Coordinate: 721891	Habitat Type: BADLAND
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR	20,14	15	22	5,1	4	13,12		
ATSA		2,2	1	1				
CHIN		2		3		6		
LARE		1						
HAGL				1		4		
TOAN						1		

Grasses								
BRTE	11	1		7	20	8		

Shrubs/ Trees								
OPPO						5	3	11
ATGA							1	20

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number: 39	N Coordinate: 4042556	E Coordinate: 720184	Habitat Type: Sand
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
PHCR	10	30	50	50	40	30		
SATR	2			1				
LIPO		4						
STLO		1						
SP 2		1						
TOAN					2	1		

Grasses								
HIJA	14	2	1	1		1		

Shrubs/ Trees								
ATCO					25		12	23
GUSA	35		5			20	>0	10

Total Veg Cover
Bare Ground
Litter

Rock

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
40	4042188	722849	Th. Br.

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR	10		1	1	4			
HAGL				1				
Grasses								
SPAI	9			1				
Shrubs/ Trees								
ATOB			3		10		4	12

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
41	4040838	723136	ALKALI WASH

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
TOAN	1			17,7	6,13	6,4		
CLLU	11							
PHCR	11			6				
SATR				2				
CRCR				3				
Grasses								
SPAI					3			
Shrubs/ Trees								
ATOB					15		14	
OPPO								

Total Veg Cover
Bare Ground
Litter

Rock

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
42	4042479	723378	Th. Br.

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
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Forbs

HAGL

1

Grasses

Shrubs/ Trees

SCCL

2

2

4

ARGA

2

10

ATOB

2

16

ATCO

13

9

2

37

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
43	4040815	724442	SA SA

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
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Forbs

CHER

1

1

PHIN

10

16,10

7,4

11,1,27

CRCR

3

2

6,11

4

6,2,4

PHCR

2

STEX

2

SATR

1

5

OEPA

1,6

ABFR

3,17,2

CRCA

2

Grasses

HIJA

4,4,2

2,2

4

3,1

2

6,2,3

ORHY

1,1

Shrubs/ Trees							
ERLEP							2
EPTO		75			5		2
GUSA							33,52

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:						
44	4041322	721420	DUNE						
Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height	
Forbs									
MEPU	6,3								
MASO	1								
CRCR	1,1,8,8	1		3,8,11	6,5,3,15	3,2,31,9			
ABFR	4								
SATR	1		1						
DEPI			1						
STEX					1				
PHCR					10				

Grasses								
ORHY		1,1						
HIJA		4	3	3	2,3			
SPCR						1		

Shrubs/ Trees								
GUSA	10	4	23		7,5	13	202	16
ERLEP	1	3					13	25
ATCA							1	42
OPPO							1	6

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:						
45	4043371	721829	SAND						
Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height	
Forbs									
PHCR	11	1	11,2	5,8	13	8,28			
SATR	2	3,1,2	2	2,2	2,1	2			
CRCR				1		2			

TOAN									6	
Grasses										
SPAI									3	
Shrubs/ Trees										
ATCO								45	3	29
Total Veg Cover										
Bare Ground										
Litter										
Rock										

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
46	4041679	720741	ALKALI WASH

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
TOAN	5	4,1,2		4,1	1	1		
CRCR		3						
DEPI			1					
SATR				8,5,1	19	9		

Grasses								
SPAI	16,12		22					
HIJA	29,3,7	15,15	16					
SPCR				1				

Shrubs/ Trees								
ATCO								1
GUSA			4	11				2

Total Veg Cover									
Bare Ground									
Litter									
Rock									

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:					
47	4042464	721414	THIN BREAK					
Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR	3	1	3			2		
IPPU		1						
TOAN		3						

PHCR	2	1	1					
LIAR							4	
CYAC						3	2	
Grasses								

Shrubs/ Trees								
ATCO							8	12
GUSA							5	12

Total Veg Cover									
	Bare Ground								
Litter									
Rock									
Transect Number: 48	N	E	Habitat Type:						
	Coordinate: 4043042	Coordinate: 722600	SAND						
Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height	
Forbs									
STLO	4			2					
SATR	1								
PHCR	1	10,10,5	17		3	1,5,13			
SPCOC		4		12	8,6	3			
STEX				1					
MACA						11			
Grasses									
HIJA	11,1,1,6	3	7,3	1,3,21,3	8,2	3			
SPAI		6	6			2,12			
SPCO					4				
STCO					2				
ORHY						1			
Shrubs/ Trees									
ATCO				1			15	32	
GUSA	5		4	2	19	2,7	69	8	
EPTO						6	1	14	
ERLEP						14		17	
Total Veg Cover									
Bare Ground									
Litter									
Rock									

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:						
49	4043073	722055	THIN BREAK						
Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height	
Forbs									
CHST				2					
PHCR					2,3,2				
Grasses									
HIJA	7								
SPAI		10	4,5	2					
Shrubs/ Trees									
BROB								1	24
CHNA								1	40
GUSA								14	10
ATCO			17	24	14	3	13	27	
ARBI						2	5	30	
APTO						9,20	8	26	
Total Veg Cover									
Bare Ground									
Litter									
Rock									

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:						
50	4041470	721129	SA SA						
Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height	
Forbs									
TOAN	5,1	3,2		1	1	2			
CRCR	6,3,1	10		3	8,16	2,2			
SATR	1			1					
PHCR	3		9,6	7,5	8,4,2,2	3,3,2,3,1			
CHST				4					
Grasses									
SPAI	6,6	1,8,6,6	5,4		2,1	1			
HIJA	5	6,7	9,8	5,12	4				
SPCR			1						
VUOC		2							
ORHY				2					
Shrubs/ Trees									
ATCO								14	33
GUSA								2	
Total Veg Cover									
Bare Ground									
Litter									
Rock									

Transect Number: 51	N Coordinate:	E Coordinate:	Habitat Type:						
	Species Forbs	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
	Grasses								
	Shrubs/ Trees								
	Total Veg Cover								
	Bare Ground Litter Rock								

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
52	4042593	721014	ALKALI WASH

Species Forbs	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
HAGL	1			5		2		
CRCR			3,2		2			
DEPI			10	5		1		
CLLU				3				
SATR				1	1,1	12		

Grasses	
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Shrubs/ Trees	
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Total Veg Cover
Bare Ground
Litter
Rock

Transect Number: 53	N Coordinate: 4041612	E Coordinate: 721912	Habitat Type: SAND
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
TOIN	7	3,9,3	7					
SATR	2	3	3	3,4	1,2	2,3		
PHCR	13	7,8,12	5,2	20,21,11	14	4,6,3		
GILE		1			1			
TOAN	3							
Grasses								
VUOC		2	1					
SPAI		3			2			
Shrubs/ Trees								
ATCO				47			4	30
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number: 54	N Coordinate: 4041307	E Coordinate: 722479	Habitat Type: BADLAND
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR			6					
PLIN			4					
PLPA			2					
MAAF			12	2				
Grasses								
Shrubs/ Trees								
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number: 55	N Coordinate: 4042172	E Coordinate: 723517	Habitat Type: BD
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR	6	14,18	12					
PHCOR	4							
ATPO		2						
Grasses								
ERTR		2	4					
Shrubs/ Trees								
ATGA							3	23
ATOB			22				1	28
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number: 56	N Coordinate: 4042695	E Coordinate: 720099	Habitat Type: Sand
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SPCOC	8,1	4		5				
PHCR	2	4	2	8				
SATR	3	2	1		3			
MACA	2	4	4					
CRCR		1						
LYGR				1				
Grasses								
SPAI	4,1		1		3	4		
VUOC	1							
Shrubs/ Trees								
GUSA	30	40	35	40	30	15	210	8
ATCO	30	12				40	27	18
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
57	4043736	722401	ARROYO SHRUB

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR	9	5,2	14		12	6		
CHIN	2	1	3					
TOAN			7		5			

Grasses

Shrubs/ Trees

ATCO	30,20						8	19
SAVE				26		25	4	48
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
58	4042313	723761	ALKALI WASH

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR	1,2,7	5,7	5,3,3	4,4	1	4,7,4		
DEPI		4,3	1	2,9				
CHIN			1			1		
SPPA				5				
PHCR				15				
CRCR						1		

Grasses

Shrubs/ Trees

ATOB					9,3		10	21,15
Total Veg Cover								
Bare Ground								
Litter								
Rock								

Transect Number: 59	N Coordinate: 4040555	E Coordinate: 723729	Habitat Type: SA SA
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
ABFR	10,9,3	7,8			8			
CRCR	1,2,1,1	6	4,2,6	4	4,3,6,3			
SATR	1,2	1,1	2,3	2	4	1		
PLPA						1		
Grasses								
SPCO	1,5	2,1	3,3,5,1	4,35,7	6,6	2,2		
ORHY						1		
Shrubs/ Trees								
GUSA	9,15						44	10,5

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number: 60	N Coordinate: 4042350	E Coordinate: 721680	Habitat Type: THIN BREAK
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR	1	2,1	11,1	5,11		8		
MEAL		2						
Grasses								
SPAI		1						
Shrubs/ Trees								
ATCO				30			9	30
ERSA						2		

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
61	4040243	725601	THIN BREAK

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
ERSA				2				

Grasses								
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Shrubs/ Trees								
ATOB						40	1	20

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
62	4042291	720137	Sa. Sa.

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
ABFR	15	12				3		
CRCR	4							
SATR	1	1	2,3	8	4	1,3,2		
CHCR		5				1		
PHCOR				4				
DEPI					1			
SPCOC						3		

Grasses								
SPAI								
HIJA	3,5		2,10	3	5,3,9,6	2,4,4		
VUOC			1					
SPCR					1			

Shrubs/ Trees								
ATCA								2
GUSA	34	5,16	4	4,17	11,3,5	20,10,3,42		404
ERLEP	3	1		15	24,4			17
KRLA			35					1

Total Veg Cover
Bare Ground

Litter Rock Transect Number:	N Coordinate:	E Coordinate:	Habitat Type: ALKALI WASH
63	4041124	722523	

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
CRCR	5					12,6,2		
CHIN	1							
SATR		1,2	1		6,10	5,2,3		
GILE				1				
TOAN						2,6		
Grasses								
HIJA				35,2		18,6,93,12		
BRTE				10				
ELEL				10				
SPAI				15	28,10	6,7		
Shrubs/ Trees								
ATOB						55	4	13
ATCA			75				1	92
CHNA				48			4	72

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type: TH BR
64	4042767	722679	

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SPCOC	6							
PHCR			2	6	2	1		
SATR				1		2		
Grasses								
SPAI	4	2,2	5	2				
Shrubs/ Trees								
GUSA	2,10		15	14	12	15	270	8
ATCO	45			4		12	36	17
ATOB						2	2	5

Total Veg Cover
Bare Ground

**Litter
Rock
Transect
Number:
65**

**Species
Forbs**

Grasses

Shrubs/ Trees

**Total Veg Cover
Bare Ground
Litter
Rock**

N Coordinate: E Coordinate: Habitat Type:

0-5 m 5-10 m 10-15 m 15-20 m 20-25 m 25-30 m Density Height

**Transect
Number:
66**

**N
Coordinate:
4043654**

**E
Coordinate:
722995**

**Habitat Type:
Arroy. Shrub trans. Alk.
Wash**

**Species
Forbs**

0-5 m 5-10 m 10-15 m 15-20 m 20-25 m 25-30 m Density

CRCR 1 SATR 2

Grasses

Shrubs/ Trees

ATOB 55 4 30,10,15 29
SAVE 10 35 5

**Total Veg Cover
Bare Ground
Litter
Rock**

Transect Number: 67	N Coordinate: 4040723	E Coordinate: 721508	Habitat Type: BADLAND
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR					4			
CRCR						7		
DEPI						2		
Grasses								
HIJA					3			
Shrubs/ Trees								
ATCO							5	55

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number: 68	N Coordinate: 4040475	E Coordinate: 724788	Habitat Type: SA SA
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
PHIN	2,20,12,13	2	15,7,6	6,4	15,11	16,10,11,4		
ASFU	2							
SATR		2,5			1			
ABFR			8					
CRCR			2		4			
TOIN				5		2,3		
PLPA						3		
Grasses								
SPAI	2,1		1,3	1,3	3,5,7	1,2,2		
Shrubs/ Trees								
GUSA	2						3	42,39
EPTO		100					1	
ATCA								

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
69	4040352	724265	ALKALI WASH

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
CRCR	16,10,6,5	16,9,6	3		5			
SATR	7	3		1	1	3		
SPAI	1,1	1						
PHCO		20,13	9,10	1,3	17,28			
TOAN				2				
PLPA				5				
SPCR					3			

Grasses

Shrubs/ Trees

ATOB							1	34,19
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Total Veg Cover
Bare Ground
Litter
Rock

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
70	4040719	723743	ALKALI WASH

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
HAGL	1	1	1					
CRCR				5				
SATR				1,1	1,2,1,2			
TOAN				1				
PLPA				1				

Grasses

Shrubs/ Trees

ATOB	5,3	2	4		1,4,6	13,4	38	10,10
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Total Veg Cover
Bare Ground
Litter

Rock Transect Number: 71	N Coordinate: 4041104	E Coordinate: 720460	Habitat Type: THIN BREAK					
Species Forbs SATR SPCOC	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
	2					1		
Grasses SPAI		1						
Shrubs/ Trees ATCO ATGA			4					
				45	4		9	
							6	
Total Veg Cover Bare Ground Litter Rock								

Transect Number: 72	N Coordinate: 4040281	E Coordinate: 724266	Habitat Type: SA SA
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
AMAC	1,1		1		1,3			
CRCR	7,8	1,3,9,6	5,6,9,10		5,8,2,3,8			
DEPI	1							
SATR		1	2,5	3,4	1,2,2,3			
SPAI	8,1,3,4	5,1	3,3,13	5,3,5,6	3,13			
GILE	1	1						
PHIN		6						

Grasses

Shrubs/ Trees

GUSA		3					7	14
EPTO								45

**Total Veg Cover
Bare Ground
Litter
Rock**

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
74	4042439	724042	BADLAND

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SAIB			1			1		
LARE			6					
SPCOC			18					
ATSA				2		2		
HAGL					5	1		

Grasses

Shrubs/ Trees								
ATOB				25	4		9	26

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
75	4040292	722529	BADLAND

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR		2,2,4	2					
SPCOC						12		
CASC						1		

Grasses

Shrubs/ Trees								
ATOB	3	2					10	11
ATCO								14

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number: 76	N Coordinate: 4040860	E Coordinate: 721755	Habitat Type: BADLAND
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
PLIN	2							
PHCR	4	1						
SATR	3	2	1					

Grasses								
HIJA	2							

Shrubs/ Trees								
ATOB							3	25

Total Veg Cover
Bare Ground
Litter
Rock

Transect Number: 77	N Coordinate: 4041380	E Coordinate: 723986	Habitat Type: BADLAND
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
PLPA	3							
SATR						1		

Grasses								
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Shrubs/ Trees								
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Total Veg Cover
Bare Ground
Litter
Rock

Transect Number: 78	N Coordinate: 4042526	E Coordinate: 720587	Habitat Type: Sa. Sa.
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Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
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Forbs							
ABFR	5,10,1,8,5	2,8	2,3,13,10	3	6,4,9	1,8	
SPPA							
CRCR		1	2	3	9	4,5,3	
CAJA	8						
MEPU	1		8	1			
LUPU		4					
OEPA		1					
DEPI			1				
SATR					3		
Grasses							
ARPU	1			6			
HIJA		2	9,6	7			
ORHY		1					
Shrubs/ Trees							
GUSA	6,17,15	2	17,10,6	1			109 8
ERLE				7,6			31 17
EPTO							1 42
KRLA							1 35

Total Veg Cover Bare Ground Litter Rock Transect Number: 79	N Coordinate:		E Coordinate:		Habitat Type: THIN BREAK			
	4042963		721630					
	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Species Forbs								
PLIN	2							
SATR	2		1,1					
TOAN			1			2		
IPPU					3			
PHCR						2		
Grasses								
SPAI					1			
Shrubs/ Trees								
ATCO			2	12	10		18	40
GUSA							27	8
OPPO			6				1	15
Total Veg Cover Bare Ground Litter Rock								

Transect Number:	N Coordinate:	E Coordinate:	Habitat Type:
80	4043898	722035	ARROYO SHRUB

Species	0-5 m	5-10 m	10-15 m	15-20 m	20-25 m	25-30 m	Density	Height
Forbs								
SATR	4	1	1					
TOAN			11,8	4,5	18,22	9		
LARE			1,4		11,6	4,6		
DEPI					4	4		

Grasses								
SPAI				2				
ERTR					2			
HIJA						1		
VUOC						1		

Shrubs/ Trees								
ATOB	15	4,3	4	22	8		28	11
SARE							1	29

Total Veg Cover
Bare Ground
Litter
Rock

<i>Habitat Type</i>	<i>Transect Number</i>	<i>Plot Number</i>	<i>Total # of Species</i>	<i>Total Veg Cover</i>	<i>Annual Veg Cover</i>	<i>Rock</i>	<i>Litter</i>
THIN BREAK	1	1	1	<1	<1	80	4
THIN BREAK	1	2	1	<1	<1	80	2
THIN BREAK	1	3	0	0	0	85	0
THIN BREAK	1	4	0	0	0	40	4
THIN BREAK	1	5	2	1	1	0	25
SA SA	2	1	2	12	<1	3	4
SA SA	2	2	5	8	3	0	35
SA SA	2	3	3	4	<1	1	3
SA SA	2	4	6	10	2	<1	6
SA SA	2	5	5	15	6	<1	15
Alkali Wash	3	1	1	<1	<1	15	<1
Alkali Wash	3	2	2	1	1	10	<1
Alkali Wash	3	3	3	4	4	10	2
Alkali Wash	3	4	1	1	0	12	1
Alkali Wash	3	5	1	<1	<1	20	<1
THIN BREAK	4	1	3	18	1	20	4
THIN BREAK	4	2	2	<1	<1	20	2
THIN BREAK	4	3	2	<1	<1	50	25
THIN BREAK	4	4	1	<1	<1	30	8
THIN BREAK	4	5	1	0	0	20	60
SA SA	5	1	2	20	20	<1	4
SA SA	5	2	2	4	4	1	3
SA SA	5	3	2	20	20	<1	2
SA SA	5	4	3	15	15	0	3
SA SA	5	5	6	7	3	<1	4
Alkali Wash	6	5	0	0	0	25	0
Alkali Wash	6	10	0	0	0	30	<1
Alkali Wash	6	15	0	0	0	25	0
Alkali Wash	6	20	3	<1	<1	25	0
Alkali Wash	6	25	0	0	0	25	0
SA SA	7A	1	5	15	5	<1	10
SA SA	7A	2	3	15	8	0	4
SA SA	7A	3	3	30	25	0	2
SA SA	7A	4	3	12	8	0	1
SA SA	7A	5	4	30	29	0	10
SAND	7B	1	3	3	2	1	4
SAND	7B	2	4	5	2	2	2

SAND	7B	3	4	6	3	0	1
SAND	7B	4	2	25	25	2	3
SAND	7B	5	6	8	6	1	2
	8	1					
	8	2					
	8	3					
	8	4					
	8	5					
SA SA	9	1	7	35	34	<1	2
SA SA	9	2	8	20	17	1	1
SA SA	9	3	6	5	4	<1	4
SA SA	9	4	5	15	11	0	5
SA SA	9	5	6	7	7	<1	3
Alkali Wash	10	1	0	0	0	10	1
Alkali Wash	10	2	0	0	0	8	<1
Alkali Wash	10	3	0	0	0	30	<1
Alkali Wash	10	4	1	<1	0	40	<1
Alkali Wash	10	5	4	20	0	15	5
THIN BREAK	11	1	1	<1	<1	10	2
THIN BREAK	11	2	2	<1	<1	15	8
THIN BREAK	11	3	2	<1	<1	15	<1
THIN BREAK	11	4	2	<1	<1	1	7
THIN BREAK	11	5	2	1	<1	<1	30
THIN BREAK	12	1	0	0	0	20	<1
THIN BREAK	12	2	0	0	0	15	<1
THIN BREAK	12	3	1	20	0	10	3
THIN BREAK	12	4	1	2	2	6	<1
THIN BREAK	12	5	2	2	1	18	1
SA SA	13	1	2	12	0	10	8
SA SA	13	2	3	8	0	5	10
SA SA	13	3	1	5	0	50	5
SA SA	13	4	0	0	0	40	15
SA SA	13	5	1	<1	0	20	2
BADLAND	14	1	0	0	0	50	0
BADLAND	14	2	2	<1	<1	95	1
BADLAND	14	3	0	0	0	98	0
BADLAND	14	4	2	1	1	20	1
BADLAND	14	5	0	0	0	98	0

Alkali Wash	15	1	1	0	0	0	<1
Alkali Wash	15	2	0	0	0	0	0
Alkali Wash	15	3	0	0	0	0	0
Alkali Wash	15	4	2	<1	<1	0	<1
Alkali Wash	15	5	3	5	5	0	1
BADLAND	16	1	0	0	0	80	0
BADLAND	16	2	0	0	0	5	0
BADLAND	16	3	0	0	0	10	1
BADLAND	16	4	0	0	0	8	<1
BADLAND	16	5	0	0	0	6	<1
SA	17	1	7	10	5	0	4
SA	17	2	3	10	0.02	1	8
SA	17	3	3	20	0	<1	13
SA	17	4	2	25	0	<1	18
SA	17	5	3	50	0	0	10
Alkali Wash	18	25	1	2	2	1	0
Alkali Wash	18	20	3	2	1	<1	5
Alkali Wash	18	15	0	0	0	4	1
Alkali Wash	18	10	3	12	<1	<1	4
Alkali Wash	18	5	0	0	0	5	2
Alkali Wash	19	25	0	0	0	20	<1
Alkali Wash	19	20	3	10	10	0	5
Alkali Wash	19	15	2	5	5	1	15
Alkali Wash	19	10	1	<1	<1	5	5
Alkali Wash	19	5	2	<1	<1	25	<1
SAND	20	1	4	10	10	1	5
SAND	20	2	1	<1	<1	1	1
SAND	20	3	1	<1	<1	1	<1
SAND	20	4	1	1	1	2	2
SAND	20	5	4	10	10	1	70
Alkali Wash	21	1	1	0	0	85	0
Alkali Wash	21	2	0	0	0	80	10
Alkali Wash	21	3	1	<1	<1	3	1
Alkali Wash	21	4	1	<1	21	10	1
Alkali Wash	21	5	1	<1	0	1	5
SAND DUNE	22	1	5	8	7	0	3
SAND DUNE	22	2	4	5	2	0	10
SAND DUNE	22	3	3	13	12	0	4

SAND DUNE	22	4	4	15	14	0	3
SAND DUNE	22	5	4	4	3	0	1
BADLAND	23	1	1	<1	<1	<1	2
BADLAND	23	2	1	<1	<1	<1	1
BADLAND	23	3	0	0	0	<1	3
BADLAND	23	4	0	0	0	2	<1
BADLAND	23	5	0	0	0	0	0
BADLAND	24	1	0	0	0	10	<1
BADLAND	24	2	0	0	0	15	0
BADLAND	24	3	0	0	0	18	1
BADLAND	24	4	1	0	0	5	<1
BADLAND	24	5	0	0	0	2	0
THIN BREAK	25	1	1	<1	<1	30	<1
THIN BREAK	25	2	0	0	0	20	<1
THIN BREAK	25	3	0	0	0	5	2
THIN BREAK	25	4	2	2	1	15	3
THIN BREAK	25	5	0	0	0	20	1
BADLAND	26	1	0	0	0	0	0
BADLAND	26	2	4	5	5	2	0
BADLAND	26	3	0	0	0	0	0
BADLAND	26	4	4	1	1	<1	<1
BADLAND	26	5	3	<1	<1	0	<1
	27						
	27						
	27						
	27						
	27						
BADLAND	28	1	0	0	0	30	<1
BADLAND	28	2	0	0	0	20	0
BADLAND	28	3	0	0	0	20	0
BADLAND	28	4	3	5	5	3	3
BADLAND	28	5	2	2	1	4	<1
Alkali Wash	29	1	1	2	2	<1	<1
Alkali Wash	29	2	3	20	5	0	60
Alkali Wash	29	3	3	15	15	<1	2
Alkali Wash	29	4	3	3	3	0	3
Alkali Wash	29	5	1	1	0	0	<1
Alkali Wash	30	1	2	7	7	6	<1

Alkali Wash	30	2	2	<1	<1	6	0
Alkali Wash	30	3	3	1	1	5	0
Alkali Wash	30	4	2	<1	<1	2	<1
Alkali Wash	30	5	1	2	2	2	1
Alkali Wash	31	25	2	15	1	<1	5
Alkali Wash	31	20	1	<1	<1	<1	8
Alkali Wash	31	15	3	10	10	0	5
Alkali Wash	31	10	2	15	3	<1	7
Alkali Wash	31	5	3	15	6	0	4
Alkali Wash	32	1	1	7	7	<1	1
Alkali Wash	32	2	1	3	3	1	<1
Alkali Wash	32	3	1	4	4	3	<1
Alkali Wash	32	4	2	10	10	<1	1
Alkali Wash	32	5	5	15	15	1	<1
THIN BREAK	33	1	1	<1	<1	80	<1
THIN BREAK	33	2	1	<1	<1	80	<1
THIN BREAK	33	3	1	1	1	70	1
THIN BREAK	33	4	1	<1	<1	80	1
THIN BREAK	33	5	1	<1	<1	60	<1
Alkali Wash	34	25	0	0	0	8	<1
Alkali Wash	34	20	2	20	0	0	25
Alkali Wash	34	15	5	1	1	5	1
Alkali Wash	34	10	4	2	>1	3	1
Alkali Wash	34	5	3	5	3	<1	1
BADLAND	35	25	3	5	5	1	1
BADLAND	35	20	0	0	0	50	<1
BADLAND	35	15	6	8	<1	3	1
BADLAND	35	10	1	10	10	<1	3
BADLAND	35	5	0	0	0	40	30
Alkali Wash	36	1	4	60	5	>1	>1
Alkali Wash	36	2	2	4	1	0	25
Alkali Wash	36	3	2	20	>1	0	75
Alkali Wash	36	4	1	4	4	0	>1
Alkali Wash	36	5	5	0	0	0	1
	37						
	37						
	37						
	37						

	37							
BADLAND	38	1	4	10	10	2	<1	
BADLAND	38	2	2	<1	<1	2	0	
BADLAND	38	3	5	5	<1	3	0	
BADLAND	38	4	0	0	0	1	<1	
BADLAND	38	5			8	1	1	
Sand	39	1	2	25	3	0	15	
Sand	39	2	3	2	2	5	3	
Sand	39	3	2	30	30	2	10	
Sand	39	4	2	15	14	1	4	
Sand	39	5	3	8	4	1	3	
THIN BREAK	40	1	0	0	0	35	3	
THIN BREAK	40	2	1	2	2	25	20	
THIN BREAK	40	3	0	0	0	60	3	
THIN BREAK	40	4	0	0	0	60	1	
THIN BREAK	40	5	0	0	0	40	4	
Alkali Wash	41	1	3	<1	<1	85		
Alkali Wash	41	2	0	0	0	15	<1	
Alkali Wash	41	3	4	20	1	10	12	
Alkali Wash	41	4	4	10	0	<1	10	
Alkali Wash	41	5	2	3	3	<1	25	
THIN BREAK	42	25	2	<1	<1	10	<1	
THIN BREAK	42	20	1	<1	<1	70	0	
THIN BREAK	42	15	1	<1	<1	60	<1	
THIN BREAK	42	10	0	0	0	80	0	
THIN BREAK	42	5	0	0	0	80	<1	
SA SA	43	1	4	3	1	0	2	
SA SA	43	2	5	30	27	0	5	
SA SA	43	3	5	5	1	0	3	
SA SA	43	4	6	8	7	0	2	
SA SA	43	5	3	1	1	0	2	
DUNE	44	1	3	4	1	<1	2	
DUNE	44	2	4	6	1	1	3	
DUNE	44	3	4	6	1	0	5	
DUNE	44	4	4	20	20	0	3	
DUNE	44	5	7	20	3	1	3	
SAND	45	1	4	2	2	2	1	
SAND	45	2	2	10	10	0	10	

SAND	45	3	1	<1	<1	3	1
SAND	45	4	2	1	1	2	2
SAND	45	5	5	<1	<1	3	1
Alkali Wash	46	1	2	1	1	1	<1
Alkali Wash	46	2	5	5	5	0	<1
Alkali Wash	46	3	3	3	3	<1	<1
Alkali Wash	46	4	5	5	1	0	1
Alkali Wash	46	5	2	4	4	1	1
THIN BREAK	47	1	1	<1	<1	35	1
THIN BREAK	47	2	0	0	0	50	1
THIN BREAK	47	3	2	1	1	50	1
THIN BREAK	47	4	1	<1	<1	40	1
THIN BREAK	47	5	1	1	1	25	4
SAND	48	1	4	2	1	1	1
SAND	48	2	3	3	1	1	1
SAND	48	3	4	4	1	2	3
SAND	48	4	5	20	5	<1	5
SAND	48	5	4	18	8	1	4
THIN BREAK	49	1	0	0	0	95	0
THIN BREAK	49	2	2	<1	<1	70	3
THIN BREAK	49	3	0	0	0	35	1
THIN BREAK	49	4	1	10	0	3	5
THIN BREAK	49	5	0	0	0	80	1
SA SA	50	1	3	5	5	2	2
SA SA	50	2	3	20	1	<1	8
SA SA	50	3	5	10	3	1	3
SA SA	50	4	4	20	12	1	3
SA SA	50	5	5	10	8	<1	2
	51						
	51						
	51						
	51						
	51						
Alkali Wash	52	1	2	<1	<1	5	1
Alkali Wash	52	2	3	1	1	5	2
Alkali Wash	52	3	1	4	4	10	1
Alkali Wash	52	4	1	<1	<1	8	0
Alkali Wash	52	5	2	1	1	3	<1

SAND	53	1	4	3	2	1	4
SAND	53	2	2	2	1	1	40
SAND	53	3	2	20	1	1	6
SAND	53	4	5	10	10	1	3
SAND	53	5	4	8	8	1	1
BADLAND	54	1	0	0	0	8	0
BADLAND	54	2	0	0	0	20	0
BADLAND	54	3	0	0	0	10	0
BADLAND	54	4	0	0	0	45	0
BADLAND	54	5	0	0	0	25	0
BADLAND	55	25	0	0	0	20	0
BADLAND	55	20	0	0	0	3	<1
BADLAND	55	15	0	0	0	10	0
BADLAND	55	10	3	10	10	0	1
BADLAND	55	5	2	2	2	<1	<1
Sand	56	1	2	15	>1	4	4
Sand	56	2	5	14	2	2	4
Sand	56	3	4	20	4	>1	4
Sand	56	4	6	8	>1	0	7
Sand	56	5	2	30	0	>1	5
ARROYO SHRUB	57	1	3	1	1	0	1
ARROYO SHRUB	57	2	1	8	8	0	3
ARROYO SHRUB	57	3	3	5	5	0	1
ARROYO SHRUB	57	4	3	4	4	0	3
ARROYO SHRUB	57	5	3	12	1	0	25
Alkali Wash	58	1	5	20	20	5	1
Alkali Wash	58	2	1	1	1	15	1
Alkali Wash	58	3	4	10	9	20	1
Alkali Wash	58	4	1	3	3	20	<1
Alkali Wash	58	5	4	3	3	1	4
SA SA	59	1	4	10	10	0	2
SA SA	59	2	5	8	4	0	3
SA SA	59	3	4	1	1	0	1
SA SA	59	4	3	12	6	0	2
SA SA	59	5	4	2	1	0	1
THIN BREAK	60	1	2	5	5	5	3
THIN BREAK	60	2	2	<1	<1	10	<1
THIN BREAK	60	3	1	<1	<1	6	<1

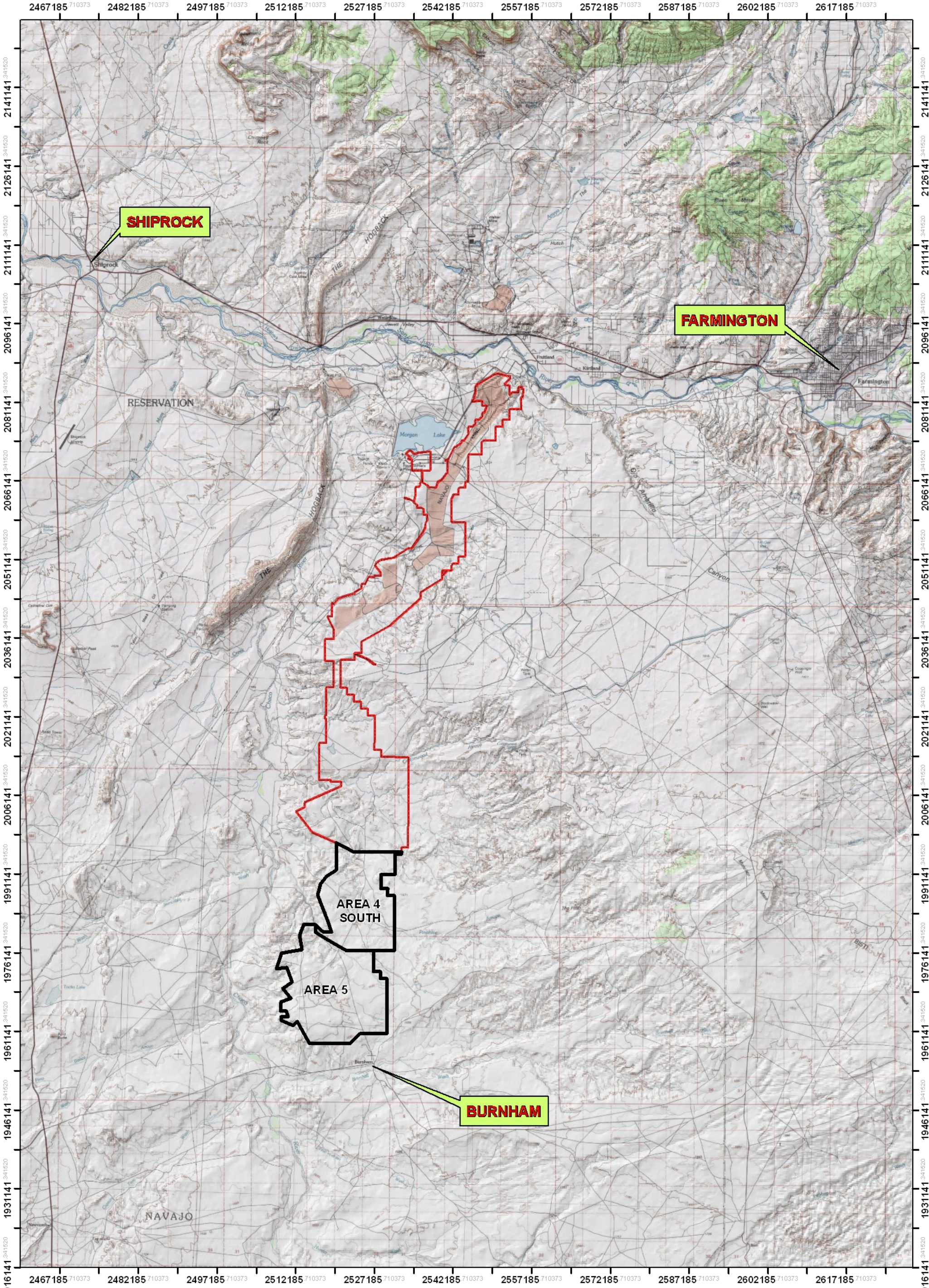
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THIN BREAK	60	5	2	1	1	5	1
THIN BREAK	61	1	0	0	0	30	0
THIN BREAK	61	2	0	0	0	70	0
THIN BREAK	61	3	4	<1	0	80	0
THIN BREAK	61	4	0	0	0	10	0
THIN BREAK	61	5	0	0	0	85	0
Sa. Sa.	62	1	6	8	1	5	4
Sa. Sa.	62	2	4	23	1	2	1
Sa. Sa.	62	3	5	5	1	3	4
Sa. Sa.	62	4	6	8	1	1	20
Sa. Sa.	62	5	4	17	6	5	1
Alkali Wash	63	1	5	2	1	1	3
Alkali Wash	63	2	5	22	2	0	3
Alkali Wash	63	3	1	25	0	0	3
Alkali Wash	63	4	1	1	1	0	1
Alkali Wash	63	5	2	1	1	2	<1
THIN BREAK	64	1	2	25	0	15	7
THIN BREAK	64	2	1	4	0	10	2
THIN BREAK	64	3	3	13	1	1	6
THIN BREAK	64	4	2	6	0	7	3
THIN BREAK	64	5	3	7	1	8	6
	65	1					
	65	2					
	65	3					
	65	4					
	65	5					
ꞵy. Shrub trans. Alk. W	66	1	3	20	1	0	5
ꞵy. Shrub trans. Alk. W	66	2	2	7	1	1	2
ꞵy. Shrub trans. Alk. W	66	3	0	0	0	15	1
ꞵy. Shrub trans. Alk. W	66	4	2	>1	>1	15	>1
ꞵy. Shrub trans. Alk. W	66	5	2	>1	>1	10	>1
BADLAND	67	1	0	0	0	95	1
BADLAND	67	2	0	0	0	99	<1
BADLAND	67	3	1	<1	<1	95	0
BADLAND	67	4	0	0	0	75	8
BADLAND	67	5	2	4	4	90	1
SA SA	68	1	1	5	5	0	3

SA SA	68	2	4	3	3	0	15
SA SA	68	3	2	4	0	0	6
SA SA	68	4	2	10	10	0	10
SA SA	68	5	2	15	12	0	5
Alkali Wash	69	1	4	20	10	<1	10
Alkali Wash	69	2	3	30	30	1	3
Alkali Wash	69	3	5	12	5	<1	5
Alkali Wash	69	4	1	<1	<1	1	5
Alkali Wash	69	5	2	2	2	5	5
Alkali Wash	70	1	2	1	1	2	<1
Alkali Wash	70	2	4	<1	<1	3	1
Alkali Wash	70	3	2	5	<1	15	2
Alkali Wash	70	4	2	<1	<1	45	2
Alkali Wash	70	5	2	<1	<1	40	<1
THIN BREAK	71	1	0	0	0	95	<1
THIN BREAK	71	2	1	25	0	75	0
THIN BREAK	71	3	1	2	0	95	3
THIN BREAK	71	4	1	1	1	95	2
THIN BREAK	71	5	0	0	0	40	<1
SA SA	72	5	5	15	5	0	7
SA SA	72	10	2	12	2	0	3
SA SA	72	15	2	15	1	0	10
SA SA	72	20	3	1	1	0	2
SA SA	72	25	4	4	1	0	4
	73	1					
	73	2					
	73	3					
	73	4					
	73	5					
BADLAND	74	1	1	2	0	60	2
BADLAND	74	2	2	3	3	5	1
BADLAND	74	3	3	<1	0	25	6
BADLAND	74	4	0	0	0	8	1
BADLAND	74	5	0	0	0	15	0
BADLAND	75	1	0	0	0	90	<1
BADLAND	75	2	0	0	0	80	0
BADLAND	75	3	0	0	0	90	0
BADLAND	75	4	0	0	0	90	<1

BADLAND	75	5	0	0	0	90	<1
BADLAND	76	1	1	<1	<1	15	1
BADLAND	76	2	1	1	1	20	15
BADLAND	76	3	1	<1	<1	10	<1
BADLAND	76	4	0	0	0	5	1
BADLAND	76	5	0	0	0	15	1
BADLAND	77	1	0	0	0	1	0
BADLAND	77	2	0	0	0	40	0
BADLAND	77	3	0	<1	0	60	2
BADLAND	77	4	0	0	0	30	0
BADLAND	77	5	1	<1	0	80	0
Sa. Sa.	78	5	3	3	3	<1	2
Sa. Sa.	78	10	4	5	2	1	2
Sa. Sa.	78	15	4	3	1	1	1
Sa. Sa.	78	20	4	10	9	<1	5
Sa. Sa.	78	25	3	12	2	<1	1
THIN BREAK	79	1	0	0	0	15	3
THIN BREAK	79	2	0	0	0	70	<1
THIN BREAK	79	3	3	10	0	15	5
THIN BREAK	79	4	1	<1	<1	75	<1
THIN BREAK	79	5	2	3	0	80	<1
ARROYO SHRUB	80	1	5	20	20	0	2
ARROYO SHRUB	80	2	2	10	10	0	2
ARROYO SHRUB	80	3	2	10	10	0	1
ARROYO SHRUB	80	4	4	1	1	0	<1
ARROYO SHRUB	80	5	2	15	<1	0	25
	81	1					
	81	2					
	81	3					
	81	4					
	81	5					
	82	1					
	82	2					
	82	3					
	82	4					
	82	5					
	83	1					
	83	2					

ATTACHMENT A

EXHIBITS



ECOSPHERE
ENVIRONMENTAL SERVICES

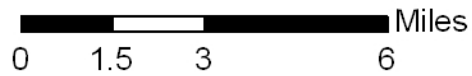
NAVAJO MINE EXTENSION PROJECT

BHP NAVAJO COAL COMPANY

EXHIBIT 1 | AREA 4 SOUTH AND AREA 5 | 8/1/2008

SAN JUAN COUNTY,
NEW MEXICO

NAD 83 State Plane
New Mexico West (Feet)



100K MAP SOURCE: TOPO! 4.0, 2007

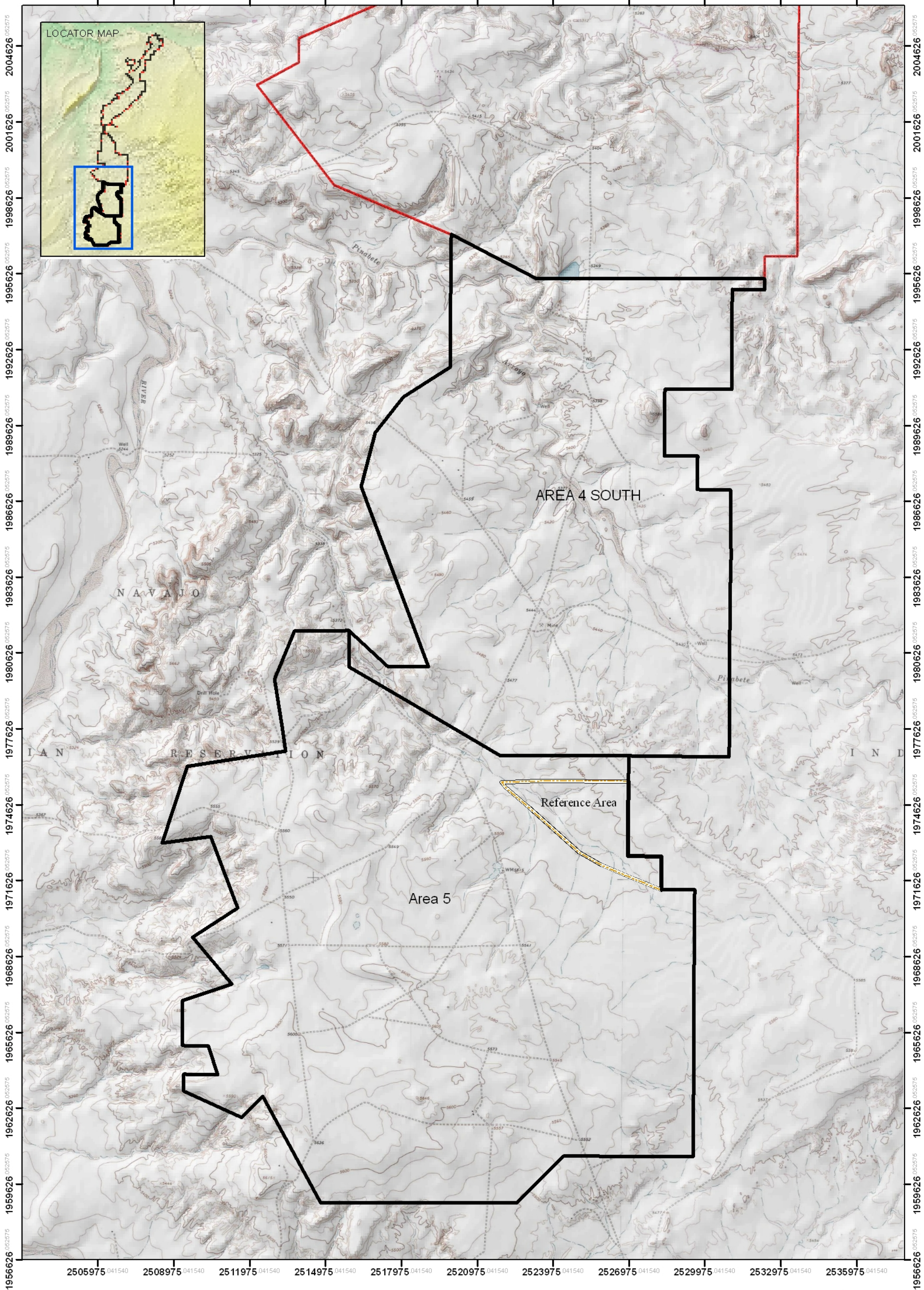


1:199,168

LEGEND

- NMEP Permit Area
- BNCC Lease Boundary

2505975 041540 2508975 041540 2511975 041540 2514975 041540 2517975 041540 2520975 041540 2523975 041540 2526975 041540 2529975 041540 2532975 041540 2535975 041540



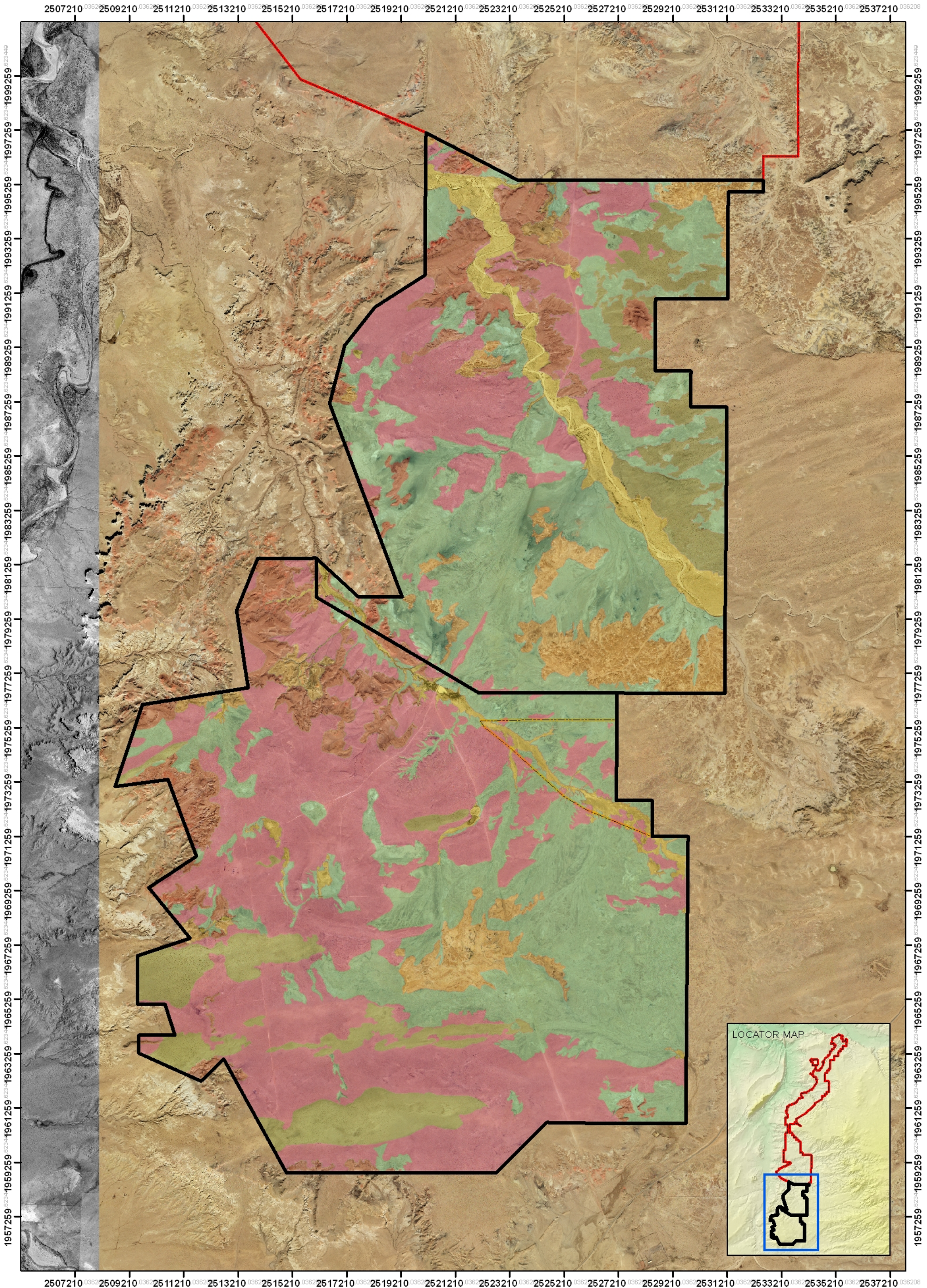
NAVAJO MINE EXTENSION PROJECT

BHP NAVAJO COAL COMPANY

EXHIBIT 2 AREA 4 SOUTH AND AREA 5 8/1/2008

SAN JUAN COUNTY, NEW MEXICO NAD 83 State Plane
New Mexico West (Feet)

<p>100K MAP SOURCE: TOPO! 4.0, 2007</p>		
LEGEND		
NMEP Permit Area	BNCC Lease Boundary	
	Reference Area	



ECOSPHERE
ENVIRONMENTAL SERVICES

VEGETATION COMMUNITIES

BHP NAVAJO COAL COMPANY

EXHIBIT 3 AREA 4 SOUTH AND AREA 5 8/1/2008

SAN JUAN COUNTY,
NEW MEXICO

NAD 83 State Plane
New Mexico West (Feet)

0 0.25 0.5 1 Miles

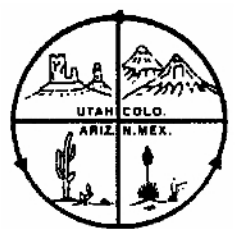
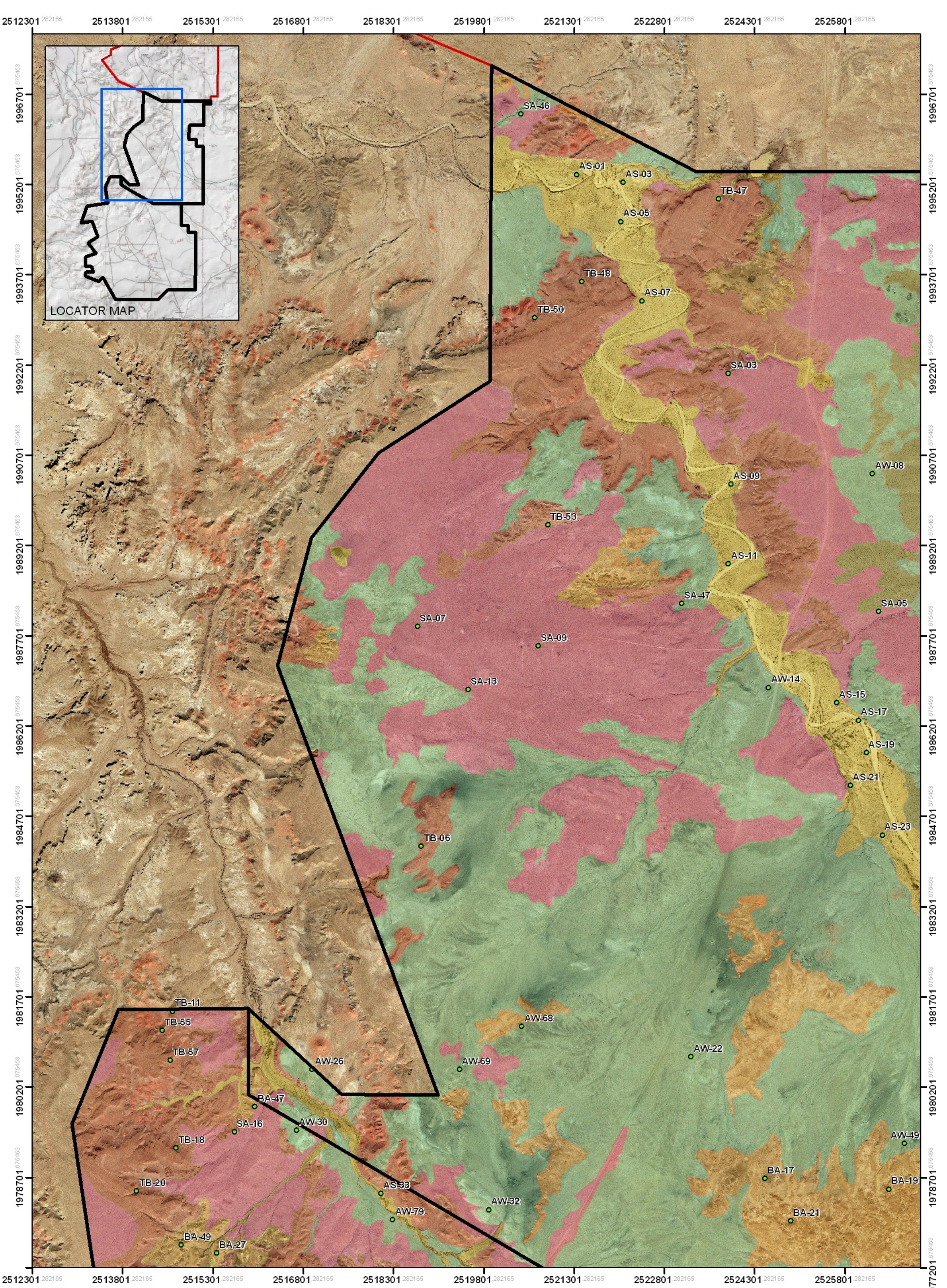
100K MAP SOURCE: TOPO! 4.0, 2007



1:38,500

LEGEND

- | | | |
|---------------|-------------|----------------|
| Alkaline Wash | Dunes | NMEPPermitArea |
| Arroyo Shrub | Sands | Reference Area |
| Badlands | Thin Breaks | |



ECOSPHERE
ENVIRONMENTAL SERVICES

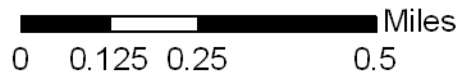
SPRING VEGETATION TRANSECTS

BHP NAVAJO COAL COMPANY

EXHIBIT 4(A) AREA 4 SOUTH AND AREA 5 8/1/2008

SAN JUAN COUNTY,
NEW MEXICO

NAD 83 State Plane
NM West (Feet)



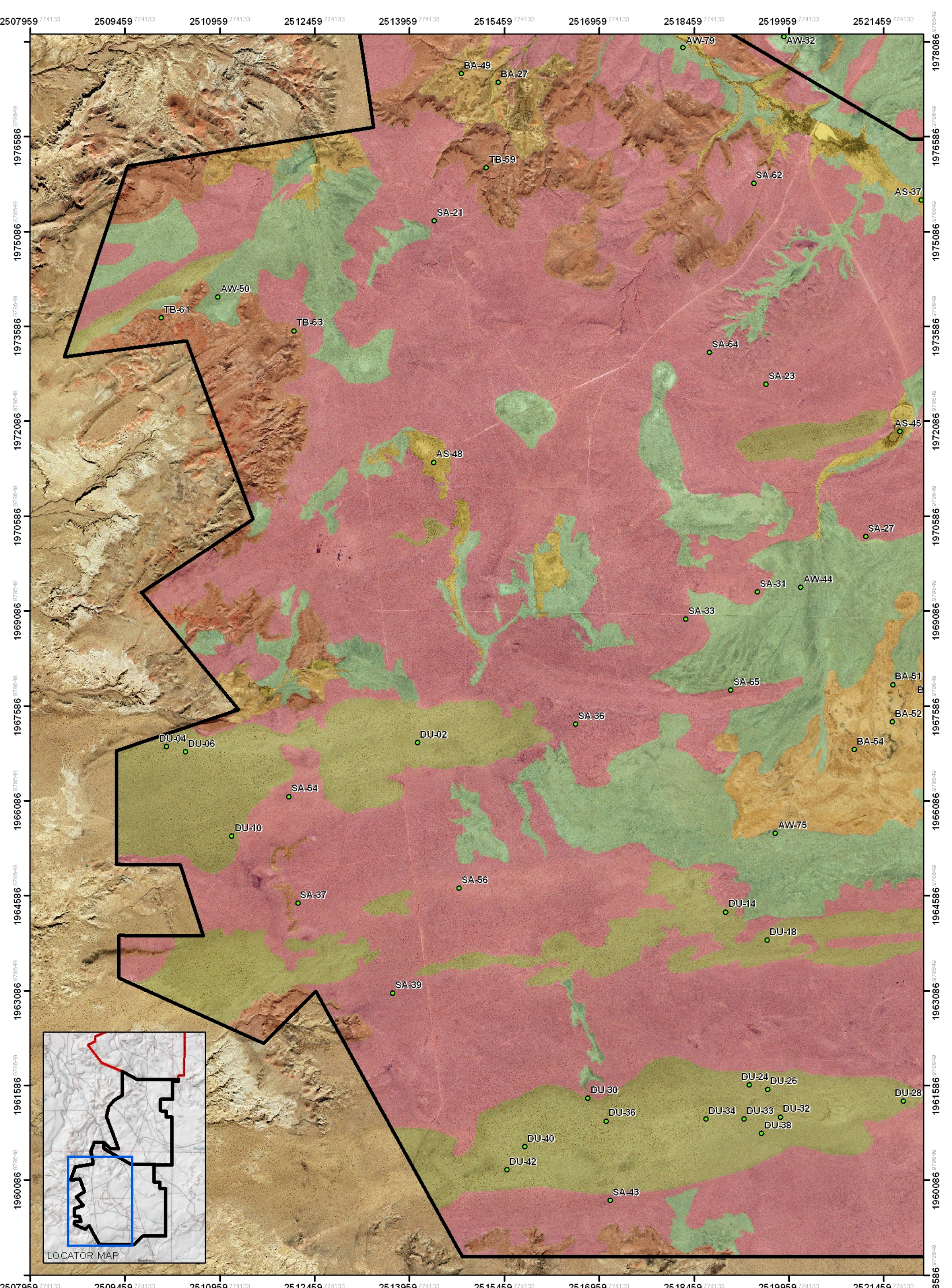
100K MAP SOURCE: TOPO! 4.0, 2007



1:17,161

LEGEND

- Transects
- NMEP Permit Area
- BNCC Lease Bndy
- Alkaline Wash
- Arroyo Shrub
- Badlands
- Dunes
- Sands
- Thin Breaks



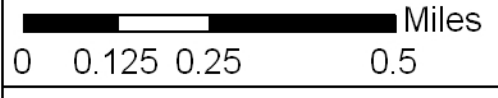
SPRING VEGETATION TRANSECTS

BHP NAVAJO COAL COMPANY

EXHIBIT 4(C) | AREA 4 SOUTH AND AREA 5 | 8/1/2008

SAN JUAN COUNTY,
NEW MEXICO

NAD 83 State Plane
NM West (Feet)



100K MAP SOURCE: TOPO! 4.0, 2007

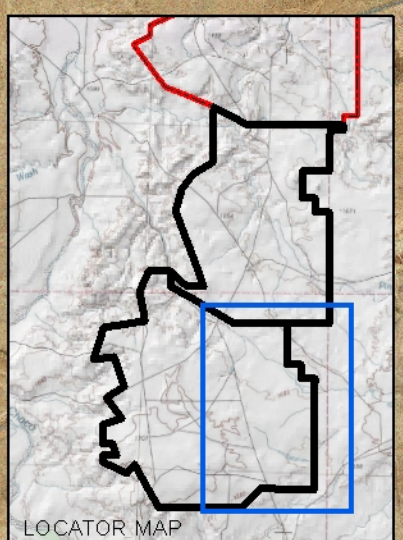
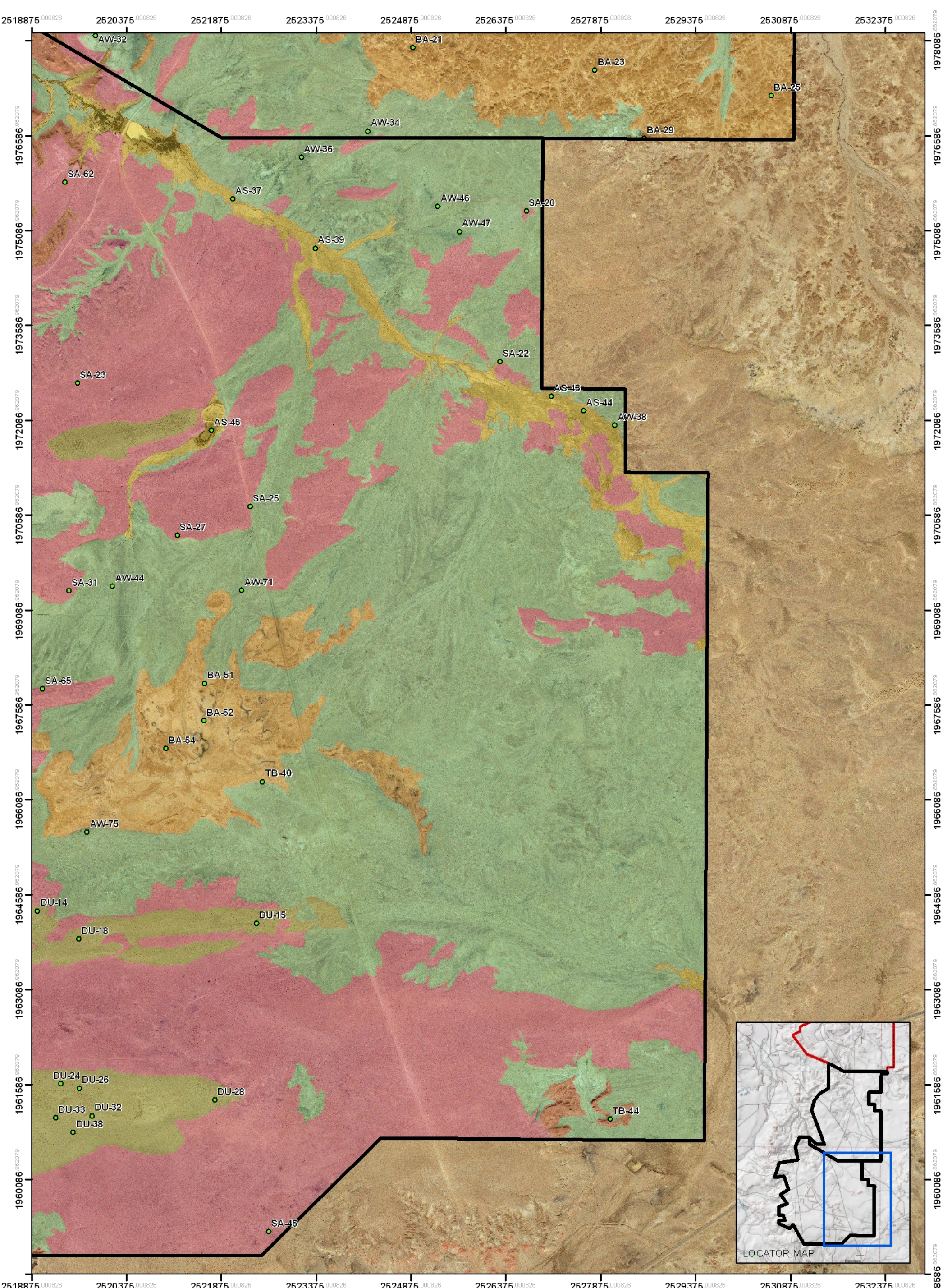


1:16,424

LEGEND

- Transects
- NMEP Permit Area
- BNCC Lease Bndy
- Alkaline Wash
- Arroyo Shrub
- Badlands
- Dunes
- Sands
- Thin Breaks

ECOSPHERE
ENVIRONMENTAL SERVICES



SPRING VEGETATION TRANSECTS

BHP NAVAJO COAL COMPANY

EXHIBIT 4(D) | AREA 4 SOUTH AND AREA 5 | 8/1/2008

SAN JUAN COUNTY, NEW MEXICO | NAD 83 State Plane NM West (Feet)

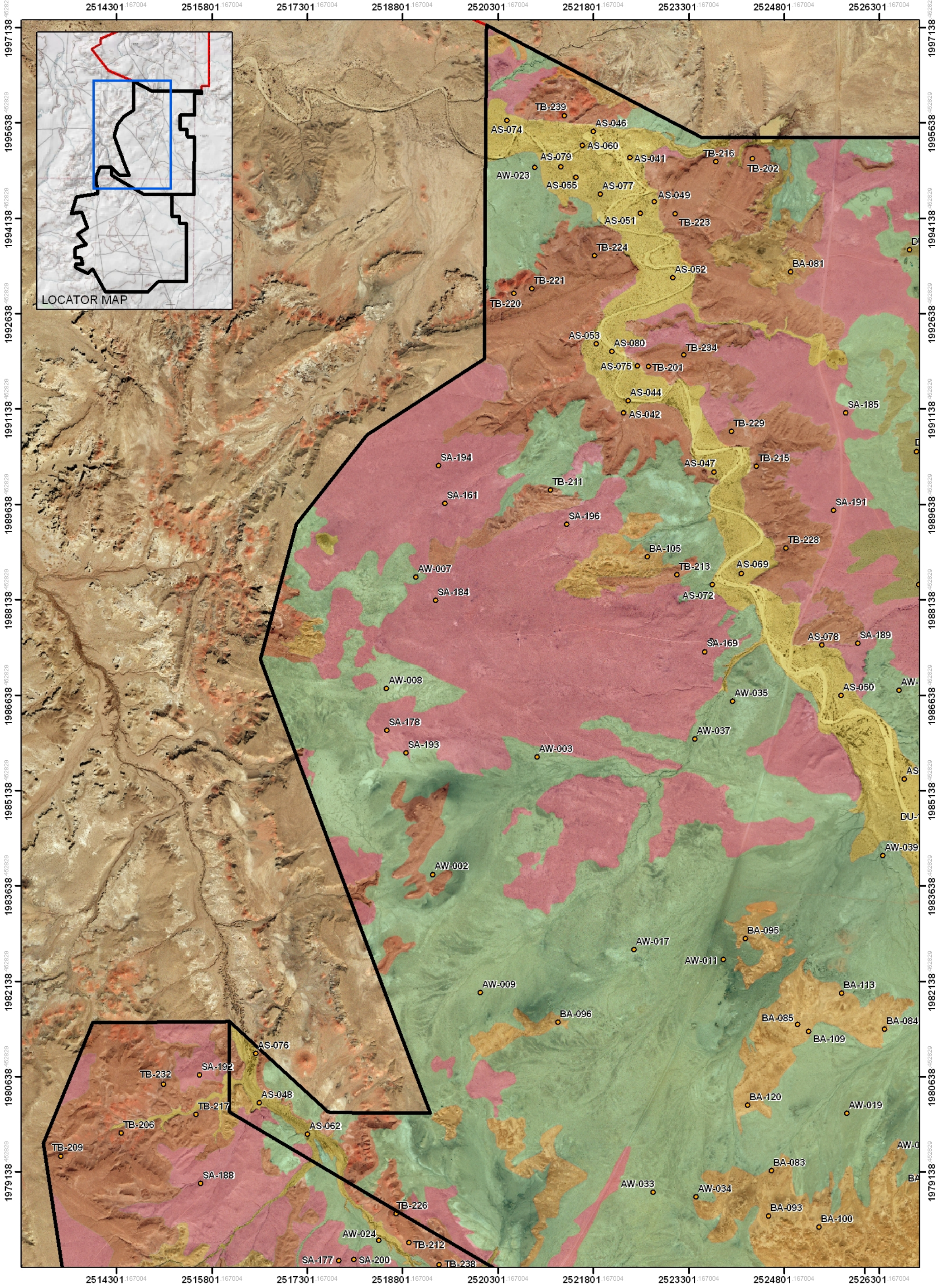
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100K MAP SOURCE: TOPO! 4.0, 2007

1:16,424

LEGEND

Transects	Alkaline Wash	Dunes
NMEP Permit Area	Arroyo Shrub	Sands
BNCC Lease Bndy	Badlands	Thin Breaks



FALL VEGETATION TRANSECTS

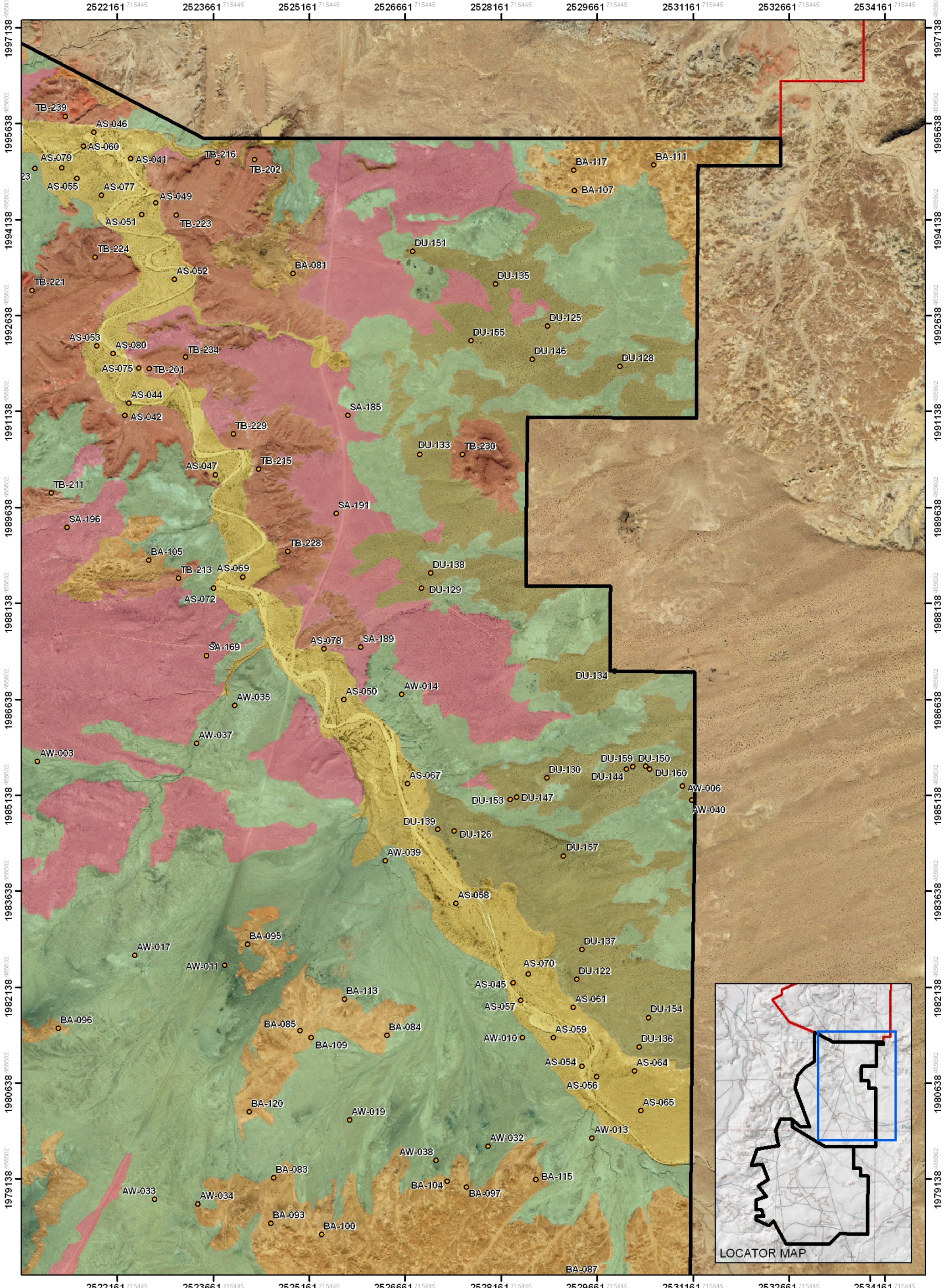
BHP NAVAJO COAL COMPANY

EXHIBIT 5(A) | AREA 4 SOUTH AND AREA 5 | 8/1/2008

SAN JUAN COUNTY,
NEW MEXICO

NAD 83 State Plane
NM West (Feet)

<p>Miles</p>	<p>1:16,424</p>									
<p><i>100K MAP SOURCE: TOPO! 4.0, 2007</i></p>										
<p>LEGEND</p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;"> NMEPP Permit Area</td> <td style="border: none;"> Alkaline Wash</td> <td style="border: none;"> Dunes</td> </tr> <tr> <td style="border: none;"> Transects</td> <td style="border: none;"> Arroyo Shrub</td> <td style="border: none;"> Sands</td> </tr> <tr> <td style="border: none;"> BNCC Lease Bndy</td> <td style="border: none;"> Badlands</td> <td style="border: none;"> Thin Breaks</td> </tr> </table>		NMEPP Permit Area	Alkaline Wash	Dunes	Transects	Arroyo Shrub	Sands	BNCC Lease Bndy	Badlands	Thin Breaks
NMEPP Permit Area	Alkaline Wash	Dunes								
Transects	Arroyo Shrub	Sands								
BNCC Lease Bndy	Badlands	Thin Breaks								



FALL VEGETATION TRANSECTS

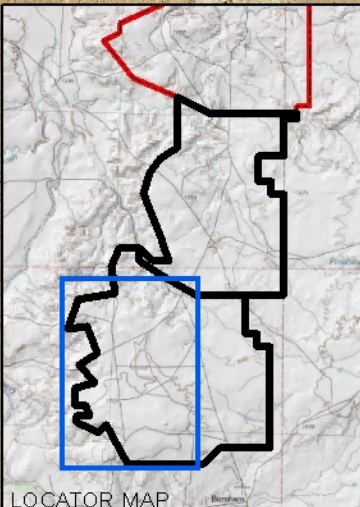
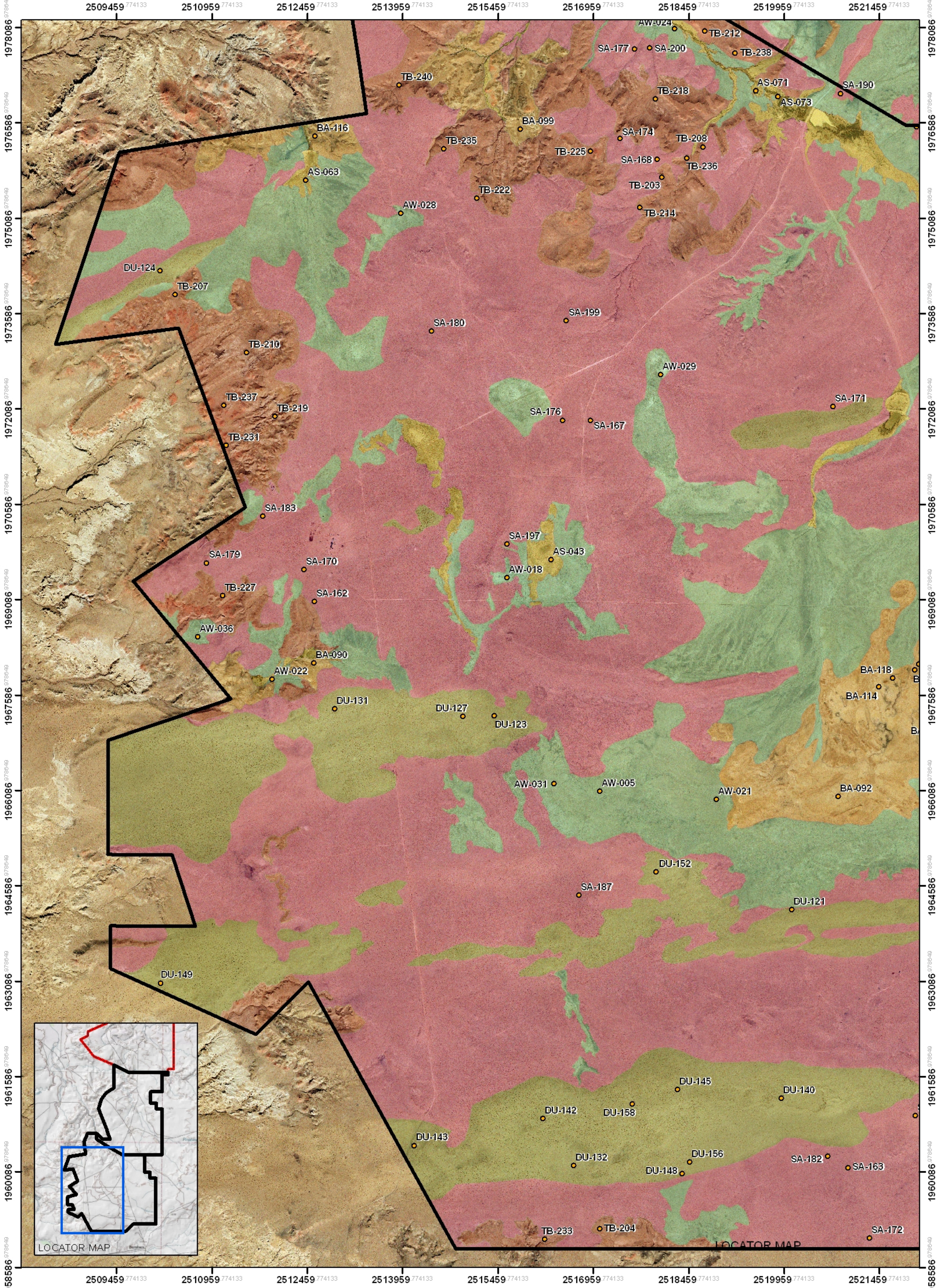
BHP NAVAJO COAL COMPANY

EXHIBIT 5(B) | AREA 4 SOUTH AND AREA 5 | 8/1/2008

SAN JUAN COUNTY,
NEW MEXICO

NAD 83 State Plane
NM West (Feet)

Miles		
0 0.125 0.25 0.5		1:16,424
LEGEND		
<ul style="list-style-type: none"> ● Transects NMEPP Permit Area BNCC Lease Bndy 	<ul style="list-style-type: none"> Alkaline Wash Arroyo Shrub Badlands 	<ul style="list-style-type: none"> Dunes Sands Thin Breaks



FALL VEGETATION TRANSECTS

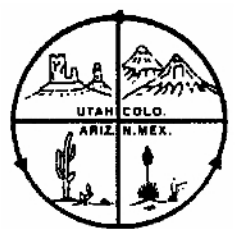
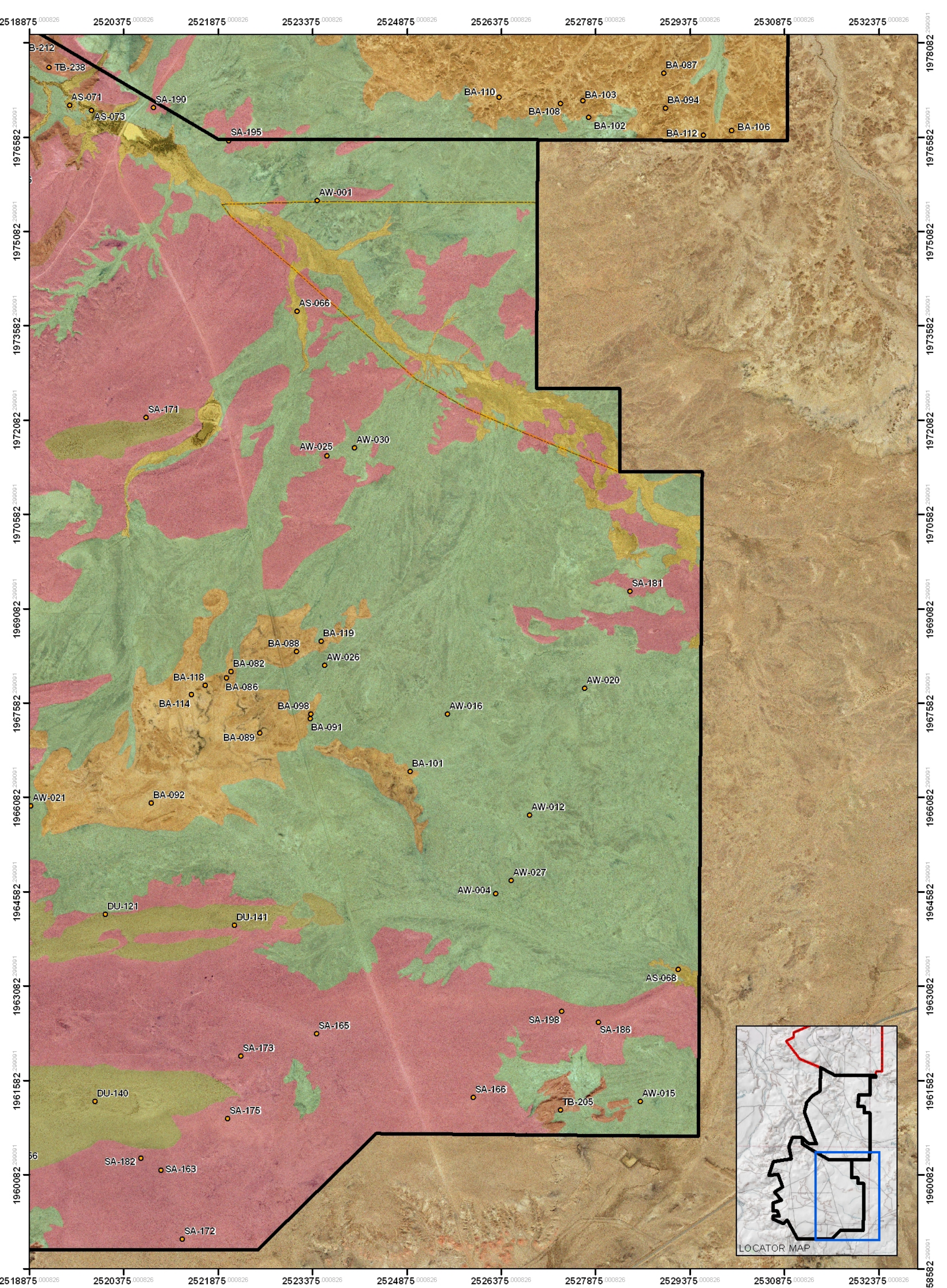
BHP NAVAJO COAL COMPANY

EXHIBIT 5(C) | AREA 4 SOUTH AND AREA 5 | 8/1/2008

SAN JUAN COUNTY, NEW MEXICO

NAD 83 State Plane NM West (Feet)

<i>100K MAP SOURCE: TOPO! 4.0, 2007</i>		
LEGEND		
 Transects	 Alkaline Wash	 Dunes
 NMEP Permit Area	 Arroyo Shrub	 Sands
 BNCC Lease Bndy	 Badlands	 Thin Breaks



ECOSPHERE
ENVIRONMENTAL SERVICES

FALL VEGETATION TRANSECTS

BHP NAVAJO COAL COMPANY

EXHIBIT 5(D) AREA 4 SOUTH AND AREA 5 8/1/2008

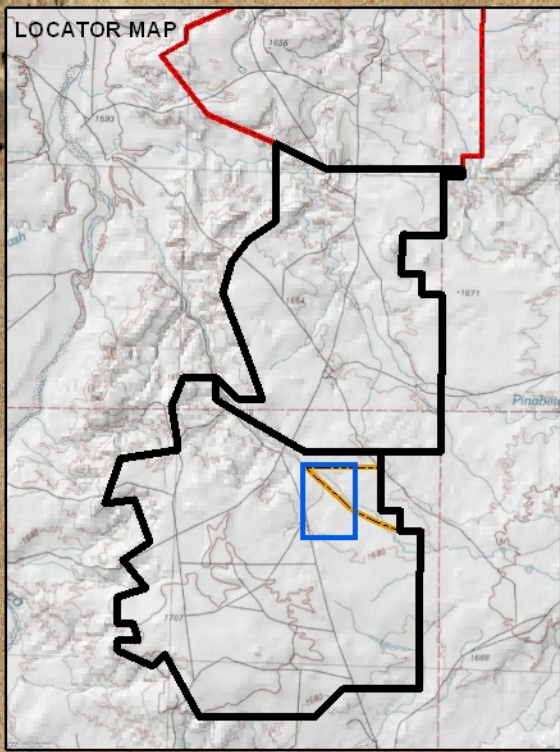
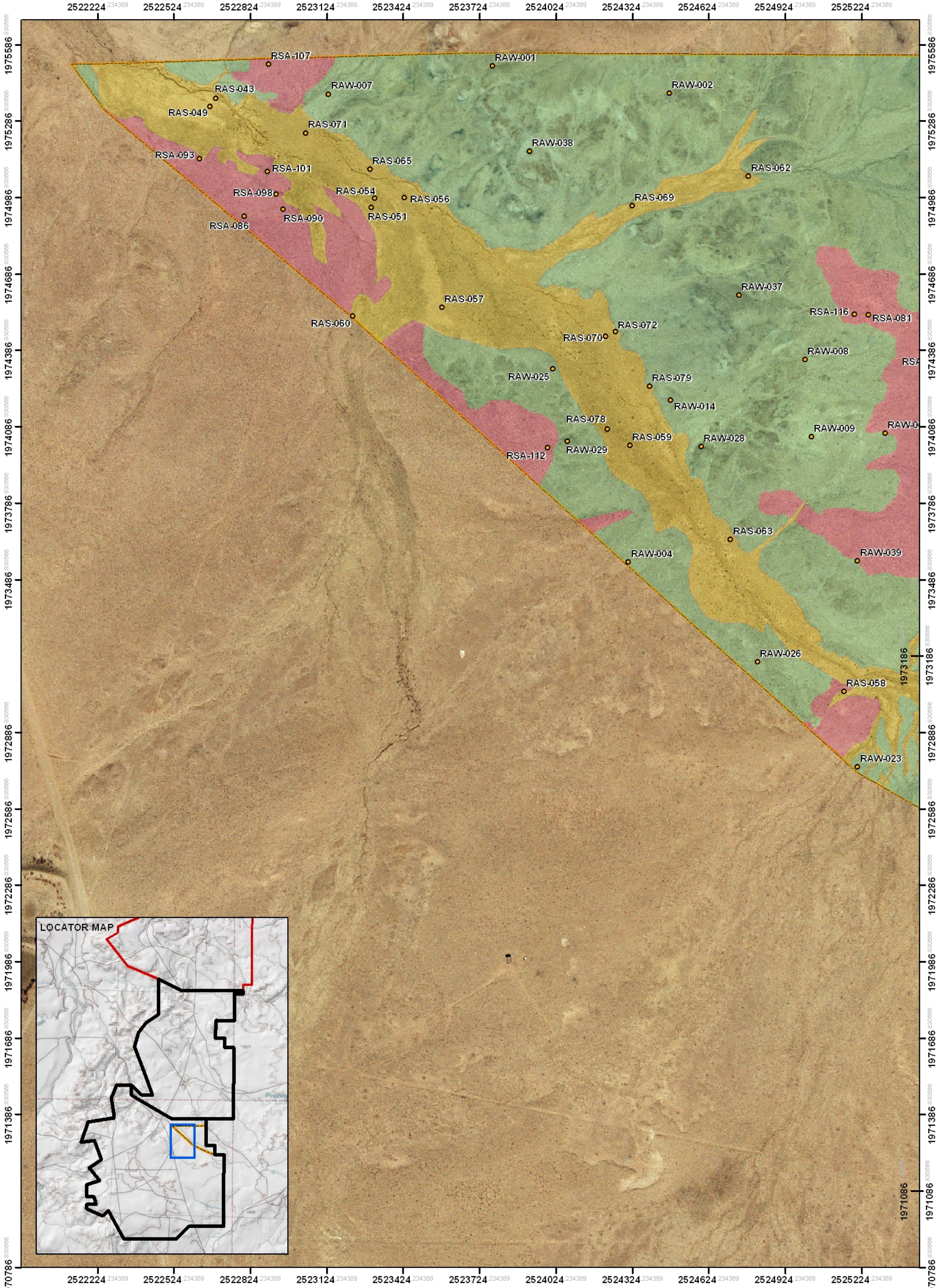
SAN JUAN COUNTY, NEW MEXICO NAD 83 State Plane NM West (Feet)

<p>100K MAP SOURCE: TOPO! 4.0, 2007</p>		
LEGEND		
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1978082
1976582
1975082
1973582
1972082
1970582
1969082
1967582
1966082
1964582
1963082
1961582
1960082

2518875 2520375 2521875 2523375 2524875 2526375 2527875 2529375 2530875 2532375

2518875 2520375 2521875 2523375 2524875 2526375 2527875 2529375 2530875 2532375



REFERENCE AREA		
BHP NAVAJO COAL COMPANY		
EXHIBIT 6(A)	AREA 4 SOUTH AND AREA 5	8/1/2008
SAN JUAN COUNTY, NEW MEXICO	NAD 83 State Plane New Mexico West (Feet)	

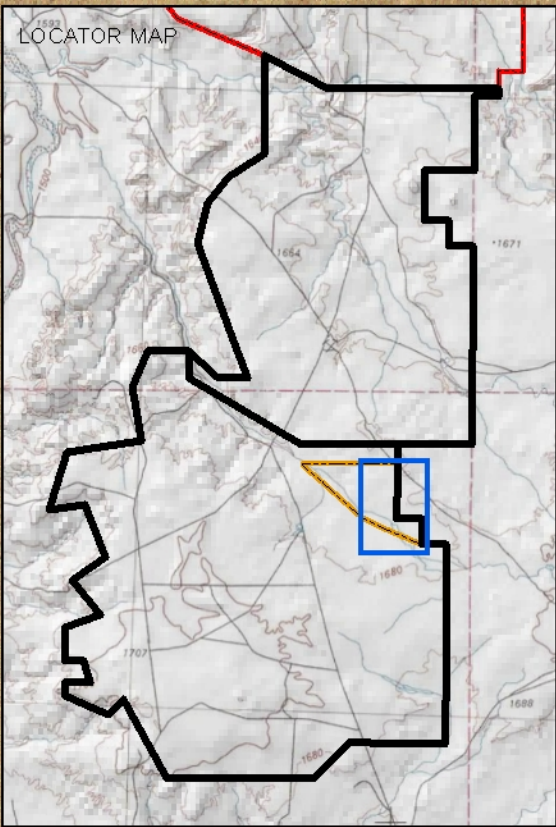
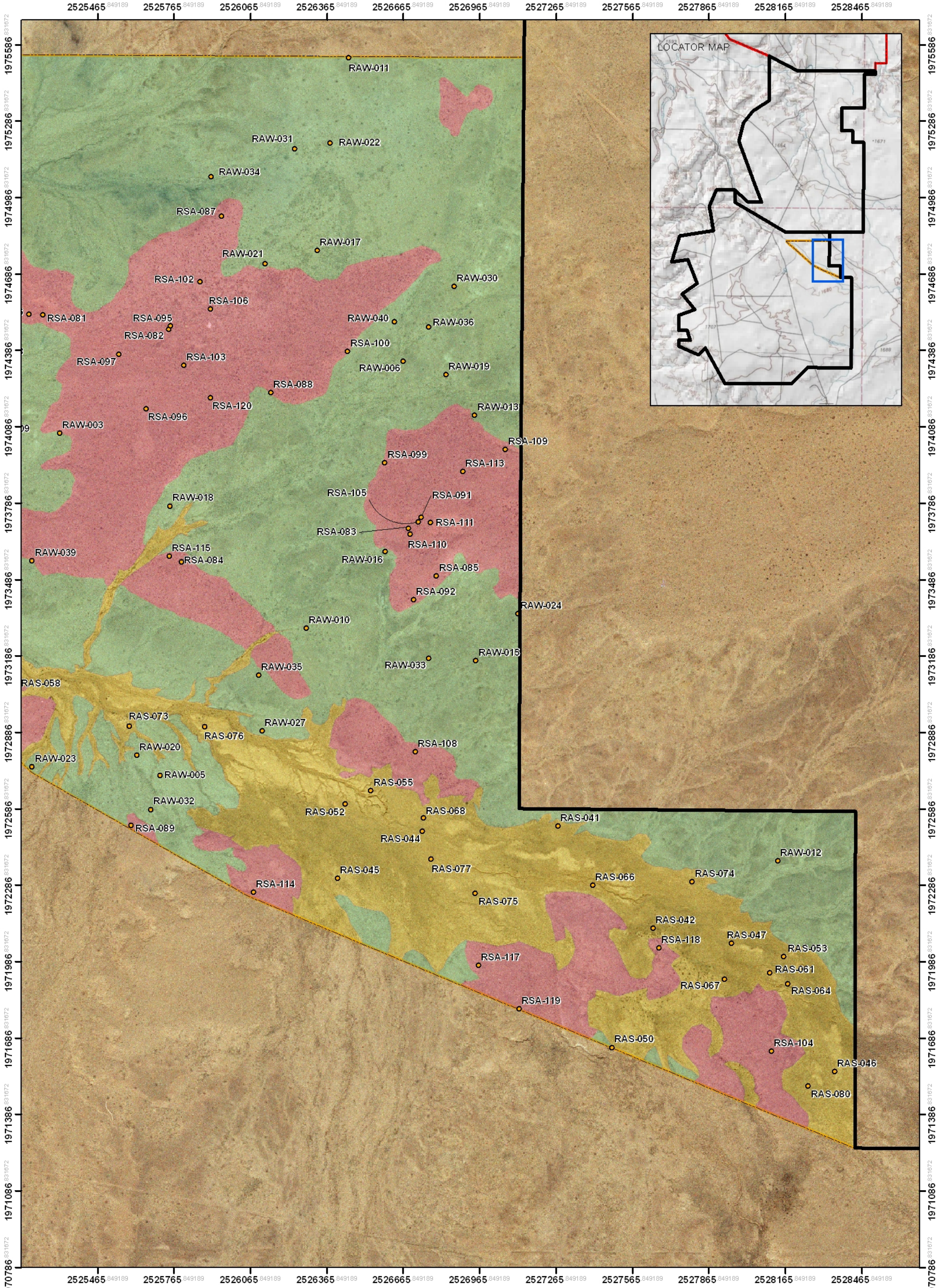
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24K MAP SOURCE: TOPO! 4.0, 2007

1:4,100

LEGEND

NMEP Permit Area	Alkaline Wash	Dunes
BNCC Lease Bndy	Arroyo Shrub	Sands
Transects	Badlands	Thin Breaks
Reference Area		



REFERENCE AREA

BHP NAVAJO COAL COMPANY

EXHIBIT 6(B) AREA 4 SOUTH AND AREA 5 8/1/2008

SAN JUAN COUNTY,
NEW MEXICO

NAD 83 State Plane
New Mexico West (Feet)

0 230 460 920 Feet		↑ 1:4,100
24K MAP SOURCE: TOPO! 4.0, 2007		
LEGEND		
● Transects	Alkaline Wash	Dunes
▭ NMEP Permit Area	Arroyo Shrub	Sands
▭ BNCC Lease Boundary	Badlands	Thin Breaks
▭ Reference Area		

ATTACHMENT B

**PLANT SPECIES RECORDED DURING DATA
COLLECTION**

SYMBOL	NAME	LifeForm
ABFR2	<i>Abronia fragrans</i> Nutt. Ex Hook	per forb
ACHY	<i>Achnatherum hymenoides</i>	per gram
AGCR	<i>Agropyron cristatum</i> (L.) Gaertn.	per gram
AGGL	<i>Agoseris glauca</i> (Pursh) Raf.	per forb
ALLE7	<i>Aliciella</i> [<i>Gilia</i>] <i>leptomeria</i>	ann forb
ALLIUM	<i>Allium</i> spp.	per forb
ALMA	<i>Aletes macdougali</i> Coult. & Rose	per forb
ALMA3	<i>Aletes macdougali</i> Coult. & Rose	per forb
AMAC2	<i>Ambrosia acanthicarpa</i> Hook.	ann forb
AMARA	<i>Amaranthus</i> sp.	forb
AMBI	<i>Amaranthus bigelovii</i>	forb
ARDR4	<i>Artemisia dracunculus</i> L.	per forb
ARPU9	<i>Aristida purpurea</i> Nutt.	per gram
ASCLEP	<i>Asclepias</i> spp.	forb
ASSA8	<i>Asclepias sanjuanensis</i>	
	<i>Astragalus mollissimus</i> Torr. Var. <i>thompsoniae</i> (S. Wats))	
ASMO7	Barneby	per forb
ASTRA	<i>Astragalus</i> spp.	forb
ATCA2	<i>Atriplex canescens</i> (Pursh) Nutt. Var. <i>canescens</i>	shrub
	<i>Atriplex confertifolia</i> (Torr. & Frém.) S. Wats. Var. <i>cuneata</i> (A. Nels.) Welsh	shrub
ATCO	<i>Atriplex gardneri</i> (Moq.) D. Dietr. Var. <i>cuneata</i> (A. Nels.) Welsh	shrub
ATGA	Welsh	shrub
ATOB	<i>Atriplex obovata</i> Moq.	shrub
ATPO2	<i>Atriplex powellii</i> S. Wats. Var. <i>powellii</i>	ann forb
ATSA	<i>Atriplex saccaria</i> S. Wats.	shrub
BOGR2	<i>Bouteloua gracilis</i> (Willd. Ex Kunth) Lag. Ex Griffiths	per gram
BRMI	<i>Brickellia microphylla</i> (Nutt.) Gray	shrub
BRRU2	<i>Bromus rubens</i> L.	ann gram
BRTE	<i>Bromus tectorum</i> L.	ann gram
CASC18	<i>Camissonia scapoidea</i>	ann forb
CHCO2	<i>Chamaesaracha coronopus</i> (Moric.) Britt.	per forb
CHENO	<i>Chenopodium</i> L. ", "goosefoot spp. ", "Chenopodiaceae	forb
CHER2	<i>Chaetopappa ericoides</i> (Torr.) G. L Nesom	per forb
CHFE3	<i>Chamaesyce fendleri</i>	per forb
CHIN2	<i>Chenopodium incanum</i> (S. Wats.) Heller	ann forb
CHST	<i>Chaenactis stevioides</i> Hook. & Arn.	ann forb
CLLU2	<i>Cleome lutea</i> Hook.	ann forb
COWR2	<i>Cordylanthus wrightii</i>	ann forb
	<i>Cryptantha crassisepala</i> (Torr. & A. Gray) Greene var. <i>elechantha</i> Johnston	ann forb
CRCR3	<i>Cymopterus acaulis</i> (Pursh) Raf. var. <i>fendleri</i> (A. Gray)	ann forb
	Goodrich	per forb
CYAC	<i>Cymopterus bulbosus</i> A. Nels.	per forb
CYBU	<i>Cymopterus</i> Raf.	forb
CYMOP		forb
DALE3	<i>Dalea leporina</i> (Ait) Bullock	ann forb
DEPI	<i>Descurainia pinnata</i>	ann forb
DESO2	<i>Descurainia sophia</i> (L.) Webb ex Prantl	ann forb
DIWI2	<i>Dimorphocarpa wislizenii</i> (Engelm.) Rollins	ann forb
ELEL5	<i>Elymus elymoides</i> (Raf.) Swezey	per gram

SYMBOL	NAME	LifeForm
ELTR7	<i>Elymus trachycaulus</i> (Link) Gould ex Shinners	per gram
ENNA (SENNA)	<i>Senna</i> spp.	per subshrub
EPHED	<i>Ephedra</i> spp.	shrub
EPTO	<i>Ephedra torreyana</i> S. Wats.	shrub
ERBE	<i>Erigeron bellidiastrum</i> Nutt.	ann forb
ERCI6	<i>Erodium cicutarium</i> (L.) L`Her.	ann forb
ERDI5	<i>Eriogonum divaricatum</i> Hook.	ann forb
ERGO	<i>Eriogonum gordonii</i> Benth. In DC	ann forb
ERJA	<i>Eriogonum jamesii</i> Benth.	per forb
ERLE9	<i>Eriogonum leptoclodon</i> Torr. & A. Gray var. <i>ramosissimum</i> (Eastw.) Reveal	shrub
ERNA10 [CHNAA]	<i>Ericameria [Chrysothamnus] nauseosus</i>	shrub
ERTR13	<i>Eremopyrum triticeum</i> (Gaertn.) Nevski	ann gram
EVNU	<i>Evolvulus nuttallianus</i>	per forb
GAPU	<i>Gaillardia pinnatifida</i> Torr.	per forb
GILE	<i>Gillia leptomeria</i> A. Gray	ann forb
GILIA	<i>Gilia</i> spp.	ann forb
GRSQ	<i>Grindelia squarrosa</i> (Pursh) Dunal	per forb
GUSA2	<i>Gutierrezia sarothrae</i>	shrub
HAGL	<i>Halogeton glomeratus</i>	ann forb
HOJU	<i>Hordeum jubatum</i> L.	per gram
HOPU	<i>Hordeum pusillum</i> Nutt	ann gram
IPLO2	<i>Ipomopsis longiflora</i>	ann forb
IPOMO	<i>Ipomopsis</i> sp.	forb
IPPU4	<i>Ipomopsis pumila</i> (Nutt.) B. Grant	ann forb
KRLA2	<i>Krascheninnikovia lanata</i> (Pursh) A.D.J. Meeuse & Smit	shrub
LAOC3	<i>Lappula occidentalis</i> (Wats.) Greene var. <i>cupulata</i>	ann forb
LEER [CHER2]	<i>Chaetopappa ericoides</i>	per forb
LIAR	<i>Linum aristatum</i> Engelm.	per forb
LIPU4	<i>Linum puberulum</i> (Engelm.) Heller	ann forb
LUPU	<i>Lupinus pusillus</i> Pursh	ann forb
LYGR	<i>Lygodesmia grandiflora</i> (Nutt.) Torr. & A. Gray. Var. <i>grandiflora</i>	per forb
LYPA	<i>Lycium pallidum</i> Miers.	shrub
MACA2	<i>Machaeranthera canescens</i> (Pursh) A. Grey	ann forb
MAGR10	<i>Machaeranthera gracilis</i> (Nutt) Shinners	per forb
MASO	<i>Malacothrix sonchoides</i> (Nutt.) Torr. & Gray	ann forb
MEAL	<i>Mentzelia albicaulis</i> Dougl.	ann forb
MEAL6	<i>Mentzelia albicaulis</i> Dougl.	ann forb
MEPU3	<i>Mentzelia pumila</i> (Nutt.) Torr. & A. Gray	per forb
MONU	<i>Monolepis nuttalliana</i> (Schultes) Greene	ann forb
MUPU2	<i>Muhlenbergia pungens</i> Thurb.	per gram
NAHI	<i>Nama hispidum</i> A. Gray	ann forb
OEAL	<i>Oenothera albicaulis</i> Pursh	per forb
OENOT	<i>Oenothera</i> spp.	per forb
OEPA	<i>Oenothera pallida</i> Lindl. Subsp. <i>Runcinata</i> (Engelm.) Munz	per forb
OEPE	<i>Oenothera pallida</i> Lindl. Subsp. <i>Runcinata</i> (Engelm.) Munz	per forb
OPPO	<i>Opuntia polyacantha</i> Haw.	per suc
PAFI4	<i>Parryella filifolia</i> Torr. & Gray ex A. Gray	shrub

SYMBOL	NAME	LifeForm
PASM	<i>Pascopyrum smithii</i> (Rydb.) A. Loe.	per gram
PENS	<i>Penstemon</i> spp.	forb
PHCR	<i>Phacelia crenulata</i> Torr. Ex S. Wats	ann forb
PLIN7	<i>Platyschkuhria integrifolia</i> (A. Gray) Rydb. Var. <i>oblongifolia</i> (A. Gray) Ellison	per forb
PLJA	<i>Pleuraphis jamesii</i> Torr.	per gram
PLPA2	<i>Plantago patagonica</i> Jacq.	ann forb
PSLA3	<i>Psoralidium lanceolatum</i> (Prush) Rydb. Var. <i>lanceolatum</i>	per forb
RUHY	<i>Rumex hymenosepalus</i> Torr.	per forb
SATR12	<i>Salsola tragus</i> L.	ann forb
SAVE4	<i>Sarcobatus vermiculatus</i> (Hook.) Torr.	shrub
SEFL3	<i>Senecio flaccidus</i> Less.	per forb
SESP3	<i>Senecio spartoides</i> Torr. & Gray	per forb
SPAI	<i>Sporobolus airoides</i> (Torr.) Torr.	per gram
SPCO4	<i>Sporobolus contractus</i> A. S. Hitchc.	per gram
SPCOC	<i>Sphaeralcea coccinea</i> (Nutt.) Rydb.	per forb
SPCR	<i>Sporobolus cryptandrus</i> (Torr.) A. Gray	per gram
SPGI	<i>Sporobolus giganteus</i> Nash	per gram
SPPA2	<i>Sphaeralcea parvifolia</i> A. Nels.	per forb
SPPO	<i>Spirodela polyrrhiza</i> L. Schleid	per forb
STCO6	<i>Streptanthus cordatus</i> Nutt. var. <i>cordatus</i>	per forb
STEX	<i>Stephanomeria exigua</i> Nutt.	per forb
STLO4	<i>Streptanthella longirostris</i> (S. Wats.) Rydb.	ann forb
STSA3	<i>Stegonum salsuginosum</i> Nutt.	ann forb
SUMO	<i>Suaeda moquinii</i> (Torr.) Greene	per forb
TAMAR	<i>Tamarix</i> spp.	tree
TOAN	<i>Townsendia annua</i> Beaman	ann forb
TOIN	<i>Townsendia incana</i> Nutt.	per forb
TRDU	<i>Tragopogon dubius</i> Scop.	ann forb
VEBR	<i>Verbena bracteata</i> Cav. Ex Lag. & Rodr.	per forb
VUOC	<i>Vulpia octoflora</i> (Walt.) Rydb. var. <i>octoflora</i>	ann gram
XAST	<i>Xanthium strumarium</i> L.	ann forb
YUCCA	<i>Yucca</i> spp.	per suc

ATTACHMENT C
COVER AND FREQUENCY DATA

**Attachment C. Cover and Frequency Data
Table of Contents**

C-1	Fall	Summary Average Ground Cover on Point Intercept Transects for All Communities
C-2	Fall	Summary Frequency of Vegetation Species on Point Intercept Transects for all Communities.
C-3	Fall	Arroyo Shrub Cover and Frequency Data by Point Intercept Transect
C-4	Fall	Alkali Wash Cover and Frequency Data by Point Intercept Transect
C-5	Fall	Badlands Cover and Frequency Data by Point Intercept Transect
C-6	Fall	Dunes Cover and Frequency Data by Point Intercept Transect
C-7	Fall	Reference Arroyo Shrub Cover and Frequency Data by Point Intercept Transect
C-8	Fall	Reference Alkali Wash Cover and Frequency Data by Point Intercept Transect
C-9	Fall	Reference Sands Cover and Frequency Data by Point Intercept Transect
C-10	Fall	Sands Cover and Frequency Data by Point Intercept Transect
C-11	Fall	Thin Breaks Cover and Frequency Data by Point Intercept Transect
C-12	Spring	Summary Average Ground Cover on Point Intercept Transects for All Communities
C-13	Spring	Summary Frequency of Vegetation Species on Point Intercept Transects for all Communities.
C-14	Spring	Arroyo Shrub Cover and Frequency Data by Point Intercept Transect
C-15	Spring	Alkali Wash Cover and Frequency Data by Point Intercept Transect
C-16	Spring	Badlands Cover and Frequency Data by Point Intercept Transect
C-17	Spring	Dunes Cover and Frequency Data by Point Intercept Transect
C-18	Spring	Sands Cover and Frequency Data by Point Intercept Transect
C-19	Spring	Thin Breaks Cover and Frequency Data by Point Intercept Transect

Attachment C-1. Fall Summary Average Ground Cover on Point Intercept Transects for all Communities

Community	Bare Ground	Rock/Gravel	Litter	Vegetation
Arroyo Shrub	69.0	0.6	18.4	12.1
Alkali Wash	66.7	15.9	11.6	5.8
Badlands	59.3	32.1	5.5	3.1
Dunes	70.3	1.0	13.7	15.0
Reference Arroyo Shrub	53.7	1.4	23.8	21.1
Reference Alkali Wash	60.8	21.2	11.1	7.0
Reference Sands	65.6	3.2	18.7	12.6
Sand	62.7	5.3	18.9	13.1
Thinbreak	44.1	42.8	8.3	4.8

Attachment C-2. Fall Summary Frequency of Vegetation Species on Point Intercept
Transects for all Communities

Species					Reference	Reference			Thin Breaks
	Alkali Wash	Arroyo Shrub	Badlands	Dunes	Alkali Wash	Arroyo Shrub	Reference Sands	Sands	
<i>Abronia fragrans</i>		1		1			2		
<i>Achnatherum hymenoides</i>		7		39			17	20	3
<i>Agropyron cristatum</i>		1							
<i>Ambrosia acanthicarpa</i>				2			1		
<i>Aristida purpurea</i>				6					
<i>Artemisia bigelovii</i>									2
<i>Artemisia filifolia</i>				1					
<i>Artemisia sp.</i>		1							
<i>Artemisia tridentata</i>		1							
<i>Aster sp.</i>		1		1		3			
<i>Astragalus sp.</i>				1					
<i>Atriplex canescens</i>	3	51	1	5	1	3	3	1	2
<i>Atriplex confertifolia</i>	9		1			2	20	37	12
<i>Atriplex gardneri</i>	4		4		3				3
<i>Atriplex obovata</i>	14	21	26		15	19	9	5	4
<i>Atriplex powellii</i>	14	1	14		6	2	1		3
<i>Bouteloua barbata</i>		2	1		2	2			
<i>Bouteloua gracilis</i>		1			2		1		
<i>Bromus rubens</i>					1				
<i>Bromus tectorum</i>	1	1				32			
<i>Chaenactis stevioides</i>					1			1	
<i>Chaetopappa ericoides</i>				2				4	
<i>Chamaesyce fendleri</i>		1			1	4			
<i>Chenopodium sp.</i>		3	1					1	
<i>Chrysothamnus viscidiflorus</i>				11					
<i>Cordylanthus wrightii</i>		5		8					
<i>Cryptantha crassisepala</i>	6	19	1	41	6	8	15	61	4
<i>Cryptantha flava</i>									
<i>Cryptantha sp.</i>								1	
<i>Dalea leporina</i>		2							
<i>Descurainia pinnata</i>	15	55	4	49	11	7	9	8	10
<i>Descurainia sophia</i>								1	
<i>Dicoria sp.</i>				1					
<i>Dimorphocarpa wislizenii</i>		2		26			1	1	
<i>Elymus elymoides</i>						1			
<i>Ephedra sp.</i>	1	4		73				1	2
<i>Eragrostis cilianensis</i>		3			1	5			
<i>Eremopyrum triticeum</i>	1								
<i>Ericameria</i>									
<i>[Chrysothamnus] nauseosus</i>		26		38					
<i>Erigeron bellidiastrum</i>					2				
<i>Erigeron bellidiastrum</i>	4	1				19			
<i>Eriogonum divaricatum</i>	2								
<i>Eriogonum jamesii</i>					1	1			
<i>Eriogonum leptocladon</i>		4		6					
<i>Erodium cicutarium</i>					2	5			

Attachment C-2 cont'd.

Species					Reference	Reference			Thin
	Alkali Wash	Arroyo Shrub	Badlands	Dunes	Alkali Wash	Arroyo Shrub	Reference Sands	Sands	Breaks
<i>Gutierrezia sarothrae</i>	1	11		22	3	3	93	43	8
<i>Halogeton glomeratus</i>	18	2	4		18	16	1	1	15
<i>Hordeum pusillum</i>	6	1			25	167			
<i>Ipomopsis pumila</i>	1	1		3	1		1		1
<i>Jointed goat grass</i>						2			
<i>Lappula occidentalis</i>	4		5	1	9	6	16	2	7
<i>Linum aristatum</i>								6	
<i>Linum puberulum</i>		2		2					
<i>Lycium pallidum</i>				3		1			
<i>Lygodesmia grandiflora</i>				1	1				
<i>Machaeranthera canescens</i>	2	4		22			1	7	
<i>Malacothrix sonchoides</i>				1		1		3	
<i>Mentzelia albicaulis</i>		1		18			2	2	
<i>Mentzelia pumila</i>		1							1
<i>Monroa squarrosa</i>					7	3	1		
<i>Muhlenbergia pungens</i>				17					2
<i>Oenothera pallida</i>				11					
<i>Oenothera sp.</i>				1					
<i>Opuntia polyacantha</i>				1	1	6	2	1	
<i>Parryella filifolia</i>		4							
<i>Pascopyrum smithii</i>					1				
<i>Penstemon sp.</i>				1					
<i>Phacelia crenulata</i>	5		1	1	1	2	11	6	6
<i>Plantago patagonica</i>	15	1	7	1	28	61	51	6	9
<i>Platyschkuhria integrifolia</i>								1	
<i>Pleuraphis jamesii</i>	17	20	2	44	25	57	83	52	9
<i>Portulaca oleracea</i>						2			
<i>Rumex hymenosepalus</i>				1					
<i>Salsola tragus</i>	37	77	9	44	27	23	23	102	55
<i>Sarcobatus vermiculatus</i>	6	80		3	4	10			5
<i>Senecio sp.</i>						1			
<i>Senecio spartoides</i>			1			3			
<i>Sphaeralcea coccinea</i>					2	2	1	1	
<i>Sphaeralcea parvifolia</i>		1		5	2			1	
<i>Sporobolus airoides</i>	23	46	6	57	30	299	105	140	25
<i>Sporobolus contractus</i>				7		1	1		
<i>Sporobolus cryptandrus</i>		2		1	2	1	5		
<i>Sporobolus flexuosus</i>			1						
<i>Stephanomeria exigua</i>				6				1	
<i>Streptanthella longirostris</i>				5				1	
<i>Suaeda moquinii</i>			2						
<i>Townsendia annua</i>	1	3	2		13	6	7	5	1
<i>Unknown</i>		6		3					2
<i>Vulpia octoflora</i>		3		7		12	6	1	
<i>Yucca sp.</i>									1

Attachment C-3. Fall Arroyo Shrub Cover and Frequency Data by Point Intercept
Transect

Transect	Life Form	Scientific Name	Percent Cover
AS-041	Bare		66
	Rock/Gravel		0
	Litter		24
	Vegetation		10
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		3
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex canescens</i>	2
		<i>Gutierrezia sarothrae</i>	2
		<i>Sarcobatus vermiculatus</i>	2
	Perennial Shrub Subtotal	6	
AS-041 Total Vegetation			10
AS-042	Bare		70
	Rock/Gravel		0
	Litter		18
	Vegetation		12
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	1
	Annual Forb Subtotal		2
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Sarcobatus vermiculatus</i>	9
		Perennial Shrub Subtotal	9
AS-042 Total Vegetation			12
AS-043	Bare		50
	Rock/Gravel		1
	Litter		33
	Vegetation		16
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	2
	Annual Forb Subtotal		3
		<i>Pleuraphis jamesii</i>	6
		<i>Sporobolus airoides</i>	5
	Perennial Grass Subtotal		11
		<i>Atriplex obovata</i>	2
	Perennial Shrub Subtotal	2	
AS-043 Total Vegetation			16
AS-044	Bare		80
	Rock/Gravel		0
	Litter		9
	Vegetation		11

Attachment C-3 cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Descurainia pinnata</i>	3
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		5
		<i>Atriplex canescens</i>	2
		<i>Ericameria [Chrysothamnus] nauseosus</i>	2
		<i>Parryella filifolia</i>	2
	Perennial Shrub Subtotal		6
AS-044 Total Vegetation			11
AS-045	Bare		85
	Rock/Gravel		0
	Litter		12
	Vegetation		3
		<i>Ericameria [Chrysothamnus] nauseosus</i>	2
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		3
AS-045 Total Vegetation			3
AS-046	Bare		89
	Rock/Gravel		1
	Litter		3
	Vegetation		7
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		1
		<i>Aster Sp.</i>	1
	Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	3
	Perennial Grass Subtotal		3
		<i>Ericameria [Chrysothamnus] nauseosus</i>	2
	Perennial Shrub Subtotal		2
AS-046 Total Vegetation			7
AS-047	Bare		62
	Rock/Gravel		0
	Litter		27
	Vegetation		11
		<i>Cordylanthus wrightii</i>	1
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Salsola tragus</i>	4
	Annual Forb Subtotal		7
		<i>Artemisia tridentata</i>	1
		<i>Atriplex canescens</i>	3
	Perennial Shrub Subtotal		4
AS-047 Total Vegetation			11

Attachment C-3 cont'd.

Transect	Life Form	Scientific Name	Percent Cover
AS-048	Bare		64
	Rock/Gravel		0
	Litter		19
	Vegetation		17
		<i>Salsola tragus</i>	13
	Annual Forb Subtotal		13
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex canescens</i>	1
		<i>Sarcobatus vermiculatus</i>	2
	Perennial Shrub Subtotal		3
AS-048 Total Vegetation			17
AS-049	Bare		62
	Rock/Gravel		0
	Litter		23
	Vegetation		15
		<i>Descurainia pinnata</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		2
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex canescens</i>	1
		<i>Atriplex obovata</i>	3
	<i>Sarcobatus vermiculatus</i>	8	
Perennial Shrub Subtotal		12	
AS-049 Total Vegetation			15
AS-050	Bare		72
	Rock/Gravel		0
	Litter		20
	Vegetation		8
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Mentzelia albicaulis</i>	1
		<i>Salsola tragus</i>	4
	Annual Forb Subtotal		7
		<i>Atriplex canescens</i>	1
	Perennial Shrub Subtotal		1
AS-050 Total Vegetation			8
AS-051	Bare		67
	Rock/Gravel		0
	Litter		24
	Vegetation		9
		<i>Descurainia pinnata</i>	2
Annual Forb Subtotal		2	

Attachment C-3 cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Sarcobatus vermiculatus</i>	7
	Perennial Shrub Subtotal		7
AS-051 Total Vegetation			9
AS-052	Bare		69
	Rock/Gravel		0
	Litter		14
	Vegetation		17
		<i>Descurainia pinnata</i>	3
		<i>Salsola tragus</i>	4
	Annual Forb Subtotal		7
		<i>Agropyron cristatum</i>	1
	Perennial Grass Subtotal		1
		<i>Ericameria [Chrysothamnus] nauseosus</i>	7
		<i>Parryella filifolia</i>	2
	Perennial Shrub Subtotal		9
AS-052 Total Vegetation			17
AS-053	Bare		71
	Rock/Gravel		0
	Litter		19
	Vegetation		10
		<i>Descurainia pinnata</i>	1
	Annual Forb Subtotal		1
		<i>Sarcobatus vermiculatus</i>	9
	Perennial Shrub Subtotal		9
AS-053 Total Vegetation			10
AS-054	Bare		90
	Rock/Gravel		6
	Litter		2
	Vegetation		2
		<i>Sporobolus cryptandrus</i>	1
	Perennial Grass Subtotal		1
		<i>Unidentified</i>	1
	Undetermined Subtotal		1
AS-054 Total Vegetation			2
AS-055	Bare		45
	Rock/Gravel		0
	Litter		27
	Vegetation		28
		<i>Cryptantha crassisepala</i>	2
		<i>Descurainia pinnata</i>	9
		<i>Salsola tragus</i>	4
	Annual Forb Subtotal		15
		<i>Pleuraphis jamesii</i>	1

Attachment C-3 cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Grass Subtotal		1
		<i>Atriplex canescens</i>	3
		<i>Atriplex obovata</i>	1
		<i>Sarcobatus vermiculatus</i>	8
	Perennial Shrub Subtotal		12
AS-055 Total Vegetation			28
AS-056	Bare		73
	Rock/Gravel		0
	Litter		20
	Vegetation		7
		<i>Machaeranthera canescens</i>	1
	Annual Forb Subtotal		1
		<i>Bromus tectorum</i>	1
	Annual Grass Subtotal		1
		<i>Unidentified</i>	1
	Forb Subtotal		1
		<i>Ericameria [Chrysothamnus] nauseosus</i>	4
	Perennial Shrub Subtotal		4
AS-056 Total Vegetation			7
AS-057	Bare		75
	Rock/Gravel		5
	Litter		9
	Vegetation		11
		<i>Cordylanthus wrightii</i>	3
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	2
	Annual Forb Subtotal		6
		<i>Artemisia Sp.</i>	1
	Forb Subtotal		1
		<i>Ericameria [Chrysothamnus] nauseosus</i>	2
		<i>Gutierrezia sarothrae</i>	2
	Perennial Shrub Subtotal		4
AS-057 Total Vegetation			11
AS-058	Bare		61
	Rock/Gravel		0
	Litter		31
	Vegetation		8
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	3
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		5
		<i>Mentzelia pumila</i>	1
	Perennial Forb Subtotal		1

Attachment C-3 cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Gutierrezia sarothrae</i>	2
	Perennial Shrub Subtotal		2
AS-058 Total Vegetation			8
AS-059	Bare		81
	Rock/Gravel		0
	Litter		13
	Vegetation		6
		<i>Cordylanthus wrightii</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		2
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Ericameria [Chrysothamnus] nauseosus</i>	2
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		3
AS-059 Total Vegetation			6
AS-060	Bare		58
	Rock/Gravel		0
	Litter		20
	Vegetation		22
		<i>Cryptantha crassisejala</i>	1
		<i>Salsola tragus</i>	10
	Annual Forb Subtotal		11
		<i>Achnatherum hymenoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex canescens</i>	2
		<i>Ericameria [Chrysothamnus] nauseosus</i>	5
		Unidentified	3
	Perennial Shrub Subtotal		10
AS-060 Total Vegetation			22
AS-061	Bare		70
	Rock/Gravel		0
	Litter		19
	Vegetation		11
		<i>Cryptantha crassisejala</i>	1
		<i>Dimorphocarpa wislizenii</i>	2
		<i>Salsola tragus</i>	2
		Unidentified	1
	Annual Forb Subtotal		6
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		3
		<i>Sarcobatus vermiculatus</i>	2

Attachment C-3 cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Shrub Subtotal		2
AS-061 Total Vegetation			11
AS-062	Bare		79
	Rock/Gravel		1
	Litter		12
	Vegetation		8
		<i>Dalea leporina</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Salsola tragus</i>	5
	Annual Forb Subtotal		7
		<i>Sarcobatus vermiculatus</i>	1
	Perennial Shrub Subtotal		1
AS-062 Total Vegetation			8
AS-063	Bare		52
	Rock/Gravel		0
	Litter		25
	Vegetation		23
		<i>Atriplex powellii</i>	1
		<i>Halogeton glomeratus</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		4
		<i>Chenopodium Sp.</i>	3
	Forb Subtotal		3
		<i>Grindelia squarrosa</i>	3
	Perennial Forb Subtotal		3
		<i>Sporobolus airoides</i>	10
	Perennial Grass Subtotal		10
		<i>Atriplex obovata</i>	3
	Perennial Shrub Subtotal		3
AS-063 Total Vegetation			23
AS-064	Bare		66
	Rock/Gravel		0
	Litter		20
	Vegetation		14
		<i>Descurainia pinnata</i>	1
		<i>Machaeranthera canescens</i>	1
	Annual Forb Subtotal		2
		<i>Vulpia octoflora</i>	1
	Annual Grass Subtotal		1
		<i>Pleuraphis jamesii</i>	2
	Perennial Grass Subtotal		2
		<i>Atriplex canescens</i>	2
		<i>Ephedra Sp.</i>	4
		<i>Eriogonum leptocladon</i>	1
		<i>Sarcobatus vermiculatus</i>	2

Attachment C-3 cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Shrub Subtotal		9
AS-064 Total Vegetation			14
AS-065	Bare		67
	Rock/Gravel		0
	Litter		16
	Vegetation		17
		<i>Cryptantha crassisepala</i>	2
		<i>Descurainia pinnata</i>	2
		<i>Linum puberulum</i>	1
		<i>Machaeranthera canescens</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		7
		<i>Vulpia octoflora</i>	1
	Annual Grass Subtotal		1
		<i>Abronia fragrans</i>	1
		<i>Sphaeralcea parvifolia</i>	1
	Perennial Forb Subtotal		2
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	3
	Perennial Grass Subtotal		4
		<i>Eriogonum leptocladon</i>	3
	Perennial Shrub Subtotal		3
AS-065 Total Vegetation			17
AS-066	Bare		80
	Rock/Gravel		0
	Litter		11
	Vegetation		9
		<i>Bouteloua gracilis</i>	1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	5
	Perennial Grass Subtotal		7
		<i>Sarcobatus vermiculatus</i>	2
	Perennial Shrub Subtotal		2
AS-066 Total Vegetation			9
AS-067	Bare		76
	Rock/Gravel		0
	Litter		19
	Vegetation		5
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		3
		<i>Sporobolus airoides</i>	1
		<i>Sporobolus cryptandrus</i>	1
	Perennial Grass Subtotal		2
AS-067 Total Vegetation			5

Attachment C-3 cont'd.

Transect	Life Form	Scientific Name	Percent Cover
AS-068	Bare		55
	Rock/Gravel		1
	Litter		20
	Vegetation		24
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Erigeron bellidiastrum</i>	1
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		4
		<i>Bouteloua barbata</i>	2
		<i>Eragrostis cilianensis</i>	3
		<i>Hordeum pusillum</i>	1
	Annual Grass Subtotal		6
		<i>Chamaesyce fendleri</i>	1
	Perennial Forb Subtotal		1
		<i>Pleuraphis jamesii</i>	1
	<i>Sporobolus airoides</i>	12	
Perennial Grass Subtotal		13	
AS-068 Total Vegetation			24
AS-069	Bare		50
	Rock/Gravel		0
	Litter		36
	Vegetation		14
		<i>Cryptantha crassisepala</i>	2
		<i>Descurainia pinnata</i>	4
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		8
		<i>Atriplex canescens</i>	3
		<i>Sarcobatus vermiculatus</i>	3
	Perennial Shrub Subtotal		6
AS-069 Total Vegetation			14
AS-070	Bare		72
	Rock/Gravel		0
	Litter		11
	Vegetation		17
		<i>Cryptantha crassisepala</i>	2
		<i>Descurainia pinnata</i>	3
		<i>Ipomopsis pumila</i>	1
	Annual Forb Subtotal		6
		<i>Vulpia octoflora</i>	1
	Annual Grass Subtotal		1
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	2
	Perennial Grass Subtotal		3
	<i>Gutierrezia sarothrae</i>	3	
	<i>Linum puberulum</i>	1	

Attachment C-3 cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Sarcobatus vermiculatus</i>	3
	Perennial Shrub Subtotal		7
AS-070 Total Vegetation			17
AS-071	Bare		78
	Rock/Gravel		0
	Litter		18
	Vegetation		4
		<i>Atriplex obovata</i>	3
		<i>Sarcobatus vermiculatus</i>	1
	Perennial Shrub Subtotal		4
AS-071 Total Vegetation			4
AS-072	Bare		71
	Rock/Gravel		4
	Litter		14
	Vegetation		11
		<i>Descurainia pinnata</i>	1
		<i>Salsola tragus</i>	4
	Annual Forb Subtotal		5
		<i>Achnatherum hymenoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex canescens</i>	5
	Perennial Shrub Subtotal		5
AS-072 Total Vegetation			11
AS-073	Bare		82
	Rock/Gravel		0
	Litter		13
	Vegetation		5
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		1
		<i>Atriplex obovata</i>	4
	Perennial Shrub Subtotal		4
AS-073 Total Vegetation			5
AS-074	Bare		78
	Rock/Gravel		0
	Litter		10
	Vegetation		12
		<i>Descurainia pinnata</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		3
		<i>Pleuraphis jamesii</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex canescens</i>	5
		<i>Sarcobatus vermiculatus</i>	3
	Perennial Shrub Subtotal		8

Attachment C-3 cont'd.

Transect	Life Form	Scientific Name	Percent Cover	
AS-074 Total Vegetation			12	
AS-075	Bare		74	
	Rock/Gravel		2	
	Litter		15	
	Vegetation		9	
		<i>Descurainia pinnata</i>	1	
		<i>Salsola tragus</i>	1	
	Annual Forb Subtotal		2	
		<i>Pleuraphis jamesii</i>	2	
	Perennial Grass Subtotal		2	
		<i>Atriplex canescens</i>	3	
		<i>Sarcobatus vermiculatus</i>	2	
Perennial Shrub Subtotal		5		
AS-075 Total Vegetation			9	
AS-076	Bare		78	
	Rock/Gravel		0	
	Litter		15	
	Vegetation		7	
		<i>Salsola tragus</i>	1	
	Annual Forb Subtotal		1	
		<i>Atriplex canescens</i>	1	
		<i>Atriplex obovata</i>	5	
	Perennial Shrub Subtotal		6	
	AS-076 Total Vegetation			7
	AS-077	Bare		64
Rock/Gravel			0	
Litter			23	
Vegetation			13	
		<i>Cryptantha crassisepala</i>	1	
		<i>Descurainia pinnata</i>	2	
		<i>Salsola tragus</i>	1	
Annual Forb Subtotal			4	
		<i>Atriplex canescens</i>	5	
		<i>Sarcobatus vermiculatus</i>	4	
Perennial Shrub Subtotal			9	
AS-077 Total Vegetation			13	
AS-078	Bare		55	
	Rock/Gravel		1	
	Litter		29	
	Vegetation		15	
		<i>Descurainia pinnata</i>	3	
		<i>Halogeton glomeratus</i>	1	
Annual Forb Subtotal		4		
	<i>Sporobolus airoides</i>	3		

Attachment C-3 cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Grass Subtotal		3
		<i>Atriplex canescens</i>	6
		<i>Sarcobatus vermiculatus</i>	2
	Perennial Shrub Subtotal		8
AS-078 Total Vegetation			15
AS-079	Bare		56
	Rock/Gravel		2
	Litter		16
	Vegetation		26
		<i>Cryptantha crassisepala</i>	2
		<i>Descurainia pinnata</i>	7
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		11
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		3
		<i>Atriplex canescens</i>	4
		<i>Sarcobatus vermiculatus</i>	6
	Perennial Shrub Subtotal		10
		<i>Unidentified</i>	2
	Undetermined Subtotal		2
AS-079 Total Vegetation			26
AS-080	Bare		65
	Rock/Gravel		0
	Litter		25
	Vegetation		10
		<i>Descurainia pinnata</i>	1
		<i>Machaeranthera canescens</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		4
		<i>Atriplex canescens</i>	2
		<i>Sarcobatus vermiculatus</i>	4
	Perennial Shrub Subtotal		6
AS-080 Total Vegetation			10

Attachment C-4. Fall Alkali Wash Cover and Frequency Data by Point Intercept Transect

Transect	Life Form	Scientific Name	Percent Cover	
AW-001	Bare		48	
	Rock/Gravel		34	
	Litter		12	
	Vegetation		6	
		<i>Eriogonum gordonii</i>	4	
		<i>Halogeton glomeratus</i>	1	
	Annual Forb Subtotal		5	
		<i>Atriplex obovata</i>	1	
	Perennial Shrub Subtotal		1	
	AW-001 Total Vegetation			6
AW-002	Bare		74	
	Rock/Gravel		11	
	Litter		11	
	Vegetation		4	
		<i>Atriplex powellii</i>	2	
		<i>Eriogonum divaricatum</i>	1	
		<i>Eriogonum gordonii</i>	1	
	Annual Forb Subtotal		4	
	AW-002 Total Vegetation			4
	AW-003	Bare		67
Rock/Gravel			3	
Litter			28	
Vegetation			2	
		<i>Salsola tragus</i>	1	
Annual Forb Subtotal			1	
		<i>Atriplex confertifolia</i>	1	
Perennial Shrub Subtotal			1	
AW-003 Total Vegetation			2	
AW-004		Bare		63
	Rock/Gravel		2	
	Litter		19	
	Vegetation		16	
		<i>Plantago patagonica</i>	6	
	Annual Forb Subtotal		6	
		<i>Pleuraphis jamesii</i>	6	
		<i>Sporobolus airoides</i>	4	
	Perennial Grass Subtotal		10	
	AW-004 Total Vegetation			16
AW-005	Bare		65	
	Rock/Gravel		18	
	Litter		17	

Attachment C-4 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Vegetation		0
AW-005 Total Vegetation			0
AW-006	Bare		76
	Rock/Gravel		14
	Litter		7
	Vegetation		3
		<i>Salsola tragus</i>	3
Annual Forb Subtotal			3
AW-006 Total Vegetation			3
AW-007	Bare		69
	Rock/Gravel		26
	Litter		5
	Vegetation		0
AW-007 Total Vegetation			0
AW-008	Bare		74
	Rock/Gravel		8
	Litter		13
	Vegetation		5
		<i>Halogeton glomeratus</i>	4
		<i>Salsola tragus</i>	1
Annual Forb Subtotal			5
AW-008 Total Vegetation			5
AW-009	Bare		70
	Rock/Gravel		19
	Litter		8
	Vegetation		3
		<i>Atriplex powellii</i>	1
		<i>Halogeton glomeratus</i>	1
Annual Forb Subtotal			2
		<i>Atriplex obovata</i>	1
Perennial Shrub Subtotal			1
AW-009 Total Vegetation			3
AW-010	Bare		76
	Rock/Gravel		0
	Litter		18
	Vegetation		6
		<i>Descurainia pinnata</i>	1
		<i>Eriogonum gordonii</i>	1
		<i>Lappula occidentalis</i>	1
		<i>Salsola tragus</i>	2
Annual Forb Subtotal			5
		<i>Atriplex confertifolia</i>	1

Attachment C-4 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Shrub Subtotal		1
AW-010 Total Vegetation			6
AW-011	Bare		40
	Rock/Gravel		60
	Litter		0
	Vegetation		0
AW-011 Total Vegetation			0
AW-012	Bare		64
	Rock/Gravel		25
	Litter		10
	Vegetation		1
		<i>Eriogonum gordonii</i>	1
	Annual Forb Subtotal		1
AW-012 Total Vegetation			1
AW-013	Bare		71
	Rock/Gravel		1
	Litter		22
	Vegetation		6
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
AW-013 Total Vegetation			6
AW-014	Bare		56
	Rock/Gravel		39
	Litter		5
	Vegetation		0
AW-014 Total Vegetation			0
AW-015	Bare		58
	Rock/Gravel		23
	Litter		7
	Vegetation		12
		<i>Cryptantha crassisepala</i>	1
		<i>Ipomopsis pumila</i>	1
		<i>Phacelia crenulata</i>	2
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		6
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		4
		<i>Atriplex confertifolia</i>	2
	Perennial Shrub Subtotal		2
AW-015 Total Vegetation			12

Attachment C-4 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
AW-016	Bare		66
	Rock/Gravel		10
	Litter		14
	Vegetation		10
		<i>Descurainia pinnata</i>	1
		<i>Lappula occidentalis</i>	1
		<i>Plantago patagonica</i>	4
	Annual Forb Subtotal		6
		<i>Sporobolus airoides</i>	4
	Perennial Grass Subtotal		4
AW-016 Total Vegetation			10
AW-017	Bare		62
	Rock/Gravel		8
	Litter		20
	Vegetation		10
		<i>Atriplex powellii</i>	5
		<i>Descurainia pinnata</i>	2
	Annual Forb Subtotal		7
		<i>Atriplex gardneri</i>	1
		<i>Atriplex obovata</i>	2
	Perennial Shrub Subtotal		3
AW-017 Total Vegetation			10
AW-018	Bare		58
	Rock/Gravel		17
	Litter		18
	Vegetation		7
		<i>Halogeton glomeratus</i>	2
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		5
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		2
	AW-018 Total Vegetation		
AW-019	Bare		83
	Rock/Gravel		15
	Litter		2
	Vegetation		0
	AW-019 Total Vegetation		
AW-020	Bare		65
	Rock/Gravel		0
	Litter		23
	Vegetation		12
		<i>Bromus tectorum</i>	1
		<i>Hordeum pusillum</i>	6
Annual Grass Subtotal		7	

Attachment C-4 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		3
		<i>Atriplex obovata</i>	2
	Perennial Shrub Subtotal		2
AW-020 Total Vegetation			12
AW-021	Bare		58
	Rock/Gravel		41
	Litter		1
	Vegetation		0
AW-021 Total Vegetation			0
AW-022	Bare		78
	Rock/Gravel		8
	Litter		7
	Vegetation		7
		<i>Descurainia pinnata</i>	1
		<i>Halogeton glomeratus</i>	2
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		5
		<i>Atriplex confertifolia</i>	2
	Perennial Shrub Subtotal		2
AW-022 Total Vegetation			7
AW-023	Bare		59
	Rock/Gravel		3
	Litter		17
	Vegetation		21
		<i>Cryptantha crassisepala</i>	4
		<i>Descurainia pinnata</i>	1
		<i>Phacelia crenulata</i>	1
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	5
	Annual Forb Subtotal		12
		<i>Pleuraphis jamesii</i>	6
	Perennial Grass Subtotal		6
		<i>Sarcobatus vermiculatus</i>	3
	Perennial Shrub Subtotal		3
AW-023 Total Vegetation			21
AW-024	Bare		69
	Rock/Gravel		0
	Litter		16
	Vegetation		15
		<i>Descurainia pinnata</i>	2
		<i>Phacelia crenulata</i>	2
		<i>Salsola tragus</i>	7
	Annual Forb Subtotal		11

Attachment C-4 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Atriplex confertifolia</i>	1
		<i>Sarcobatus vermiculatus</i>	3
	Perennial Shrub Subtotal		4
AW-024 Total Vegetation			15
AW-025	Bare		66
	Rock/Gravel		12
	Litter		19
	Vegetation		3
		<i>Machaeranthera canescens</i>	1
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		2
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
AW-025 Total Vegetation			3
AW-026	Bare		72
	Rock/Gravel		5
	Litter		17
	Vegetation		6
		<i>Eriogonum gordonii</i>	2
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		3
		<i>Eremopyrum triticeum</i>	1
	Annual Grass Subtotal		1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex gardneri</i>	1
	Perennial Shrub Subtotal		1
AW-026 Total Vegetation			6
AW-027	Bare		67
	Rock/Gravel		6
	Litter		10
	Vegetation		17
		<i>Atriplex powellii</i>	5
		<i>Eriogonum divaricatum</i>	1
		<i>Eriogonum gordonii</i>	7
	Annual Forb Subtotal		13
		<i>Pleuraphis jamesii</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex gardneri</i>	2
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		3
AW-027 Total Vegetation			17
AW-028	Bare		58
	Rock/Gravel		37

Attachment C-4 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Litter		5
	Vegetation		0
AW-028 Total Vegetation			0
AW-029	Bare		89
	Rock/Gravel		5
	Litter		4
	Vegetation		2
		<i>Halogeton glomeratus</i>	2
	Annual Forb Subtotal		2
AW-029 Total Vegetation			2
AW-030	Bare		76
	Rock/Gravel		12
	Litter		7
	Vegetation		5
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		3
		<i>Atriplex confertifolia</i>	1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		2
AW-030 Total Vegetation			5
AW-031	Bare		54
	Rock/Gravel		21
	Litter		19
	Vegetation		6
		<i>Halogeton glomeratus</i>	6
	Annual Forb Subtotal		6
AW-031 Total Vegetation			6
AW-032	Bare		81
	Rock/Gravel		17
	Litter		1
	Vegetation		1
		<i>Eriogonum gordonii</i>	1
	Annual Forb Subtotal		1
AW-032 Total Vegetation			1
AW-033	Bare		77
	Rock/Gravel		17
	Litter		4
	Vegetation		2
		<i>Erigeron bellidiastrum</i>	2
	Annual Forb Subtotal		2
AW-033 Total Vegetation			2

Attachment C-4 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
AW-034	Bare		62
	Rock/Gravel		22
	Litter		9
	Vegetation		7
		<i>Descurainia pinnata</i>	2
		<i>Erigeron bellidiastrum</i>	2
	Annual Forb Subtotal		4
		<i>Atriplex canescens</i>	3
	Perennial Shrub Subtotal		3
	AW-034 Total Vegetation		7
AW-035	Bare		55
	Rock/Gravel		23
	Litter		15
	Vegetation		7
		<i>Descurainia pinnata</i>	3
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		6
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
	AW-035 Total Vegetation		7
AW-036	Bare		78
	Rock/Gravel		6
	Litter		10
	Vegetation		6
		<i>Cryptantha crassisepala</i>	1
		<i>Lappula occidentalis</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
		<i>Atriplex confertifolia</i>	1
		<i>Ephedra Sp.</i>	1
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		3
	AW-036 Total Vegetation		6
AW-037	Bare		55
	Rock/Gravel		31
	Litter		11
	Vegetation		3
		<i>Descurainia pinnata</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		2
		<i>Sporobolus airoides</i>	1
Perennial Grass Subtotal		1	
AW-037 Total Vegetation		3	

Attachment C-4 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
AW-038	Bare		65
	Rock/Gravel		30
	Litter		2
	Vegetation		3
		<i>Eriogonum gordonii</i>	3
	Annual Forb Subtotal		3
AW-038 Total Vegetation			3
AW-039	Bare		77
	Rock/Gravel		3
	Litter		14
	Vegetation		6
		<i>Atriplex powellii</i>	1
		Annual Forb Subtotal	
		<i>Atriplex obovata</i>	5
	Perennial Shrub Subtotal		5
AW-039 Total Vegetation			6
AW-040	Bare		68
	Rock/Gravel		4
	Litter		18
	Vegetation		10
		<i>Descurainia pinnata</i>	1
		<i>Plantago patagonica</i>	2
		<i>Salsola tragus</i>	4
		Annual Forb Subtotal	
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		3
AW-040 Total Vegetation			10

Attachment C-5. Fall Badlands Cover and Frequency Data by Point Intercept Transect

Transect	Life Form	Scientific Name	Percent Cover
BA-081	Bare		28
	Rock/Gravel		69
	Litter		1
	Vegetation		2
		<i>Atriplex obovata</i>	2
	Perennial Shrub Subtotal		2
BA-081 Total Vegetation			2
BA-082	Bare		82
	Rock/Gravel		11
	Litter		4
	Vegetation		3
		<i>Eriogonum gordonii</i>	2
		Annual Forb Subtotal	
	<i>Atriplex obovata</i>	1	
	Perennial Shrub Subtotal		1
BA-082 Total Vegetation			3
BA-083	Bare		34
	Rock/Gravel		50
	Litter		7
	Vegetation		9
	<i>Eriogonum gordonii</i>	9	
	Annual Forb Subtotal		9
BA-083 Total Vegetation			9
BA-084	Bare		70
	Rock/Gravel		27
	Litter		3
	Vegetation		0
BA-084 Total Vegetation			0
BA-085	Bare		81
	Rock/Gravel		9
	Litter		6
	Vegetation		4
		<i>Atriplex powellii</i>	2
	Annual Forb Subtotal		2
	<i>Atriplex gardneri</i>	2	
	Perennial Shrub Subtotal		2
BA-085 Total Vegetation			4
BA-086	Bare		79
	Rock/Gravel		14

Attachment C-5 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Litter		6
	Vegetation		1
		<i>Eriogonum gordonii</i>	1
	Annual Forb Subtotal		1
BA-086 Total Vegetation			1
BA-087	Bare		33
	Rock/Gravel		65
	Litter		1
	Vegetation		1
		<i>Lappula occidentalis</i>	1
	Annual Forb Subtotal		1
BA-087 Total Vegetation			1
BA-088	Bare		82
	Rock/Gravel		7
	Litter		9
	Vegetation		2
		<i>Eriogonum gordonii</i>	1
	Annual Forb Subtotal		1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
BA-088 Total Vegetation			2
BA-089	Bare		90
	Rock/Gravel		6
	Litter		3
	Vegetation		1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
BA-089 Total Vegetation			1
BA-090	Bare		72
	Rock/Gravel		26
	Litter		2
	Vegetation		0
BA-090 Total Vegetation			0
BA-091	Bare		63
	Rock/Gravel		31
	Litter		2
	Vegetation		4
		<i>Lappula occidentalis</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		2
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1

Attachment C-5 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
BA-091 Total Vegetation			4
BA-091*	Bare		59
	Rock/Gravel		32
	Litter		6
	Vegetation		3
		<i>Phacelia crenulata</i>	1
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
BA-091* Total Vegetation			3
BA-092	Bare		82
	Rock/Gravel		13
	Litter		1
	Vegetation		4
		<i>Atriplex powellii</i>	1
	Annual Forb Subtotal		1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex obovata</i>	2
	Perennial Shrub Subtotal		2
BA-092 Total Vegetation			4
BA-093	Bare		76
	Rock/Gravel		18
	Litter		4
	Vegetation		2
		<i>Atriplex powellii</i>	1
		<i>Eriogonum gordonii</i>	1
	Annual Forb Subtotal		2
BA-093 Total Vegetation			2
BA-094	Bare		21
	Rock/Gravel		75
	Litter		4
	Vegetation		0
BA-094 Total Vegetation			0
BA-095	Bare		61
	Rock/Gravel		13
	Litter		16
	Vegetation		10
		<i>Descurainia pinnata</i>	3
		<i>Halogeton glomeratus</i>	1

Attachment C-5 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		6
		<i>Chenopodium Sp.</i>	1
	Forb Subtotal		1
		<i>Atriplex canescens</i>	1
		<i>Atriplex obovata</i>	2
	Perennial Shrub Subtotal		3
BA-095 Total Vegetation			10
BA-096	Bare		94
	Rock/Gravel		1
	Litter		1
	Vegetation		4
		<i>Eriogonum gordonii</i>	4
	Annual Forb Subtotal		4
BA-096 Total Vegetation			4
BA-097	Bare		75
	Rock/Gravel		25
	Litter		0
	Vegetation		0
BA-097 Total Vegetation			0
BA-098	Bare		72
	Rock/Gravel		15
	Litter		8
	Vegetation		5
		<i>Eriogonum gordonii</i>	1
		<i>Lappula occidentalis</i>	1
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		5
BA-098 Total Vegetation			5
BA-098*	Bare		35
	Rock/Gravel		62
	Litter		2
	Vegetation		1
		<i>Atriplex gardneri</i>	1
	Perennial Shrub Subtotal		1
BA-098* Total Vegetation			1
BA-099	Bare		18
	Rock/Gravel		69
	Litter		6
	Vegetation		7
		<i>Descurainia pinnata</i>	1

Attachment C-5 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Annual Forb Subtotal		1
		<i>Senecio spartoides</i>	1
	Perennial Forb Subtotal		1
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		2
		<i>Atriplex confertifolia</i>	1
		<i>Atriplex obovata</i>	2
	Perennial Shrub Subtotal		3
BA-099 Total Vegetation			7
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BA-100	Bare		70
	Rock/Gravel		17
	Litter		10
	Vegetation		3
		<i>Atriplex powellii</i>	2
	Annual Forb Subtotal		2
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
BA-100 Total Vegetation			3
<hr/>			
BA-101	Bare		83
	Rock/Gravel		6
	Litter		4
	Vegetation		7
		<i>Atriplex powellii</i>	2
		<i>Eriogonum gordonii</i>	4
	Annual Forb Subtotal		6
		<i>Atriplex gardneri</i>	1
	Perennial Shrub Subtotal		1
BA-101 Total Vegetation			7
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BA-101*	Bare		68
	Rock/Gravel		24
	Litter		2
	Vegetation		6
		<i>Eriogonum gordonii</i>	5
	Annual Forb Subtotal		5
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
BA-101* Total Vegetation			6
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BA-102	Bare		33
	Rock/Gravel		50
	Litter		10
	Vegetation		7
		<i>Atriplex powellii</i>	1
		<i>Eriogonum gordonii</i>	2
		<i>Lappula occidentalis</i>	1

Attachment C-5 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		6
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
BA-102 Total Vegetation			7
BA-103	Bare		30
	Rock/Gravel		65
	Litter		4
	Vegetation		1
		<i>Eriogonum gordonii</i>	1
	Annual Forb Subtotal		1
BA-103 Total Vegetation			1
BA-104	Bare		44
	Rock/Gravel		51
	Litter		0
	Vegetation		5
		<i>Atriplex powellii</i>	2
		<i>Eriogonum gordonii</i>	3
	Annual Forb Subtotal		5
BA-104 Total Vegetation			5
BA-105	Bare		30
	Rock/Gravel		51
	Litter		15
	Vegetation		4
		<i>Cryptantha crassisepala</i>	1
		<i>Halogeton glomeratus</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		4
BA-105 Total Vegetation			4
BA-106	Bare		72
	Rock/Gravel		22
	Litter		4
	Vegetation		2
		<i>Atriplex powellii</i>	1
	Annual Forb Subtotal		1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
BA-106 Total Vegetation			2
BA-107	Bare		65
	Rock/Gravel		22
	Litter		10

Attachment C-5 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Vegetation		3
		<i>Atriplex powellii</i>	1
	Annual Forb Subtotal		1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus flexuosus</i>	1
	Perennial Grass Subtotal		2
BA-107 Total Vegetation			3
BA-108	Bare		33
	Rock/Gravel		50
	Litter		14
	Vegetation		3
		<i>Lappula occidentalis</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		2
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
BA-108 Total Vegetation			3
BA-109	Bare		74
	Rock/Gravel		18
	Litter		3
	Vegetation		5
		<i>Halogeton glomeratus</i>	2
	Annual Forb Subtotal		2
		<i>Atriplex obovata</i>	3
	Perennial Shrub Subtotal		3
BA-109 Total Vegetation			5
BA-110	Bare		17
	Rock/Gravel		70
	Litter		6
	Vegetation		7
		<i>Plantago patagonica</i>	2
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		3
		<i>Bouteloua barbata</i>	1
	Annual Grass Subtotal		1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		2
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
BA-110 Total Vegetation			7
BA-111	Bare		55
	Rock/Gravel		36
	Litter		9

Attachment C-5 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Vegetation		0
BA-111 Total Vegetation			0
BA-112	Bare		28
	Rock/Gravel		64
	Litter		6
	Vegetation		2
		<i>Plantago patagonica</i>	2
Annual Forb Subtotal			2
BA-112 Total Vegetation			2
BA-113	Bare		90
	Rock/Gravel		4
	Litter		6
	Vegetation		0
BA-113 Total Vegetation			0
BA-114	Bare		80
	Rock/Gravel		15
	Litter		4
	Vegetation		1
		<i>Atriplex obovata</i>	1
Perennial Shrub Subtotal			1
BA-114 Total Vegetation			1
BA-115	Bare		75
	Rock/Gravel		21
	Litter		4
	Vegetation		0
BA-115 Total Vegetation			0
BA-116	Bare		97
	Rock/Gravel		1
	Litter		1
	Vegetation		1
		<i>Suaeda moquinii</i>	1
Perennial Forb Subtotal			1
BA-116 Total Vegetation			1
BA-117	Bare		27
	Rock/Gravel		69
	Litter		4
	Vegetation		0
BA-117 Total Vegetation			0
BA-118	Bare		83
	Rock/Gravel		6

Attachment C-5 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Litter		6
	Vegetation		5
		<i>Eriogonum gordonii</i>	4
	Annual Forb Subtotal		4
		<i>Suaeda moquinii</i>	1
	Perennial Forb Subtotal		1
BA-118 Total Vegetation			5
BA-119	Bare		70
	Rock/Gravel		14
	Litter		14
	Vegetation		2
		<i>Atriplex powellii</i>	1
	Annual Forb Subtotal		1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
BA-119 Total Vegetation			2
BA-120	Bare		19
	Rock/Gravel		68
	Litter		7
	Vegetation		6
		<i>Eriogonum gordonii</i>	2
	Annual Forb Subtotal		2
		<i>Atriplex obovata</i>	4
	Perennial Shrub Subtotal		4
BA-120 Total Vegetation			6

Attachment C-6. Fall Dunes Cover and Frequency Data by Point Intercept Transect

Transect	Life Form	Scientific Name	Percent Cover	
DU-121	Bare		74	
	Rock/Gravel		0	
	Litter		13	
	Vegetation		13	
		<i>Cryptantha crassisepala</i>	1	
		<i>Descurainia pinnata</i>	3	
		<i>Dimorphocarpa wislizenii</i>	2	
		<i>Mentzelia albicaulis</i>	1	
	Annual Forb Subtotal		7	
		<i>Oenothera pallida</i>	1	
	Perennial Forb Subtotal		1	
		<i>Pleuraphis jamesii</i>	1	
	Perennial Grass Subtotal		1	
		<i>Atriplex canescens</i>	1	
		<i>Chrysothamnus viscidiflorus</i>	3	
Perennial Shrub Subtotal		4		
DU-121 Total Vegetation			13	
DU-122	Bare		78	
	Rock/Gravel		0	
	Litter		9	
	Vegetation		13	
		<i>Cordylanthus wrightii</i>	1	
		<i>Ipomopsis pumila</i>	1	
	Annual Forb Subtotal		2	
		<i>Vulpia octoflora</i>	1	
	Annual Grass Subtotal		1	
		<i>Sporobolus airoides</i>	9	
	Perennial Grass Subtotal		9	
		<i>Eriogonum leptocladon</i>	1	
	Perennial Shrub Subtotal		1	
	DU-122 Total Vegetation			13
	DU-123	Bare		72
Rock/Gravel			0	
Litter			17	
Vegetation			11	
		<i>Descurainia pinnata</i>	1	
Annual Forb Subtotal			1	
		<i>Pleuraphis jamesii</i>	3	
		<i>Sporobolus airoides</i>	4	
Perennial Grass Subtotal			7	
		<i>Lycium pallidum</i>	3	
Perennial Shrub Subtotal			3	
DU-123 Total Vegetation			11	

Attachment C-6 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
DU-124	Bare		67
	Rock/Gravel		10
	Litter		9
	Vegetation		14
		<i>Machaeranthera canescens</i>	1
		<i>Mentzelia albicaulis</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
		<i>Aristida purpurea</i>	1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		4
		<i>Ericameria [Chrysothamnus] nauseosus</i>	7
	Perennial Shrub Subtotal		7
DU-124 Total Vegetation			14
DU-125	Bare		71
	Rock/Gravel		0
	Litter		12
	Vegetation		17
		<i>Ambrosia acanthicarpa</i>	1
		<i>Descurainia pinnata</i>	1
	Annual Forb Subtotal		2
		<i>Achnatherum hymenoides</i>	1
		<i>Muhlenbergia pungens</i>	1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		3
		<i>Ephedra Sp.</i>	11
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		12
DU-125 Total Vegetation			17
DU-126	Bare		55
	Rock/Gravel		0
	Litter		30
	Vegetation		15
		<i>Cryptantha crassisepala</i>	2
		<i>Descurainia pinnata</i>	3
		<i>Streptanthella longirostris</i>	1
	Annual Forb Subtotal		6
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	6
	Perennial Grass Subtotal		7
		<i>Sarcobatus vermiculatus</i>	2
	Perennial Shrub Subtotal		2
	DU-126 Total Vegetation		

Attachment C-6 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
DU-127	Bare		75
	Rock/Gravel		0
	Litter		11
	Vegetation		14
		<i>Cryptantha crassisepala</i>	2
		<i>Descurainia pinnata</i>	1
		<i>Dimorphocarpa wislizenii</i>	2
	Annual Forb Subtotal		5
		<i>Achnatherum hymenoides</i>	2
		<i>Pleuraphis jamesii</i>	5
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		9
	DU-127 Total Vegetation		14
	DU-128	Bare	
Rock/Gravel			2
Litter			12
Vegetation			13
		<i>Malacothrix sonchoides</i>	1
Annual Forb Subtotal			1
		<i>Vulpia octoflora</i>	1
Annual Grass Subtotal			1
		<i>Unidentified</i>	1
Forb Subtotal			1
		<i>Sporobolus airoides</i>	7
Perennial Grass Subtotal			7
		<i>Ephedra Sp.</i>	1
		<i>Ericameria [Chrysothamnus] nauseosus</i>	1
Perennial Shrub Subtotal			2
		<i>Opuntia polyacantha</i>	1
Perennial Succulent Subtotal			1
DU-128 Total Vegetation		13	
DU-129	Bare		73
	Rock/Gravel		1
	Litter		14
	Vegetation		12
		<i>Cryptantha crassisepala</i>	4
		<i>Descurainia pinnata</i>	2
	Annual Forb Subtotal		6
		<i>Achnatherum hymenoides</i>	1
	Perennial Grass Subtotal		1
		<i>Gutierrezia sarothrae</i>	5
Perennial Shrub Subtotal		5	
DU-129 Total Vegetation		12	

Attachment C-6 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
DU-130	Bare		73
	Rock/Gravel		0
	Litter		17
	Vegetation		10
		<i>Mentzelia albicaulis</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		3
		<i>Sphaeralcea parvifolia</i>	1
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		3
		<i>Ephedra Sp.</i>	3
	Perennial Shrub Subtotal		3
DU-130 Total Vegetation			10
DU-131	Bare		84
	Rock/Gravel		0
	Litter		4
	Vegetation		12
		<i>Dimorphocarpa wislizenii</i>	2
		<i>Salsola tragus</i>	7
	Annual Forb Subtotal		9
		<i>Achnatherum hymenoides</i>	2
		<i>Muhlenbergia pungens</i>	1
	Perennial Grass Subtotal		3
DU-131 Total Vegetation			12
DU-132	Bare		60
	Rock/Gravel		0
	Litter		14
	Vegetation		26
		<i>Cryptantha crassisepala</i>	7
		<i>Descurainia pinnata</i>	1
		<i>Machaeranthera canescens</i>	9
		<i>Mentzelia albicaulis</i>	2
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		22
		<i>Abronia fragrans</i>	1
		<i>Sphaeralcea parvifolia</i>	1
	Perennial Forb Subtotal		2
	<i>Sporobolus contractus</i>	2	
Perennial Grass Subtotal		2	
DU-132 Total Vegetation			26
DU-133	Bare		51
	Rock/Gravel		13
	Litter		21

Attachment C-6 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Vegetation		15
		<i>Cryptantha crassisejala</i>	2
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
		<i>Achnatherum hymenoides</i>	2
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	3
		<i>Sporobolus cryptandrus</i>	1
	Perennial Grass Subtotal		8
		<i>Gutierrezia sarothrae</i>	4
	Perennial Shrub Subtotal		4
DU-133	Total Vegetation		15
DU-134	Bare		70
	Rock/Gravel		0
	Litter		16
	Vegetation		14
		<i>Descurainia pinnata</i>	2
		<i>Dimorphocarpa wislizenii</i>	1
		<i>Mentzelia albicaulis</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		5
		<i>Achnatherum hymenoides</i>	1
	Perennial Grass Subtotal		1
		<i>Ephedra Sp.</i>	6
		<i>Gutierrezia sarothrae</i>	2
	Perennial Shrub Subtotal		8
DU-134	Total Vegetation		14
DU-135	Bare		56
	Rock/Gravel		0
	Litter		16
	Vegetation		28
		<i>Descurainia pinnata</i>	1
		<i>Phacelia crenulata</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
		<i>Aristida purpurea</i>	1
		<i>Pleuraphis jamesii</i>	3
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		5
		<i>Ephedra Sp.</i>	6
		<i>Ericameria [Chrysothamnus] nauseosus</i>	14
	Perennial Shrub Subtotal		20
DU-135	Total Vegetation		28
DU-136	Bare		73

Attachment C-6 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Rock/Gravel		0
	Litter		16
	Vegetation		11
		<i>Cordylanthus wrightii</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		2
		<i>Vulpia octoflora</i>	2
	Annual Grass Subtotal		2
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	4
	Perennial Grass Subtotal		5
		<i>Chrysothamnus viscidiflorus</i>	1
		<i>Ephedra Sp.</i>	1
	Perennial Shrub Subtotal		2
DU-136 Total Vegetation			11
DU-137	Bare		65
	Rock/Gravel		0
	Litter		16
	Vegetation		19
		<i>Cordylanthus wrightii</i>	6
		<i>Descurainia pinnata</i>	1
	Annual Forb Subtotal		7
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	6
	Perennial Grass Subtotal		8
		<i>Ericameria [Chrysothamnus] nauseosus</i>	2
		<i>Eriogonum leptocladon</i>	1
		<i>Sarcobatus vermiculatus</i>	1
	Perennial Shrub Subtotal		4
DU-137 Total Vegetation			19
DU-138	Bare		59
	Rock/Gravel		0
	Litter		23
	Vegetation		18
		<i>Cryptantha crassisepala</i>	3
		<i>Descurainia pinnata</i>	3
	Annual Forb Subtotal		6
		<i>Vulpia octoflora</i>	1
	Annual Grass Subtotal		1
		<i>Aristida purpurea</i>	1
		<i>Pleuraphis jamesii</i>	2
	Perennial Grass Subtotal		3
		<i>Gutierrezia sarothrae</i>	8
	Perennial Shrub Subtotal		8

Attachment C-6 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
DU-138 Total Vegetation			18
DU-139	Bare		74
	Rock/Gravel		0
	Litter		14
	Vegetation		12
		<i>Descurainia pinnata</i>	5
		<i>Mentzelia albicaulis</i>	2
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		9
		<i>Ericameria [Chrysothamnus] nauseosus</i>	3
	Perennial Shrub Subtotal		3
DU-139 Total Vegetation			12
DU-140	Bare		74
	Rock/Gravel		0
	Litter		8
	Vegetation		18
		<i>Dimorphocarpa wislizenii</i>	3
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		4
		<i>Oenothera pallida</i>	2
		<i>Stephanomeria exigua</i>	1
	Perennial Forb Subtotal		3
	<i>Achnatherum hymenoides</i>	8	
	<i>Muhlenbergia pungens</i>	3	
Perennial Grass Subtotal		11	
DU-140 Total Vegetation			18
DU-141	Bare		66
	Rock/Gravel		0
	Litter		17
	Vegetation		17
		<i>Ambrosia acanthicarpa</i>	1
		<i>Cryptantha crassisepala</i>	2
		<i>Descurainia pinnata</i>	1
		<i>Machaeranthera canescens</i>	3
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		8
	<i>Chaetopappa ericoides</i>	1	
	<i>Oenothera pallida</i>	2	
Perennial Forb Subtotal		3	
	<i>Achnatherum hymenoides</i>	2	
	<i>Sporobolus airoides</i>	3	
Perennial Grass Subtotal		5	
	<i>Atriplex canescens</i>	1	
Perennial Shrub Subtotal		1	

Attachment C-6 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
DU-141 Total Vegetation			17
DU-142	Bare		56
	Rock/Gravel		0
	Litter		19
	Vegetation		25
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	3
		<i>Dimorphocarpa wislizenii</i>	1
		<i>Linum puberulum</i>	1
		<i>Mentzelia albicaulis</i>	4
	Annual Forb Subtotal		10
		<i>Oenothera pallida</i>	1
		<i>Stephanomeria exigua</i>	2
	Perennial Forb Subtotal		3
		<i>Achnatherum hymenoides</i>	3
		<i>Pleuraphis jamesii</i>	5
	Perennial Grass Subtotal		8
		<i>Chrysothamnus viscidiflorus</i>	1
	<i>Ephedra Sp.</i>	3	
Perennial Shrub Subtotal		4	
DU-142 Total Vegetation			25
DU-143	Bare		57
	Rock/Gravel		0
	Litter		18
	Vegetation		25
		<i>Cryptantha crassisepala</i>	4
		<i>Descurainia pinnata</i>	9
		<i>Machaeranthera canescens</i>	4
	Annual Forb Subtotal		17
		<i>Oenothera pallida</i>	1
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus contractus</i>	4
	Perennial Grass Subtotal		6
		<i>Atriplex canescens</i>	1
	Perennial Shrub Subtotal		1
	DU-143 Total Vegetation		
DU-144	Bare		80
	Rock/Gravel		0
	Litter		8
	Vegetation		12
		<i>Salsola tragus</i>	3
Annual Forb Subtotal		3	
	<i>Sphaeralcea parvifolia</i>	1	

Attachment C-6 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		2
		<i>Atriplex canescens</i>	1
		<i>Chrysothamnus viscidiflorus</i>	1
		<i>Ephedra Sp.</i>	4
	Perennial Shrub Subtotal		6
DU-144 Total Vegetation			12
DU-145	Bare		75
	Rock/Gravel		2
	Litter		8
	Vegetation		15
		<i>Descurainia pinnata</i>	2
		<i>Mentzelia albicaulis</i>	1
	Annual Forb Subtotal		3
		<i>Aster Sp.</i>	1
	Forb Subtotal		1
		<i>Oenothera pallida</i>	1
		<i>Stephanomeria exigua</i>	2
	Perennial Forb Subtotal		3
		<i>Achnatherum hymenoides</i>	2
		<i>Muhlenbergia pungens</i>	1
		<i>Pleuraphis jamesii</i>	2
	Perennial Grass Subtotal		5
		<i>Ephedra Sp.</i>	3
	Perennial Shrub Subtotal		3
DU-145 Total Vegetation			15
DU-146	Bare		68
	Rock/Gravel		0
	Litter		14
	Vegetation		18
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
		<i>Muhlenbergia pungens</i>	3
		<i>Pleuraphis jamesii</i>	3
	Perennial Grass Subtotal		7
		<i>Chrysothamnus viscidiflorus</i>	1
		<i>Ephedra Sp.</i>	2
		<i>Ericameria [Chrysothamnus] nauseosus</i>	5
	Perennial Shrub Subtotal		8
DU-146 Total Vegetation			18
DU-147	Bare		77
	Rock/Gravel		0

Attachment C-6 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Litter		12
	Vegetation		11
		<i>Ipomopsis pumila</i>	2
	Annual Forb Subtotal		2
		<i>Aristida purpurea</i>	1
		<i>Pleuraphis jamesii</i>	3
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		6
		<i>Ericameria [Chrysothamnus] nauseosus</i>	2
	Perennial Shrub Subtotal		2
		<i>Unidentified</i>	1
	Undetermined Subtotal		1
DU-147 Total Vegetation			11
DU-148	Bare		66
	Rock/Gravel		0
	Litter		18
	Vegetation		16
		<i>Cryptantha crassisepala</i>	4
		<i>Descurainia pinnata</i>	3
		<i>Dimorphocarpa wislizenii</i>	1
		<i>Machaeranthera canescens</i>	1
	Annual Forb Subtotal		9
		<i>Oenothera pallida</i>	1
		<i>Stephanomeria exigua</i>	1
	Perennial Forb Subtotal		2
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	2
	Perennial Grass Subtotal		3
		<i>Chrysothamnus viscidiflorus</i>	1
		<i>Ephedra Sp.</i>	1
	Perennial Shrub Subtotal		2
DU-148 Total Vegetation			16
DU-149	Bare		79
	Rock/Gravel		0
	Litter		13
	Vegetation		8
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	2
	Perennial Grass Subtotal		3
		<i>Ephedra Sp.</i>	1
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		2
DU-149 Total Vegetation			8
DU-150	Bare		68

Attachment C-6 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Rock/Gravel		0
	Litter		9
	Vegetation		23
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	3
	Perennial Grass Subtotal		4
		<i>Ephedra Sp.</i>	13
	Perennial Shrub Subtotal		13
DU-150 Total Vegetation			23
DU-151	Bare		73
	Rock/Gravel		7
	Litter		10
	Vegetation		10
		<i>Cryptantha crassisepala</i>	1
		<i>Lappula occidentalis</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
		<i>Rumex hymenosepalus</i>	1
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
		<i>Muhlenbergia pungens</i>	2
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		5
		<i>Atriplex canescens</i>	1
	Perennial Shrub Subtotal		1
DU-151 Total Vegetation			10
DU-152	Bare		81
	Rock/Gravel		0
	Litter		5
	Vegetation		14
		<i>Dicoria Sp.</i>	1
		<i>Salsola tragus</i>	11
	Annual Forb Subtotal		12
		<i>Oenothera pallida</i>	1
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
	Perennial Grass Subtotal		1
DU-152 Total Vegetation			14
DU-153	Bare		72
	Rock/Gravel		5
	Litter		13
	Vegetation		10
		<i>Machaeranthera canescens</i>	1
		<i>Mentzelia albicaulis</i>	3

Attachment C-6 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Salsola tragus</i>	2
		<i>Streptanthella longirostris</i>	2
	Annual Forb Subtotal		8
		<i>Aristida purpurea</i>	1
	Perennial Grass Subtotal		1
		<i>Ericameria [Chrysothamnus] nauseosus</i>	1
	Perennial Shrub Subtotal		1
DU-153 Total Vegetation			10
DU-154	Bare		78
	Rock/Gravel		0
	Litter		8
	Vegetation		14
		<i>Dimorphocarpa wislizenii</i>	3
	Annual Forb Subtotal		3
		<i>Penstemon Sp.</i>	1
	Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
	Perennial Grass Subtotal		1
		<i>Ephedra Sp.</i>	5
		<i>Eriogonum leptocladon</i>	4
	Perennial Shrub Subtotal		9
DU-154 Total Vegetation			14
DU-155	Bare		80
	Rock/Gravel		0
	Litter		13
	Vegetation		7
		<i>Aristida purpurea</i>	1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		2
		<i>Chrysothamnus viscidiflorus</i>	1
		<i>Ephedra Sp.</i>	3
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		5
DU-155 Total Vegetation			7
DU-156	Bare		65
	Rock/Gravel		0
	Litter		17
	Vegetation		18
		<i>Cryptantha crassisepala</i>	2
		<i>Descurainia pinnata</i>	3
		<i>Dimorphocarpa wislizenii</i>	5
		<i>Machaeranthera canescens</i>	3
	Annual Forb Subtotal		13
		<i>Oenothera pallida</i>	1

Attachment C-6 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	2
		<i>Muhlenbergia pungens</i>	2
	Perennial Grass Subtotal		4
DU-156 Total Vegetation			18
DU-157	Bare		65
	Rock/Gravel		0
	Litter		23
	Vegetation		12
		<i>Cryptantha crassisepala</i>	3
		<i>Descurainia pinnata</i>	4
		<i>Mentzelia albicaulis</i>	1
	Annual Forb Subtotal		8
		<i>Vulpia octoflora</i>	1
	Annual Grass Subtotal		1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Ericameria [Chrysothamnus] nauseosus</i>	2
	Perennial Shrub Subtotal		2
DU-157 Total Vegetation			12
DU-158	Bare		80
	Rock/Gravel		0
	Litter		5
	Vegetation		15
		<i>Dimorphocarpa wislizenii</i>	4
		<i>Mentzelia albicaulis</i>	1
		<i>Salsola tragus</i>	2
		<i>Streptanthella longirostris</i>	1
	Annual Forb Subtotal		8
		<i>Achnatherum hymenoides</i>	2
	Perennial Grass Subtotal		2
		<i>Artemisia filifolia</i>	1
		<i>Chrysothamnus viscidiflorus</i>	2
		<i>Ephedra Sp.</i>	2
	Perennial Shrub Subtotal		5
DU-158 Total Vegetation			15
DU-159	Bare		71
	Rock/Gravel		0
	Litter		15
	Vegetation		14
		<i>Cryptantha crassisepala</i>	1
		<i>Salsola tragus</i>	2
		<i>Streptanthella longirostris</i>	1
	Annual Forb Subtotal		4

Attachment C-6 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Vulpia octoflora</i>	1
	Annual Grass Subtotal		1
		<i>Chaetopappa ericoides</i>	1
	Perennial Forb Subtotal		1
		<i>Muhlenbergia pungens</i>	1
		<i>Pleuraphis jamesii</i>	3
	Perennial Grass Subtotal		4
		<i>Ephedra Sp.</i>	2
		<i>Ericameria [Chrysothamnus] nauseosus</i>	1
		Unidentified	1
	Perennial Shrub Subtotal		4
DU-159 Total Vegetation			14
DU-160	Bare		79
	Rock/Gravel		0
	Litter		10
	Vegetation		11
		<i>Sphaeralcea parvifolia</i>	1
	Perennial Forb Subtotal		1
		<i>Muhlenbergia pungens</i>	3
		<i>Sporobolus contractus</i>	1
	Perennial Grass Subtotal		4
		<i>Ephedra Sp.</i>	6
	Perennial Shrub Subtotal		6
DU-160 Total Vegetation			11

Attachment C-7. Fall Reference Arroyo Shrub Cover and Frequency Data by Point Intercept Transect

Transect	Life Form	Scientific Name	Percent Cover
RAS-041	Bare		23
	Rock/Gravel		0
	Litter		37
	Vegetation		40
		<i>Aster Sp.</i>	1
		<i>Plantago patagonica</i>	1
		<i>Portulaca oleracea</i>	2
	Annual Forb Subtotal		4
		<i>Bouteloua barbata</i>	1
		<i>Bromus tectorum</i>	16
		<i>Hordeum pusillum</i>	5
	Annual Grass Subtotal		22
		<i>Grindelia squarrosa</i>	1
	Perennial Forb Subtotal		1
		<i>Sporobolus airoides</i>	13
	Perennial Grass Subtotal		13
	RAS-041 Total Vegetation		
RAS-042	Bare		21
	Rock/Gravel		0
	Litter		41
	Vegetation		38
		<i>Cryptantha crassisepala</i>	1
		<i>Erigeron bellidiastrum</i>	1
		<i>Plantago patagonica</i>	3
	Annual Forb Subtotal		5
		<i>Hordeum pusillum</i>	8
	Annual Grass Subtotal		8
		<i>Grindelia squarrosa</i>	7
	Perennial Forb Subtotal		7
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	11
	Perennial Grass Subtotal		12
		<i>Atriplex canescens</i>	3
		<i>Atriplex obovata</i>	1
	<i>Gutierrezia sarothrae</i>	1	
	<i>Lycium pallidum</i>	1	
Perennial Shrub Subtotal		6	
RAS-042 Total Vegetation			38
RAS-043	Bare		90
	Rock/Gravel		1
	Litter		5
	Vegetation		4

Attachment C-7 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Descurainia pinnata</i>	1
		<i>Halogeton glomeratus</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
RAS-043 Total Vegetation			4
RAS-044	Bare		51
	Rock/Gravel		0
	Litter		20
	Vegetation		29
		<i>Hordeum pusillum</i>	14
	Annual Grass Subtotal		14
		<i>Sporobolus airoides</i>	13
	Perennial Grass Subtotal		13
		<i>Atriplex obovata</i>	2
	Perennial Shrub Subtotal		2
RAS-044 Total Vegetation			29
RAS-045	Bare		50
	Rock/Gravel		1
	Litter		25
	Vegetation		24
		<i>Bouteloua barbata</i>	1
		<i>Eragrostis cilianensis</i>	4
		<i>Eragrostis cilianensis</i>	2
		<i>Hordeum pusillum</i>	11
	Annual Grass Subtotal		18
		<i>Senecio Sp.</i>	1
	Forb Subtotal		1
		<i>Chamaesyce fendleri</i>	2
		<i>Sphaeralcea coccinea</i>	1
	Perennial Forb Subtotal		3
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		2
RAS-045 Total Vegetation			24
RAS-046	Bare		46
	Rock/Gravel		0
	Litter		23
	Vegetation		31
		<i>Erigeron bellidiastrum</i>	7
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		8
		<i>Bromus tectorum</i>	1
		<i>Vulpia octoflora</i>	4

Attachment C-7 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Annual Grass Subtotal		5
		<i>Pleuraphis jamesii</i>	6
		<i>Sporobolus airoides</i>	11
		<i>Sporobolus contractus</i>	1
	Perennial Grass Subtotal		18
RAS-046 Total Vegetation			31
RAS-047	Bare		35
	Rock/Gravel		0
	Litter		39
	Vegetation		26
		<i>Plantago patagonica</i>	3
	Annual Forb Subtotal		3
		<i>Bromus tectorum</i>	1
		<i>Hordeum pusillum</i>	13
	Annual Grass Subtotal		14
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	7
	Perennial Grass Subtotal		9
RAS-047 Total Vegetation			26
RAS-049	Bare		80
	Rock/Gravel		0
	Litter		16
	Vegetation		4
		<i>Atriplex powellii</i>	1
		<i>Halogeton glomeratus</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
		<i>Sarcobatus vermiculatus</i>	1
	Perennial Shrub Subtotal		1
RAS-049 Total Vegetation			4
RAS-050	Bare		34
	Rock/Gravel		2
	Litter		31
	Vegetation		33
		<i>Lappula occidentalis</i>	1
		<i>Plantago patagonica</i>	17
	Annual Forb Subtotal		18
		<i>Pleuraphis jamesii</i>	6
		<i>Sporobolus airoides</i>	5
	Perennial Grass Subtotal		11
		<i>Atriplex obovata</i>	2
	Perennial Shrub Subtotal		2
		<i>Opuntia polyacantha</i>	2
	Perennial Succulent Subtotal		2
RAS-050 Total Vegetation			33

Attachment C-7 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
RAS-051	Bare		68
	Rock/Gravel		10
	Litter		12
	Vegetation		10
		<i>Lappula occidentalis</i>	1
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		4
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	5
	Perennial Grass Subtotal		6
RAS-051 Total Vegetation			10
RAS-052	Bare		67
	Rock/Gravel		0
	Litter		17
	Vegetation		16
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		2
		<i>Hordeum pusillum</i>	11
	Annual Grass Subtotal		11
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		2
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
RAS-052 Total Vegetation			16
RAS-053	Bare		31
	Rock/Gravel		0
	Litter		35
	Vegetation		34
		<i>Erigeron bellidiastrum</i>	1
		<i>Plantago patagonica</i>	3
	Annual Forb Subtotal		4
		<i>Bromus tectorum</i>	2
		<i>Hordeum pusillum</i>	6
	Annual Grass Subtotal		8
		<i>Aster Sp.</i>	1
	Forb Subtotal		1
	<i>Grindelia squarrosa</i>	3	
Perennial Forb Subtotal		3	
	<i>Elymus elymoides</i>	1	
	<i>Pleuraphis jamesii</i>	9	
	<i>Sporobolus airoides</i>	8	
Perennial Grass Subtotal		18	
RAS-053 Total Vegetation			34

Attachment C-7 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
RAS-054	Bare		60
	Rock/Gravel		1
	Litter		29
	Vegetation		10
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		3
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		5
		<i>Atriplex obovata</i>	2
Perennial Shrub Subtotal		2	
RAS-054 Total Vegetation			10
RAS-055	Bare		84
	Rock/Gravel		0
	Litter		6
	Vegetation		10
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		1
		<i>Hordeum pusillum</i>	1
	Annual Grass Subtotal		1
		<i>Grindelia squarrosa</i>	2
	Perennial Forb Subtotal		2
	<i>Sporobolus airoides</i>	6	
Perennial Grass Subtotal		6	
RAS-055 Total Vegetation			10
RAS-056	Bare		49
	Rock/Gravel		0
	Litter		31
	Vegetation		20
		<i>Descurainia pinnata</i>	1
		<i>Erodium cicutarium</i>	1
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		5
		<i>Hordeum pusillum</i>	5
	Annual Grass Subtotal		5
	<i>Sporobolus airoides</i>	10	
Perennial Grass Subtotal		10	
RAS-056 Total Vegetation			20
RAS-057	Bare		74
	Rock/Gravel		0
	Litter		18
	Vegetation		8
		<i>Cryptantha crassisepala</i>	1
	<i>Salsola tragus</i>	1	

Attachment C-7 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Annual Forb Subtotal		2
		<i>Hordeum pusillum</i>	4
	Annual Grass Subtotal		4
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
RAS-057 Total Vegetation			8
RAS-058	Bare		66
	Rock/Gravel		0
	Litter		22
	Vegetation		12
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		2
		<i>Pleuraphis jamesii</i>	3
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		5
		<i>Atriplex confertifolia</i>	1
		<i>Atriplex obovata</i>	2
		<i>Sarcobatus vermiculatus</i>	2
	Perennial Shrub Subtotal		5
RAS-058 Total Vegetation			12
RAS-059	Bare		58
	Rock/Gravel		0
	Litter		22
	Vegetation		20
		<i>Erodium cicutarium</i>	2
	Annual Forb Subtotal		2
		<i>Grindelia squarrosa</i>	1
		<i>Sphaeralcea coccinea</i>	1
	Perennial Forb Subtotal		2
		<i>Sporobolus airoides</i>	14
	Perennial Grass Subtotal		14
		<i>Atriplex confertifolia</i>	1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		2
RAS-059 Total Vegetation			20
RAS-060	Bare		60
	Rock/Gravel		6
	Litter		17
	Vegetation		17
		<i>Malacothrix sonchoides</i>	1
		<i>Phacelia crenulata</i>	1
		<i>Plantago patagonica</i>	6

Attachment C-7 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		9
		<i>Monroa squarrosa</i>	1
	Annual Grass Subtotal		1
		<i>Sporobolus airoides</i>	6
	Perennial Grass Subtotal		6
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		1
RAS-060 Total Vegetation			17
RAS-061	Bare		46
	Rock/Gravel		0
	Litter		27
	Vegetation		27
		<i>Descurainia pinnata</i>	1
		<i>Erigeron bellidiastrum</i>	2
		<i>Plantago patagonica</i>	4
	Annual Forb Subtotal		7
		<i>Hordeum pusillum</i>	4
		<i>Vulpia octoflora</i>	1
	Annual Grass Subtotal		5
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	14
	Perennial Grass Subtotal		15
RAS-061 Total Vegetation			27
RAS-062	Bare		72
	Rock/Gravel		1
	Litter		12
	Vegetation		15
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		1
		<i>Senecio spartoides</i>	3
	Perennial Forb Subtotal		3
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	7
	Perennial Grass Subtotal		8
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
		<i>Opuntia polyacantha</i>	2
	Perennial Succulent Subtotal		2
RAS-062 Total Vegetation			15
RAS-063	Bare		56
	Rock/Gravel		0
	Litter		20
	Vegetation		24
		<i>Cryptantha crassisepala</i>	1

Attachment C-7 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		2
		<i>Hordeum pusillum</i>	3
	Annual Grass Subtotal		3
		<i>Pleuraphis jamesii</i>	6
		<i>Sporobolus airoides</i>	8
	Perennial Grass Subtotal		14
		<i>Sarcobatus vermiculatus</i>	5
	Perennial Shrub Subtotal		5
RAS-063 Total Vegetation			24
RAS-064	Bare		31
	Rock/Gravel		0
	Litter		27
	Vegetation		42
		<i>Cryptantha crassisepala</i>	1
		<i>Erigeron bellidiastrum</i>	2
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		4
		<i>Bromus tectorum</i>	4
		<i>Hordeum pusillum</i>	7
		<i>Jointed goat grass</i>	2
	Annual Grass Subtotal		13
		<i>Grindelia squarrosa</i>	2
	Perennial Forb Subtotal		2
		<i>Pleuraphis jamesii</i>	4
		<i>Sporobolus airoides</i>	19
	Perennial Grass Subtotal		23
RAS-064 Total Vegetation			42
RAS-065	Bare		40
	Rock/Gravel		4
	Litter		40
	Vegetation		16
		<i>Hordeum pusillum</i>	3
	Annual Grass Subtotal		3
		<i>Sporobolus airoides</i>	13
	Perennial Grass Subtotal		13
RAS-065 Total Vegetation			16
RAS-066	Bare		60
	Rock/Gravel		0
	Litter		21
	Vegetation		19
		<i>Erigeron bellidiastrum</i>	1
		<i>Plantago patagonica</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		3

Attachment C-7 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Bromus tectorum</i>	3
		<i>Hordeum pusillum</i>	3
	Annual Grass Subtotal		6
		<i>Grindelia squarrosa</i>	3
	Perennial Forb Subtotal		3
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	5
	Perennial Grass Subtotal		6
		<i>Opuntia polyacantha</i>	1
	Perennial Succulent Subtotal		1
RAS-066 Total Vegetation			19
RAS-067	Bare		42
	Rock/Gravel		0
	Litter		35
	Vegetation		23
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		1
		<i>Hordeum pusillum</i>	10
	Annual Grass Subtotal		10
		<i>Grindelia squarrosa</i>	1
	Perennial Forb Subtotal		1
		<i>Sporobolus airoides</i>	11
	Perennial Grass Subtotal		11
RAS-067 Total Vegetation			23
RAS-068	Bare		32
	Rock/Gravel		0
	Litter		31
	Vegetation		37
		<i>Cryptantha crassisepala</i>	3
		<i>Plantago patagonica</i>	2
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	2
	Annual Forb Subtotal		8
		<i>Hordeum pusillum</i>	13
	Annual Grass Subtotal		13
		<i>Sporobolus airoides</i>	16
	Perennial Grass Subtotal		16
RAS-068 Total Vegetation			37
RAS-069	Bare		77
	Rock/Gravel		2
	Litter		15
	Vegetation		6
		<i>Atriplex powellii</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Phacelia crenulata</i>	1

Attachment C-7 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		4
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
RAS-069 Total Vegetation			6
RAS-070	Bare		77
	Rock/Gravel		7
	Litter		8
	Vegetation		8
		<i>Halogeton glomeratus</i>	7
	Annual Forb Subtotal		7
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
RAS-070 Total Vegetation			8
RAS-071	Bare		48
	Rock/Gravel		3
	Litter		27
	Vegetation		22
		<i>Descurainia pinnata</i>	1
		<i>Eriogonum gordonii</i>	1
		<i>Halogeton glomeratus</i>	1
		<i>Lappula occidentalis</i>	1
	Annual Forb Subtotal		4
		<i>Hordeum pusillum</i>	2
	Annual Grass Subtotal		2
		<i>Sporobolus airoides</i>	16
	Perennial Grass Subtotal		16
RAS-071 Total Vegetation			22
RAS-072	Bare		69
	Rock/Gravel		12
	Litter		10
	Vegetation		9
		<i>Halogeton glomeratus</i>	4
		<i>Lappula occidentalis</i>	1
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		7
		<i>Eriogonum jamesii</i>	1
	Perennial Forb Subtotal		1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
RAS-072 Total Vegetation			9

Attachment C-7 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
RAS-073	Bare		72
	Rock/Gravel		0
	Litter		19
	Vegetation		9
		<i>Cryptantha crassisepala</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		2
		<i>Hordeum pusillum</i>	1
	Annual Grass Subtotal		1
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		4
		<i>Sarcobatus vermiculatus</i>	2
	Perennial Shrub Subtotal		2
RAS-073 Total Vegetation			9
RAS-074	Bare		52
	Rock/Gravel		0
	Litter		25
	Vegetation		23
		<i>Erigeron bellidiastrum</i>	1
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		2
		<i>Hordeum pusillum</i>	10
	Annual Grass Subtotal		10
		<i>Aster Sp.</i>	1
	Forb Subtotal		1
		<i>Grindelia squarrosa</i>	1
	Perennial Forb Subtotal		1
		<i>Pleuraphis jamesii</i>	1
	<i>Sporobolus airoides</i>	8	
Perennial Grass Subtotal		9	
RAS-074 Total Vegetation			23
RAS-075	Bare		39
	Rock/Gravel		0
	Litter		34
	Vegetation		27
		<i>Descurainia pinnata</i>	1
		<i>Plantago patagonica</i>	9
	Annual Forb Subtotal		10
		<i>Hordeum pusillum</i>	1
		<i>Vulpia octoflora</i>	2
	Annual Grass Subtotal		3
		<i>Pleuraphis jamesii</i>	4
		<i>Sporobolus airoides</i>	10
	Perennial Grass Subtotal		14
	RAS-075 Total Vegetation		

Attachment C-7 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
RAS-076	Bare		70
	Rock/Gravel		0
	Litter		20
	Vegetation		10
		<i>Halogeton glomeratus</i>	2
	Annual Forb Subtotal		2
		<i>Hordeum pusillum</i>	5
	Annual Grass Subtotal		5
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		3
RAS-076 Total Vegetation			10
RAS-077	Bare		31
	Rock/Gravel		0
	Litter		34
	Vegetation		35
		<i>Plantago patagonica</i>	3
	Annual Forb Subtotal		3
		<i>Bromus tectorum</i>	5
		<i>Hordeum pusillum</i>	8
	Annual Grass Subtotal		13
		<i>Grindelia squarrosa</i>	2
	Perennial Forb Subtotal		2
		<i>Sporobolus airoides</i>	16
	Perennial Grass Subtotal		16
	<i>Atriplex obovata</i>	1	
Perennial Shrub Subtotal		1	
RAS-077 Total Vegetation			35
RAS-078	Bare		50
	Rock/Gravel		3
	Litter		26
	Vegetation		21
		<i>Erodium cicutarium</i>	1
		<i>Lappula occidentalis</i>	2
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		7
		<i>Hordeum pusillum</i>	4
		<i>Monroa squarrosa</i>	2
	Annual Grass Subtotal		6
		<i>Sporobolus airoides</i>	6
Perennial Grass Subtotal		6	
	<i>Atriplex obovata</i>	1	
Perennial Shrub Subtotal		1	
	<i>Opuntia polyacantha</i>	1	
Perennial Succulent Subtotal		1	

Attachment C-7 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
RAS-078 Total Vegetation			21
RAS-079	Bare		35
	Rock/Gravel		0
	Litter		32
	Vegetation		33
		<i>Erodium cicutarium</i>	1
	Annual Forb Subtotal		1
		<i>Hordeum pusillum</i>	13
	Annual Grass Subtotal		13
		<i>Chamaesyce fendleri</i>	2
	Perennial Forb Subtotal		2
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	13
		<i>Sporobolus cryptandrus</i>	1
	Perennial Grass Subtotal		16
	<i>Gutierrezia sarothrae</i>	1	
Perennial Shrub Subtotal		1	
RAS-079 Total Vegetation			33
RAS-080	Bare		48
	Rock/Gravel		0
	Litter		21
	Vegetation		31
		<i>Descurainia pinnata</i>	1
		<i>Erigeron bellidiastrum</i>	4
		<i>Plantago patagonica</i>	2
	Annual Forb Subtotal		7
		<i>Hordeum pusillum</i>	2
		<i>Vulpia octoflora</i>	5
	Annual Grass Subtotal		7
		<i>Pleuraphis jamesii</i>	4
		<i>Sporobolus airoides</i>	13
	Perennial Grass Subtotal		17
RAS-080 Total Vegetation			31

Attachment C-8. Fall Reference Alkali Wash Cover and Frequency Data by Point Intercept Transect

Transect	Life Form	Scientific Name	Percent Cover
RAW-001	Bare		40
	Rock/Gravel		46
	Litter		10
	Vegetation		4
		<i>Ipomopsis pumila</i>	1
		<i>Plantago patagonica</i>	2
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		4
RAW-001 Total Vegetation			4
RAW-002	Bare		50
	Rock/Gravel		37
	Litter		10
	Vegetation		3
		<i>Eriogonum gordonii</i>	1
		<i>Salsola tragus</i>	1
		Annual Forb Subtotal	
	<i>Atriplex obovata</i>	1	
	Perennial Shrub Subtotal		1
RAW-002 Total Vegetation			3
RAW-003	Bare		66
	Rock/Gravel		19
	Litter		12
	Vegetation		3
		<i>Plantago patagonica</i>	1
	<i>Townsendia annua</i>	2	
	Annual Forb Subtotal		3
RAW-003 Total Vegetation			3
RAW-004	Bare		38
	Rock/Gravel		0
	Litter		41
	Vegetation		21
		<i>Pleuraphis jamesii</i>	4
		<i>Sporobolus airoides</i>	8
		Perennial Grass Subtotal	
	<i>Atriplex canescens</i>	1	
	Perennial Shrub Subtotal		1
RAW-004 Total Vegetation			21
RAW-005	Bare		66
	Rock/Gravel		1

Attachment C-8 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Litter		21
	Vegetation		12
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		8
		<i>Lygodesmia grandiflora</i>	1
	Perennial Forb Subtotal		1
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		3
RAW-005 Total Vegetation			12
RAW-006	Bare		50
	Rock/Gravel		26
	Litter		17
	Vegetation		7
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		2
		<i>Bouteloua barbata</i>	1
	Annual Grass Subtotal		1
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		2
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
		<i>Opuntia polyacantha</i>	1
	Perennial Succulent Subtotal		1
RAW-006 Total Vegetation			7
RAW-007	Bare		50
	Rock/Gravel		24
	Litter		12
	Vegetation		14
		<i>Atriplex powellii</i>	1
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	3
		<i>Eriogonum gordonii</i>	1
		<i>Halogeton glomeratus</i>	1
		<i>Plantago patagonica</i>	2
		<i>Salsola tragus</i>	5
	Annual Forb Subtotal		14
RAW-007 Total Vegetation			14
RAW-008	Bare		68
	Rock/Gravel		24
	Litter		6
	Vegetation		2
		<i>Atriplex powellii</i>	1
		<i>Eriogonum gordonii</i>	1
	Annual Forb Subtotal		2
RAW-008 Total Vegetation			2

Attachment C-8 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
RAW-009	Bare		58
	Rock/Gravel		34
	Litter		5
	Vegetation		3
		<i>Eriogonum gordonii</i>	2
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		3
RAW-009 Total Vegetation			3
RAW-010	Bare		67
	Rock/Gravel		10
	Litter		13
	Vegetation		10
		<i>Cryptantha crassisejala</i>	1
		<i>Lappula occidentalis</i>	1
		<i>Plantago patagonica</i>	4
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		7
		<i>Bouteloua barbata</i>	1
	Annual Grass Subtotal		1
	<i>Pleuraphis jamesii</i>	1	
	<i>Sporobolus cryptandrus</i>	1	
Perennial Grass Subtotal		2	
RAW-010 Total Vegetation			10
RAW-011	Bare		65
	Rock/Gravel		29
	Litter		5
	Vegetation		1
		<i>Halogeton glomeratus</i>	1
Annual Forb Subtotal		1	
RAW-011 Total Vegetation			1
RAW-012	Bare		66
	Rock/Gravel		30
	Litter		3
	Vegetation		1
		<i>Lappula occidentalis</i>	1
Annual Forb Subtotal		1	
RAW-012 Total Vegetation			1
RAW-013	Bare		55
	Rock/Gravel		19
	Litter		18
	Vegetation		8
		<i>Cryptantha crassisejala</i>	1
	<i>Plantago patagonica</i>	2	

Attachment C-8 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Annual Forb Subtotal		3
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		4
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
RAW-013 Total Vegetation			8
RAW-014	Bare		76
	Rock/Gravel		19
	Litter		1
	Vegetation		4
		<i>Eriogonum gordonii</i>	2
		<i>Halogeton glomeratus</i>	1
	Annual Forb Subtotal		3
		<i>Atriplex gardneri</i>	1
	Perennial Shrub Subtotal		1
RAW-014 Total Vegetation			4
RAW-015	Bare		54
	Rock/Gravel		22
	Litter		16
	Vegetation		8
		<i>Chaenactis stevioides</i>	1
		<i>Phacelia crenulata</i>	1
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	2
	Annual Forb Subtotal		6
		<i>Atriplex obovata</i>	2
	Perennial Shrub Subtotal		2
RAW-015 Total Vegetation			8
RAW-016	Bare		32
	Rock/Gravel		68
	Litter		0
	Vegetation		0
RAW-016 Total Vegetation			0
RAW-017	Bare		73
	Rock/Gravel		6
	Litter		15
	Vegetation		6
		<i>Lappula occidentalis</i>	1
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		2
		<i>Monroa squarrosa</i>	2
	Annual Grass Subtotal		2

Attachment C-8 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Sphaeralcea parvifolia</i>	1
	Perennial Forb Subtotal		1
		<i>Pleuraphis jamesii</i>	1
	Perennial Grass Subtotal		1
RAW-017 Total Vegetation			6
RAW-018	Bare		67
	Rock/Gravel		15
	Litter		13
	Vegetation		5
		<i>Lappula occidentalis</i>	1
		<i>Plantago patagonica</i>	2
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		5
RAW-018 Total Vegetation			5
RAW-019	Bare		58
	Rock/Gravel		33
	Litter		6
	Vegetation		3
	Perennial Shrub Subtotal		1
RAW-019 Total Vegetation			3
RAW-020	Bare		75
	Rock/Gravel		0
	Litter		15
	Vegetation		10
		<i>Halogeton glomeratus</i>	1
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		4
		<i>Monroa squarrosa</i>	1
	Annual Grass Subtotal		1
		<i>Bouteloua gracilis</i>	2
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		5
RAW-020 Total Vegetation			10
RAW-021	Bare		65
	Rock/Gravel		4
	Litter		15
	Vegetation		16
		<i>Cryptantha crassisejala</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Eriogonum gordonii</i>	1
		<i>Lappula occidentalis</i>	1
		<i>Plantago patagonica</i>	3

Attachment C-8 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Annual Forb Subtotal		7
		<i>Monroa squarrosa</i>	3
	Annual Grass Subtotal		3
		<i>Chamaesyce fendleri</i>	1
		<i>Sphaeralcea parvifolia</i>	1
	Perennial Forb Subtotal		2
		<i>Pleuraphis jamesii</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex gardneri</i>	1
		<i>Atriplex obovata</i>	1
		<i>Sarcobatus vermiculatus</i>	1
	Perennial Shrub Subtotal		3
RAW-021 Total Vegetation			16
RAW-022	Bare		63
	Rock/Gravel		22
	Litter		8
	Vegetation		7
		<i>Halogeton glomeratus</i>	3
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		4
		<i>Pleuraphis jamesii</i>	3
	Perennial Grass Subtotal		3
RAW-022 Total Vegetation			7
RAW-023	Bare		75
	Rock/Gravel		3
	Litter		16
	Vegetation		6
		<i>Salsola tragus</i>	4
	Annual Forb Subtotal		4
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
RAW-023 Total Vegetation			6
RAW-024	Bare		56
	Rock/Gravel		37
	Litter		4
	Vegetation		3
		<i>Townsendia annua</i>	2
	Annual Forb Subtotal		2
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
RAW-024 Total Vegetation			3
RAW-025	Bare		21

Attachment C-8 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Rock/Gravel		0
	Litter		31
	Vegetation		48
		<i>Erodium cicutarium</i>	2
		<i>Plantago patagonica</i>	2
	Annual Forb Subtotal		4
		<i>Bromus rubens</i>	1
		<i>Hordeum pusillum</i>	21
	Annual Grass Subtotal		22
		<i>Grindelia squarrosa</i>	6
	Perennial Forb Subtotal		6
		<i>Pleuraphis jamesii</i>	7
		<i>Sporobolus airoides</i>	6
	Perennial Grass Subtotal		13
		<i>Sarcobatus vermiculatus</i>	3
	Perennial Shrub Subtotal		3
RAW-025 Total Vegetation			48
RAW-026	Bare		60
	Rock/Gravel		35
	Litter		3
	Vegetation		2
		<i>Descurainia pinnata</i>	1
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		2
RAW-026 Total Vegetation			2
RAW-027	Bare		86
	Rock/Gravel		0
	Litter		9
	Vegetation		5
		<i>Descurainia pinnata</i>	1
		<i>Halogeton glomeratus</i>	3
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		5
RAW-027 Total Vegetation			5
RAW-028	Bare		73
	Rock/Gravel		4
	Litter		14
	Vegetation		9
		<i>Descurainia pinnata</i>	1
		<i>Lappula occidentalis</i>	1
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		4
		<i>Hordeum pusillum</i>	1
	Annual Grass Subtotal		1

Attachment C-8 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Eriogonum jamesii</i>	1
		<i>Sphaeralcea coccinea</i>	1
	Perennial Forb Subtotal		2
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
RAW-028	Total Vegetation		9
RAW-029	Bare		79
	Rock/Gravel		4
	Litter		12
	Vegetation		5
		<i>Hordeum pusillum</i>	1
	Annual Grass Subtotal		1
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		3
		<i>Atriplex gardneri</i>	1
	Perennial Shrub Subtotal		1
RAW-029	Total Vegetation		5
RAW-030	Bare		50
	Rock/Gravel		32
	Litter		12
	Vegetation		6
		<i>Cryptantha crassisejala</i>	1
		<i>Halogeton glomeratus</i>	1
		<i>Plantago patagonica</i>	2
	Annual Forb Subtotal		4
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
RAW-030	Total Vegetation		6
RAW-031	Bare		68
	Rock/Gravel		6
	Litter		16
	Vegetation		10
		<i>Descurainia pinnata</i>	1
		<i>Halogeton glomeratus</i>	4
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		7
		<i>Pleuraphis jamesii</i>	3
	Perennial Grass Subtotal		3
RAW-031	Total Vegetation		10

Attachment C-8 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover	
RAW-032	Bare		79	
	Rock/Gravel		1	
	Litter		14	
	Vegetation		6	
		<i>Descurainia pinnata</i>	1	
	Annual Forb Subtotal		1	
		<i>Monroa squarrosa</i>	1	
	Annual Grass Subtotal		1	
		<i>Sporobolus airoides</i>	2	
	Perennial Grass Subtotal		2	
		<i>Atriplex obovata</i>	2	
Perennial Shrub Subtotal		2		
RAW-032 Total Vegetation			6	
RAW-033	Bare		64	
	Rock/Gravel		28	
	Litter		5	
	Vegetation		3	
		<i>Descurainia pinnata</i>	1	
		<i>Townsendia annua</i>	1	
	Annual Forb Subtotal		2	
		<i>Atriplex obovata</i>	1	
	Perennial Shrub Subtotal		1	
	RAW-033 Total Vegetation			3
	RAW-034	Bare		51
Rock/Gravel			31	
Litter			11	
Vegetation			7	
		<i>Descurainia pinnata</i>	1	
		<i>Eriogonum gordonii</i>	3	
		<i>Salsola tragus</i>	2	
Annual Forb Subtotal			6	
		<i>Atriplex obovata</i>	1	
Perennial Shrub Subtotal			1	
RAW-034 Total Vegetation			7	
RAW-035	Bare		51	
	Rock/Gravel		33	
	Litter		10	
	Vegetation		6	
		<i>Salsola tragus</i>	1	
		<i>Townsendia annua</i>	1	
	Annual Forb Subtotal		2	
		<i>Sporobolus cryptandrus</i>	1	
	Perennial Grass Subtotal		1	
		<i>Gutierrezia sarothrae</i>	3	
	Perennial Shrub Subtotal		3	

Attachment C-8 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
RAW-035 Total Vegetation			6
RAW-036	Bare		69
	Rock/Gravel		26
	Litter		4
	Vegetation		1
		<i>Townsendia annua</i>	1
Annual Forb Subtotal			1
RAW-036 Total Vegetation			1
RAW-037	Bare		61
	Rock/Gravel		36
	Litter		1
	Vegetation		2
		<i>Halogeton glomeratus</i>	1
	<i>Lappula occidentalis</i>	1	
Annual Forb Subtotal			2
RAW-037 Total Vegetation			2
RAW-038	Bare		54
	Rock/Gravel		30
	Litter		7
	Vegetation		9
		<i>Atriplex powellii</i>	4
		<i>Eriogonum gordonii</i>	3
		<i>Lappula occidentalis</i>	1
		<i>Salsola tragus</i>	1
Annual Forb Subtotal			9
RAW-038 Total Vegetation			9
RAW-039	Bare		64
	Rock/Gravel		35
	Litter		0
	Vegetation		1
		<i>Halogeton glomeratus</i>	1
Annual Forb Subtotal			1
RAW-039 Total Vegetation			1
RAW-040	Bare		68
	Rock/Gravel		17
	Litter		12
	Vegetation		3
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		
	<i>Eragrostis cilianensis</i>	1	
Annual Grass Subtotal			1
	<i>Sphaeralcea coccinea</i>	1	

Attachment C-8 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Forb Subtotal		1
RAW-040 Total Vegetation			3

Attachment C-9. Fall Reference Sands Cover and Frequency Data by Point Intercept
Transect

Transect	Life Form	Scientific Name	Percent Cover
RAS-041	Bare		23
	Rock/Gravel		0
RSA-081	Bare		79
	Rock/Gravel		3
	Litter		7
	Vegetation		11
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal	2	
	<i>Sporobolus airoides</i>	8	
	Perennial Grass Subtotal	8	
	<i>Atriplex obovata</i>	1	
	Perennial Shrub Subtotal	1	
RSA-081 Total Vegetation			11
RSA-082	Bare		70
	Rock/Gravel		1
	Litter		17
	Vegetation		12
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	2
		Perennial Grass Subtotal	3
		<i>Atriplex confertifolia</i>	3
		<i>Gutierrezia sarothrae</i>	6
		Perennial Shrub Subtotal	9
RSA-082 Total Vegetation			12
RSA-083	Bare		65
	Rock/Gravel		0
	Litter		20
	Vegetation		15
		<i>Phacelia crenulata</i>	2
		Annual Forb Subtotal	2
		<i>Pleuraphis jamesii</i>	3
		Perennial Grass Subtotal	3
		<i>Atriplex confertifolia</i>	1
		<i>Gutierrezia sarothrae</i>	9
	Perennial Shrub Subtotal	10	
RSA-083 Total Vegetation			15
RSA-084	Bare		69
	Rock/Gravel		3
	Litter		18
	Vegetation		10

Attachment C-9 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Plantago patagonica</i>	2
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
		<i>Sporobolus airoides</i>	7
	Perennial Grass Subtotal		7
RSA-084 Total Vegetation			10
RSA-085	Bare		66
	Rock/Gravel		0
	Litter		20
	Vegetation		14
		<i>Dimorphocarpa wislizenii</i>	1
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		2
		<i>Abronia fragrans</i>	1
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
		<i>Sporobolus cryptandrus</i>	1
	Perennial Grass Subtotal		2
		<i>Atriplex canescens</i>	1
		<i>Gutierrezia sarothrae</i>	8
	Perennial Shrub Subtotal		9
RSA-085 Total Vegetation			14
RSA-086	Bare		60
	Rock/Gravel		5
	Litter		24
	Vegetation		11
		<i>Mentzelia albicaulis</i>	1
		<i>Plantago patagonica</i>	4
	Annual Forb Subtotal		5
		<i>Achnatherum hymenoides</i>	2
		<i>Pleuraphis jamesii</i>	3
	Perennial Grass Subtotal		5
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		1
RSA-086 Total Vegetation			11
RSA-087	Bare		61
	Rock/Gravel		11
	Litter		12
	Vegetation		16
		<i>Descurainia pinnata</i>	2
		<i>Halogeton glomeratus</i>	1
		<i>Phacelia crenulata</i>	3
		<i>Salsola tragus</i>	5
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		12

Attachment C-9 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Sphaeralcea coccinea</i>	1
	Perennial Forb Subtotal		1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		2
		<i>Atriplex confertifolia</i>	1
	Perennial Shrub Subtotal		1
RSA-087 Total Vegetation			16
RSA-088	Bare		57
	Rock/Gravel		2
	Litter		24
	Vegetation		17
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Phacelia crenulata</i>	1
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		4
		<i>Achnatherum hymenoides</i>	2
		<i>Pleuraphis jamesii</i>	5
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		8
		<i>Gutierrezia sarothrae</i>	5
	Perennial Shrub Subtotal		5
RSA-088 Total Vegetation			17
RSA-089	Bare		62
	Rock/Gravel		0
	Litter		28
	Vegetation		10
		<i>Lappula occidentalis</i>	1
		<i>Plantago patagonica</i>	3
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		5
		<i>Bouteloua gracilis</i>	1
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		4
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
RSA-089 Total Vegetation			10
RSA-090	Bare		58
	Rock/Gravel		11
	Litter		21
	Vegetation		10
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Plantago patagonica</i>	2

Attachment C-9 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Annual Forb Subtotal		4
		<i>Vulpia octoflora</i>	1
	Annual Grass Subtotal		1
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		3
		<i>Atriplex confertifolia</i>	1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		2
RSA-090 Total Vegetation			10
RSA-091	Bare		70
	Rock/Gravel		0
	Litter		22
	Vegetation		8
		<i>Pleuraphis jamesii</i>	3
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		4
		<i>Gutierrezia sarothrae</i>	4
	Perennial Shrub Subtotal		4
RSA-091 Total Vegetation			8
RSA-092	Bare		71
	Rock/Gravel		0
	Litter		13
	Vegetation		16
		<i>Descurainia pinnata</i>	1
	Annual Forb Subtotal		1
		<i>Abronia fragrans</i>	1
	Perennial Forb Subtotal		1
		<i>Pleuraphis jamesii</i>	3
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		5
		<i>Gutierrezia sarothrae</i>	9
	Perennial Shrub Subtotal		9
RSA-092 Total Vegetation			16
RSA-093	Bare		69
	Rock/Gravel		4
	Litter		16
	Vegetation		11
		<i>Lappula occidentalis</i>	2
		<i>Plantago patagonica</i>	2
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		6
		<i>Vulpia octoflora</i>	1
	Annual Grass Subtotal		1
		<i>Sporobolus airoides</i>	4

Attachment C-9 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Grass Subtotal		4
RSA-093 Total Vegetation			11
RSA-095	Bare		75
	Rock/Gravel		1
	Litter		18
	Vegetation		6
		<i>Plantago patagonica</i>	2
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
		<i>Atriplex canescens</i>	1
		<i>Atriplex confertifolia</i>	1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		3
RSA-095 Total Vegetation			6
RSA-096	Bare		60
	Rock/Gravel		0
	Litter		13
	Vegetation		27
		<i>Cryptantha crassisepala</i>	1
	Annual Forb Subtotal		1
		<i>Grindelia squarrosa</i>	1
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	8
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		10
		<i>Atriplex confertifolia</i>	3
		<i>Gutierrezia sarothrae</i>	12
	Perennial Shrub Subtotal		15
RSA-096 Total Vegetation			27
RSA-097	Bare		63
	Rock/Gravel		5
	Litter		19
	Vegetation		13
		<i>Descurainia pinnata</i>	2
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		3
		<i>Achnatherum hymenoides</i>	2
		<i>Sporobolus airoides</i>	7
	Perennial Grass Subtotal		9
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		1
RSA-097 Total Vegetation			13
RSA-098	Bare		61

Attachment C-9 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Rock/Gravel		10
	Litter		17
	Vegetation		12
		<i>Lappula occidentalis</i>	1
		<i>Phacelia crenulata</i>	1
		<i>Plantago patagonica</i>	3
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		6
		<i>Vulpia octoflora</i>	1
	Annual Grass Subtotal		1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	4
	Perennial Grass Subtotal		5
RSA-098 Total Vegetation			12
RSA-099	Bare		67
	Rock/Gravel		1
	Litter		21
	Vegetation		11
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	1
		<i>Sporobolus cryptandrus</i>	2
	Perennial Grass Subtotal		4
		<i>Gutierrezia sarothrae</i>	6
	Perennial Shrub Subtotal		6
RSA-099 Total Vegetation			11
RSA-100	Bare		65
	Rock/Gravel		0
	Litter		23
	Vegetation		12
		<i>Lappula occidentalis</i>	1
		<i>Plantago patagonica</i>	4
	Annual Forb Subtotal		5
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	2
		<i>Sporobolus contractus</i>	1
	Perennial Grass Subtotal		5
		<i>Gutierrezia sarothrae</i>	2
	Perennial Shrub Subtotal		2
RSA-100 Total Vegetation			12
RSA-101	Bare		72
	Rock/Gravel		6
	Litter		14

Attachment C-9 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Vegetation		8
		<i>Atriplex powellii</i>	1
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Lappula occidentalis</i>	1
	Annual Forb Subtotal		4
		<i>Vulpia octoflora</i>	1
	Annual Grass Subtotal		1
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		3
RSA-101 Total Vegetation			8
RSA-102	Bare		75
	Rock/Gravel		0
	Litter		20
	Vegetation		5
		<i>Machaeranthera canescens</i>	1
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		2
		<i>Sporobolus airoides</i>	1
		<i>Sporobolus cryptandrus</i>	1
	Perennial Grass Subtotal		2
		<i>Atriplex confertifolia</i>	1
	Perennial Shrub Subtotal		1
RSA-102 Total Vegetation			5
RSA-103	Bare		63
	Rock/Gravel		1
	Litter		26
	Vegetation		10
		<i>Cryptantha crassisepala</i>	1
		<i>Phacelia crenulata</i>	1
	Annual Forb Subtotal		2
		<i>Pleuraphis jamesii</i>	3
	Perennial Grass Subtotal		3
		<i>Atriplex confertifolia</i>	2
		<i>Gutierrezia sarothrae</i>	3
	Perennial Shrub Subtotal		5
RSA-103 Total Vegetation			10
RSA-104	Bare		69
	Rock/Gravel		0
	Litter		16
	Vegetation		15
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		1
		<i>Pleuraphis jamesii</i>	10
		<i>Sporobolus airoides</i>	4

Attachment C-9 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Grass Subtotal		14
RSA-104 Total Vegetation			15
RSA-105	Bare		81
	Rock/Gravel		1
	Litter		12
	Vegetation		6
		<i>Cryptantha crassisejala</i>	1
		<i>Phacelia crenulata</i>	1
	Annual Forb Subtotal		2
		<i>Pleuraphis jamesii</i>	3
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		4
RSA-105 Total Vegetation			6
RSA-106	Bare		68
	Rock/Gravel		4
	Litter		15
	Vegetation		13
		<i>Lappula occidentalis</i>	1
		<i>Plantago patagonica</i>	4
	Annual Forb Subtotal		5
		<i>Achnatherum hymenoides</i>	2
		<i>Sporobolus airoides</i>	5
		<i>Sporobolus cryptandrus</i>	1
Perennial Grass Subtotal		8	
RSA-106 Total Vegetation			13
RSA-107	Bare		57
	Rock/Gravel		23
	Litter		11
	Vegetation		9
		<i>Cryptantha crassisejala</i>	1
	Annual Forb Subtotal		1
		<i>Sporobolus airoides</i>	7
	Perennial Grass Subtotal		7
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		1
RSA-107 Total Vegetation			9
RSA-108	Bare		65
	Rock/Gravel		0
	Litter		20
	Vegetation		15
		<i>Ambrosia acanthicarpa</i>	1
		<i>Cryptantha crassisejala</i>	1
		<i>Plantago patagonica</i>	1
	<i>Salsola tragus</i>	1	

Attachment C-9 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Annual Forb Subtotal		4
		<i>Pleuraphis jamesii</i>	3
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		5
		<i>Gutierrezia sarothrae</i>	6
	Perennial Shrub Subtotal		6
RSA-108 Total Vegetation			15
RSA-109	Bare		61
	Rock/Gravel		0
	Litter		20
	Vegetation		19
		<i>Cryptantha crassisepala</i>	1
		<i>Mentzelia albicaulis</i>	1
		<i>Plantago patagonica</i>	2
	Annual Forb Subtotal		4
		<i>Vulpia octoflora</i>	2
	Annual Grass Subtotal		2
		<i>Achnatherum hymenoides</i>	2
		<i>Sporobolus airoides</i>	9
	Perennial Grass Subtotal		11
		<i>Gutierrezia sarothrae</i>	2
	Perennial Shrub Subtotal		2
RSA-109 Total Vegetation			19
RSA-110	Bare		73
	Rock/Gravel		0
	Litter		16
	Vegetation		11
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	6
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		9
		<i>Gutierrezia sarothrae</i>	2
	Perennial Shrub Subtotal		2
RSA-110 Total Vegetation			11
RSA-111	Bare		69
	Rock/Gravel		0
	Litter		21
	Vegetation		10
		<i>Pleuraphis jamesii</i>	7
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		8
		<i>Atriplex confertifolia</i>	1
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		2
RSA-111 Total Vegetation			10

Attachment C-9 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
RSA-112	Bare		48
	Rock/Gravel		23
	Litter		21
	Vegetation		8
		<i>Descurainia pinnata</i>	1
		<i>Lappula occidentalis</i>	2
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		5
		<i>Pleuraphis jamesii</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex obovata</i>	2
Perennial Shrub Subtotal		2	
RSA-112 Total Vegetation			8
RSA-113	Bare		61
	Rock/Gravel		0
	Litter		21
	Vegetation		18
		<i>Phacelia crenulata</i>	1
	Annual Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	3
	Perennial Grass Subtotal		4
		<i>Atriplex confertifolia</i>	3
		<i>Gutierrezia sarothrae</i>	10
	Perennial Shrub Subtotal		13
RSA-113 Total Vegetation			18
RSA-114	Bare		70
	Rock/Gravel		1
	Litter		14
	Vegetation		15
		<i>Cryptantha crassisepala</i>	1
		<i>Lappula occidentalis</i>	3
		<i>Plantago patagonica</i>	4
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		10
		<i>Monroa squarrosa</i>	1
	Annual Grass Subtotal		1
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		2
		<i>Atriplex obovata</i>	1
Perennial Shrub Subtotal		1	
	<i>Opuntia polyacantha</i>	1	
Perennial Succulent Subtotal		1	

Attachment C-9 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
RSA-114 Total Vegetation			15
RSA-115	Bare		68
	Rock/Gravel		4
	Litter		18
	Vegetation		10
		<i>Cryptantha crassisejala</i>	1
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		4
		<i>Sporobolus airoides</i>	6
	Perennial Grass Subtotal		6
	RSA-115 Total Vegetation		
RSA-116	Bare		71
	Rock/Gravel		4
	Litter		12
	Vegetation		13
		<i>Cryptantha crassisejala</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		3
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	8
	Perennial Grass Subtotal		10
RSA-116 Total Vegetation			13
RSA-117	Bare		63
	Rock/Gravel		0
	Litter		25
	Vegetation		12
		<i>Cryptantha crassisejala</i>	2
		<i>Ipomopsis pumila</i>	1
		<i>Plantago patagonica</i>	4
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		9
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		2
		<i>Atriplex obovata</i>	1
Perennial Shrub Subtotal		1	
RSA-117 Total Vegetation			12
RSA-118	Bare		44
	Rock/Gravel		0
	Litter		31
	Vegetation		25
		<i>Cryptantha crassisejala</i>	1
		<i>Lappula occidentalis</i>	1
	<i>Plantago patagonica</i>	6	

Attachment C-9 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		9
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	12
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		15
		<i>Atriplex canescens</i>	1
	Perennial Shrub Subtotal		1
RSA-118 Total Vegetation			25
RSA-119	Bare		67
	Rock/Gravel		0
	Litter		17
	Vegetation		16
		<i>Lappula occidentalis</i>	3
		<i>Plantago patagonica</i>	2
		<i>Salsola tragus</i>	2
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		8
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	5
	Perennial Grass Subtotal		7
		<i>Opuntia polyacantha</i>	1
	Perennial Succulent Subtotal		1
RSA-119 Total Vegetation			16
RSA-120	Bare		64
	Rock/Gravel		0
	Litter		26
	Vegetation		10
		<i>Phacelia crenulata</i>	1
	Annual Forb Subtotal		1
		<i>Atriplex confertifolia</i>	3
		<i>Gutierrezia sarothrae</i>	6
	Perennial Shrub Subtotal		9
RSA-120 Total Vegetation			10

Attachment C-10. Fall Sands Cover and Frequency Data by Point Intercept Transect

Transect	Life Form	Scientific Name	Percent Cover	
SA-161	Bare		66	
	Rock/Gravel		1	
	Litter		30	
	Vegetation		3	
		<i>Salsola tragus</i>	1	
	Annual Forb Subtotal		1	
		<i>Sporobolus airoides</i>	2	
	Perennial Grass Subtotal		2	
	SA-161 Total Vegetation			3
	SA-162	Bare		79
Rock/Gravel			8	
Litter			7	
Vegetation			6	
		<i>Sphaeralcea coccinea</i>	1	
Perennial Forb Subtotal			1	
		<i>Sporobolus airoides</i>	4	
Perennial Grass Subtotal			4	
		<i>Atriplex confertifolia</i>	1	
Perennial Shrub Subtotal			1	
SA-162 Total Vegetation			6	
SA-163	Bare		66	
	Rock/Gravel		2	
	Litter		19	
	Vegetation		13	
		<i>Cryptantha crassisepala</i>	1	
		<i>Salsola tragus</i>	2	
	Annual Forb Subtotal		3	
		<i>Achnatherum hymenoides</i>	2	
		<i>Pleuraphis jamesii</i>	5	
	Perennial Grass Subtotal		7	
	<i>Atriplex confertifolia</i>	3		
Perennial Shrub Subtotal		3		
SA-163 Total Vegetation			13	
SA-164	Bare		60	
	Rock/Gravel		1	
	Litter		24	
	Vegetation		15	
		<i>Salsola tragus</i>	2	
	Annual Forb Subtotal		2	
	<i>Pleuraphis jamesii</i>	1		
	<i>Sporobolus airoides</i>	4		

Attachment C-10 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Grass Subtotal		5
		<i>Atriplex confertifolia</i>	6
		<i>Gutierrezia sarothrae</i>	2
	Perennial Shrub Subtotal		8
SA-164 Total Vegetation			15
SA-165	Bare		56
	Rock/Gravel		8
	Litter		11
	Vegetation		25
		<i>Cryptantha crassisepala</i>	2
		<i>Phacelia crenulata</i>	1
		<i>Salsola tragus</i>	2
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		6
		<i>Achnatherum hymenoides</i>	4
		<i>Pleuraphis jamesii</i>	5
		<i>Sporobolus airoides</i>	9
	Perennial Grass Subtotal		18
		<i>Atriplex confertifolia</i>	1
	Perennial Shrub Subtotal		1
SA-165 Total Vegetation			25
SA-166	Bare		78
	Rock/Gravel		4
	Litter		9
	Vegetation		9
		<i>Chenopodium Sp.</i>	1
	Forb Subtotal		1
		<i>Chaetopappa ericoides</i>	1
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	2
		<i>Pleuraphis jamesii</i>	3
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		7
SA-166 Total Vegetation			9
SA-167	Bare		36
	Rock/Gravel		39
	Litter		11
	Vegetation		14
		<i>Descurainia pinnata</i>	1
		<i>Lappula occidentalis</i>	1
		<i>Phacelia crenulata</i>	1
		<i>Salsola tragus</i>	7
	Annual Forb Subtotal		10
		<i>Sporobolus airoides</i>	3

Attachment C-10 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Grass Subtotal		3
		<i>Atriplex confertifolia</i>	1
	Perennial Shrub Subtotal		1
SA-167 Total Vegetation			14
SA-168	Bare		62
	Rock/Gravel		4
	Litter		22
	Vegetation		12
		<i>Cryptantha crassisepala</i>	1
	Annual Forb Subtotal		1
		<i>Sporobolus airoides</i>	8
	Perennial Grass Subtotal		8
		<i>Gutierrezia sarothrae</i>	3
	Perennial Shrub Subtotal		3
SA-168 Total Vegetation			12
SA-169	Bare		54
	Rock/Gravel		9
	Litter		20
	Vegetation		17
		<i>Cryptantha crassisepala</i>	1
		<i>Salsola tragus</i>	6
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		8
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		4
		<i>Atriplex confertifolia</i>	4
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		5
SA-169 Total Vegetation			17
SA-170	Bare		76
	Rock/Gravel		0
	Litter		15
	Vegetation		9
		<i>Cryptantha crassisepala</i>	1
	Annual Forb Subtotal		1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	6
	Perennial Grass Subtotal		7
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		1
SA-170 Total Vegetation			9
SA-171	Bare		68
	Rock/Gravel		1

Attachment C-10 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Litter		21
	Vegetation		10
		<i>Dimorphocarpa wislizenii</i>	1
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		4
		<i>Chaetopappa ericoides</i>	1
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		2
		<i>Atriplex canescens</i>	1
		<i>Ephedra Sp.</i>	1
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		3
SA-171	Total Vegetation		10
SA-172	Bare		58
	Rock/Gravel		0
	Litter		20
	Vegetation		22
		<i>Cryptantha crassisepala</i>	11
		<i>Descurainia pinnata</i>	1
		<i>Salsola tragus</i>	6
	Annual Forb Subtotal		18
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		4
SA-172	Total Vegetation		22
SA-173	Bare		60
	Rock/Gravel		4
	Litter		23
	Vegetation		13
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Machaeranthera canescens</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		5
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	5
	Perennial Grass Subtotal		7
		<i>Atriplex confertifolia</i>	1
	Perennial Shrub Subtotal		1
SA-173	Total Vegetation		13
SA-174	Bare		64
	Rock/Gravel		3

Attachment C-10 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Litter		22
	Vegetation		11
		<i>Cryptantha crassisepala</i>	2
		<i>Plantago patagonica</i>	2
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		5
		<i>Achnatherum hymenoides</i>	1
		<i>Sporobolus airoides</i>	5
	Perennial Grass Subtotal		6
SA-174 Total Vegetation			11
SA-175	Bare		56
	Rock/Gravel		0
	Litter		19
	Vegetation		25
		<i>Cryptantha crassisepala</i>	13
		<i>Descurainia pinnata</i>	2
		<i>Machaeranthera canescens</i>	4
	Annual Forb Subtotal		19
		<i>Sphaeralcea parvifolia</i>	1
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	4
	Perennial Grass Subtotal		5
SA-175 Total Vegetation			25
SA-176	Bare		52
	Rock/Gravel		6
	Litter		22
	Vegetation		20
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	2
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	15
	Perennial Grass Subtotal		18
		<i>Atriplex confertifolia</i>	1
	Perennial Shrub Subtotal		1
SA-176 Total Vegetation			20
SA-177	Bare		65
	Rock/Gravel		4
	Litter		19
	Vegetation		12
		<i>Cryptantha crassisepala</i>	3
		<i>Malacothrix sonchoides</i>	1
		<i>Mentzelia albicaulis</i>	1
		<i>Phacelia crenulata</i>	1

Attachment C-10 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Annual Forb Subtotal		6
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		4
		<i>Atriplex confertifolia</i>	1
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		2
SA-177 Total Vegetation			12
SA-178	Bare		61
	Rock/Gravel		2
	Litter		24
	Vegetation		13
		<i>Cryptantha crassisepala</i>	1
		<i>Salsola tragus</i>	6
	Annual Forb Subtotal		7
		<i>Achnatherum hymenoides</i>	1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		2
		<i>Atriplex obovata</i>	4
	Perennial Shrub Subtotal		4
SA-178 Total Vegetation			13
SA-179	Bare		66
	Rock/Gravel		14
	Litter		14
	Vegetation		6
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		3
		<i>Achnatherum hymenoides</i>	1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		2
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		1
SA-179 Total Vegetation			6
SA-180	Bare		53
	Rock/Gravel		10
	Litter		33
	Vegetation		4
		<i>Descurainia sophia</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		2
		<i>Atriplex confertifolia</i>	2
	Perennial Shrub Subtotal		2
SA-180 Total Vegetation			4
SA-181	Bare		72

Attachment C-10 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Rock/Gravel		0
	Litter		17
	Vegetation		11
		<i>Cryptantha crassisepala</i>	3
		<i>Phacelia crenulata</i>	1
		<i>Plantago patagonica</i>	3
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		8
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		3
SA-181 Total Vegetation			11
SA-182	Bare		61
	Rock/Gravel		3
	Litter		21
	Vegetation		15
		<i>Cryptantha crassisepala</i>	4
		<i>Machaeranthera canescens</i>	1
		<i>Mentzelia albicaulis</i>	1
		<i>Salsola tragus</i>	5
	Annual Forb Subtotal		11
		<i>Pleuraphis jamesii</i>	2
	Perennial Grass Subtotal		2
		<i>Atriplex confertifolia</i>	2
	Perennial Shrub Subtotal		2
SA-182 Total Vegetation			15
SA-183	Bare		47
	Rock/Gravel		25
	Litter		18
	Vegetation		10
		<i>Sporobolus airoides</i>	7
	Perennial Grass Subtotal		7
		<i>Atriplex confertifolia</i>	3
	Perennial Shrub Subtotal		3
SA-183 Total Vegetation			10
SA-184	Bare		67
	Rock/Gravel		5
	Litter		17
	Vegetation		11
		<i>Salsola tragus</i>	9
	Annual Forb Subtotal		9
		<i>Atriplex confertifolia</i>	1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		2
SA-184 Total Vegetation			11

Attachment C-10 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
SA-185	Bare		67
	Rock/Gravel		4
	Litter		21
	Vegetation		8
		<i>Vulpia octoflora</i>	1
	Annual Grass Subtotal		1
		<i>Pleuraphis jamesii</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex confertifolia</i>	3
		<i>Gutierrezia sarothrae</i>	2
	Perennial Shrub Subtotal		5
	<i>Opuntia polyacantha</i>	1	
Perennial Succulent Subtotal		1	
SA-185 Total Vegetation			8
SA-186	Bare		55
	Rock/Gravel		0
	Litter		20
	Vegetation		25
		<i>Cryptantha Sp.</i>	1
		<i>Cryptantha crassisepala</i>	3
	Annual Forb Subtotal		4
		<i>Chaetopappa ericoides</i>	2
		<i>Linum aristatum</i>	6
	Perennial Forb Subtotal		8
		<i>Achnatherum hymenoides</i>	1
	<i>Pleuraphis jamesii</i>	3	
	<i>Sporobolus airoides</i>	9	
Perennial Grass Subtotal		13	
SA-186 Total Vegetation			25
SA-187	Bare		38
	Rock/Gravel		1
	Litter		34
	Vegetation		27
		<i>Cryptantha crassisepala</i>	3
		<i>Descurainia pinnata</i>	1
		<i>Phacelia crenulata</i>	1
		<i>Salsola tragus</i>	11
		<i>Streptanthella longirostris</i>	1
	Annual Forb Subtotal		17
		<i>Pleuraphis jamesii</i>	4
Perennial Grass Subtotal		4	
	<i>Gutierrezia sarothrae</i>	6	
Perennial Shrub Subtotal		6	
SA-187 Total Vegetation			27

Attachment C-10 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
SA-188	Bare		77
	Rock/Gravel		6
	Litter		10
	Vegetation		7
		<i>Chaenactis stevioides</i>	1
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		3
		<i>Sporobolus airoides</i>	4
	Perennial Grass Subtotal		4
SA-188 Total Vegetation			7
SA-189	Bare		72
	Rock/Gravel		11
	Litter		10
	Vegetation		7
		<i>Lappula occidentalis</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		2
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex confertifolia</i>	2
	<i>Gutierrezia sarothrae</i>	2	
Perennial Shrub Subtotal		4	
SA-189 Total Vegetation			7
SA-190	Bare		70
	Rock/Gravel		8
	Litter		14
	Vegetation		8
		<i>Halogeton glomeratus</i>	1
		<i>Salsola tragus</i>	4
	Annual Forb Subtotal		5
	<i>Sporobolus airoides</i>	3	
Perennial Grass Subtotal		3	
SA-190 Total Vegetation			8
SA-191	Bare		59
	Rock/Gravel		1
	Litter		27
	Vegetation		13
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		2
		<i>Pleuraphis jamesii</i>	4
		<i>Sporobolus airoides</i>	1
Perennial Grass Subtotal		5	
	<i>Atriplex confertifolia</i>	1	
	<i>Gutierrezia sarothrae</i>	5	

Attachment C-10 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Shrub Subtotal		6
SA-191 Total Vegetation			13
SA-192	Bare		72
	Rock/Gravel		0
	Litter		15
	Vegetation		13
		<i>Cryptantha crassisepala</i>	2
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		5
		<i>Platyschkuhria integrifolia</i>	1
	Perennial Forb Subtotal		1
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	5
	Perennial Grass Subtotal		7
SA-192 Total Vegetation			13
SA-193	Bare		79
	Rock/Gravel		2
	Litter		12
	Vegetation		7
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		2
		<i>Sporobolus airoides</i>	5
	Perennial Grass Subtotal		5
SA-193 Total Vegetation			7
SA-194	Bare		57
	Rock/Gravel		0
	Litter		21
	Vegetation		22
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Salsola tragus</i>	13
	Annual Forb Subtotal		15
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Gutierrezia sarothrae</i>	6
	Perennial Shrub Subtotal		6
SA-194 Total Vegetation			22
SA-195	Bare		73
	Rock/Gravel		0
	Litter		13
	Vegetation		14
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		1
		<i>Pleuraphis jamesii</i>	4

Attachment C-10 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Sporobolus airoides</i>	4
	Perennial Grass Subtotal		8
		<i>Atriplex confertifolia</i>	1
		<i>Gutierrezia sarothrae</i>	4
	Perennial Shrub Subtotal		5
SA-195 Total Vegetation			14
SA-196	Bare		66
	Rock/Gravel		0
	Litter		24
	Vegetation		10
		<i>Malacothrix sonchoides</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		3
		<i>Sporobolus airoides</i>	4
	Perennial Grass Subtotal		4
		<i>Atriplex confertifolia</i>	2
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		3
SA-196 Total Vegetation			10
SA-197	Bare		60
	Rock/Gravel		16
	Litter		16
	Vegetation		8
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		2
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	5
	Perennial Grass Subtotal		6
SA-197 Total Vegetation			8
SA-198	Bare		68
	Rock/Gravel		2
	Litter		15
	Vegetation		15
		<i>Cryptantha crassisepala</i>	3
		<i>Machaeranthera canescens</i>	1
		<i>Phacelia crenulata</i>	1
	Annual Forb Subtotal		5
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	9
	Perennial Grass Subtotal		10
SA-198 Total Vegetation			15
SA-199	Bare		44
	Rock/Gravel		1
	Litter		29

Attachment C-10 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Vegetation		26
		<i>Cryptantha crassisejala</i>	5
		<i>Descurainia pinnata</i>	1
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		8
		<i>Stephanomeria exigua</i>	1
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	3
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	7
	Perennial Grass Subtotal		12
		<i>Atriplex confertifolia</i>	1
		<i>Gutierrezia sarothrae</i>	4
	Perennial Shrub Subtotal		5
SA-199	Total Vegetation		26
SA-200	Bare		67
	Rock/Gravel		7
	Litter		18
	Vegetation		8
		<i>Malacothrix sonchoides</i>	1
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		4
		<i>Pleuraphis jamesii</i>	1
	Perennial Grass Subtotal		1
		<i>Gutierrezia sarothrae</i>	3
	Perennial Shrub Subtotal		3
SA-200	Total Vegetation		8

Attachment C-11. Fall Thin Breaks Cover and Frequency Data by Point Intercept
Transect

Transect	Life Form	Scientific Name	Percent Cover
TB-201	Bare		29
	Rock/Gravel		36
	Litter		24
	Vegetation		11
		<i>Plantago patagonica</i>	2
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		4
		<i>Achnatherum hymenoides</i>	1
		<i>Muhlenbergia pungens</i>	2
	Perennial Grass Subtotal		3
		<i>Atriplex canescens</i>	1
	<i>Atriplex confertifolia</i>	1	
	<i>Gutierrezia sarothrae</i>	2	
Perennial Shrub Subtotal		4	
TB-201 Total Vegetation			11
TB-201*	Bare		39
	Rock/Gravel		48
	Litter		6
	Vegetation		7
		<i>Pleuraphis jamesii</i>	2
	Perennial Grass Subtotal		2
		<i>Artemisia bigelovii</i>	2
		<i>Atriplex confertifolia</i>	1
		<i>Gutierrezia sarothrae</i>	1
		<i>Yucca spp.</i>	1
	Perennial Shrub Subtotal		5
TB-201* Total Vegetation			7
TB-202	Bare		21
	Rock/Gravel		71
	Litter		8
	Vegetation		0
TB-202 Total Vegetation			0
TB-203	Bare		18
	Rock/Gravel		66
	Litter		9
	Vegetation		7
		<i>Eriogonum gordonii</i>	1
		<i>Salsola tragus</i>	2
Annual Forb Subtotal		3	
	<i>Pleuraphis jamesii</i>	2	
Perennial Grass Subtotal		2	

Attachment C-11 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Atriplex confertifolia</i>	1
		<i>Atriplex obovata</i>	1
	Perennial Shrub Subtotal		2
TB-203 Total Vegetation			7
TB-204	Bare		79
	Rock/Gravel		14
	Litter		6
	Vegetation		1
		<i>Ipomopsis pumila</i>	1
	Annual Forb Subtotal		1
TB-204 Total Vegetation			1
TB-205	Bare		77
	Rock/Gravel		19
	Litter		4
	Vegetation		0
TB-205 Total Vegetation			0
TB-206	Bare		65
	Rock/Gravel		21
	Litter		8
	Vegetation		6
		<i>Halogeton glomeratus</i>	2
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		3
TB-206 Total Vegetation			6
TB-207	Bare		62
	Rock/Gravel		15
	Litter		7
	Vegetation		16
		<i>Cryptantha crassisepala</i>	3
		<i>Descurainia pinnata</i>	1
		<i>Halogeton glomeratus</i>	3
		<i>Salsola tragus</i>	4
	Annual Forb Subtotal		11
		<i>Sporobolus airoides</i>	5
	Perennial Grass Subtotal		5
TB-207 Total Vegetation			16
TB-208	Bare		13
	Rock/Gravel		70
	Litter		7
	Vegetation		10

Attachment C-11 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Halogeton glomeratus</i>	3
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		4
		<i>Sporobolus airoides</i>	4
	Perennial Grass Subtotal		4
		<i>Atriplex confertifolia</i>	1
		<i>Gutierrezia sarothrae</i>	1
	Perennial Shrub Subtotal		2
TB-208 Total Vegetation			10
TB-209	Bare		44
	Rock/Gravel		35
	Litter		16
	Vegetation		5
		<i>Lappula occidentalis</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		3
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex confertifolia</i>	1
	Perennial Shrub Subtotal		1
TB-209 Total Vegetation			5
TB-210	Bare		82
	Rock/Gravel		13
	Litter		4
	Vegetation		1
		<i>Atriplex gardneri</i>	1
	Perennial Shrub Subtotal		1
TB-210 Total Vegetation			1
TB-211	Bare		50
	Rock/Gravel		42
	Litter		6
	Vegetation		2
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		2
TB-211 Total Vegetation			2
TB-212	Bare		1
	Rock/Gravel		91
	Litter		7
	Vegetation		1
		<i>Atriplex confertifolia</i>	1
	Perennial Shrub Subtotal		1
TB-212 Total Vegetation			1
TB-213	Bare		52

Attachment C-11 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Rock/Gravel		28
	Litter		11
	Vegetation		9
		<i>Cryptantha crassisepala</i>	1
		<i>Salsola tragus</i>	8
	Annual Forb Subtotal		9
TB-213 Total Vegetation			9
TB-214	Bare		43
	Rock/Gravel		45
	Litter		8
	Vegetation		4
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		3
		<i>Pleuraphis jamesii</i>	1
	Perennial Grass Subtotal		1
TB-214 Total Vegetation			4
TB-215	Bare		68
	Rock/Gravel		30
	Litter		1
	Vegetation		1
		<i>Descurainia pinnata</i>	1
	Annual Forb Subtotal		1
TB-215 Total Vegetation			1
TB-216	Bare		28
	Rock/Gravel		51
	Litter		14
	Vegetation		7
		<i>Descurainia pinnata</i>	1
		<i>Halogeton glomeratus</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		4
		<i>Atriplex confertifolia</i>	1
		<i>Sarcobatus vermiculatus</i>	2
	Perennial Shrub Subtotal		3
TB-216 Total Vegetation			7
TB-217	Bare		56
	Rock/Gravel		19
	Litter		18
	Vegetation		7
		<i>Plantago patagonica</i>	2
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		4
		<i>Achnatherum hymenoides</i>	1
		<i>Sporobolus airoides</i>	2

Attachment C-11 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Grass Subtotal		3
TB-217 Total Vegetation			7
TB-218	Bare		60
	Rock/Gravel		35
	Litter		3
	Vegetation		2
		<i>Atriplex powellii</i>	2
	Annual Forb Subtotal		2
TB-218 Total Vegetation			2
TB-219	Bare		78
	Rock/Gravel		22
	Litter		0
	Vegetation		0
TB-219 Total Vegetation			0
TB-220	Bare		50
	Rock/Gravel		49
	Litter		0
	Vegetation		1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		1
TB-220 Total Vegetation			1
TB-221	Bare		32
	Rock/Gravel		56
	Litter		7
	Vegetation		5
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		1
		<i>Unidentified</i>	1
	Forb Subtotal		1
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		2
		<i>Atriplex confertifolia</i>	1
	Perennial Shrub Subtotal		1
TB-221 Total Vegetation			5
TB-222	Bare		51
	Rock/Gravel		24
	Litter		16
	Vegetation		9
		<i>Plantago patagonica</i>	2
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
		<i>Pleuraphis jamesii</i>	2

Attachment C-11 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Grass Subtotal		2
		<i>Atriplex confertifolia</i>	2
		<i>Gutierrezia sarothrae</i>	2
	Perennial Shrub Subtotal		4
TB-222 Total Vegetation			9
TB-223	Bare		9
	Rock/Gravel		71
	Litter		13
	Vegetation		7
		<i>Salsola tragus</i>	4
	Annual Forb Subtotal		4
		<i>Mentzelia pumila</i>	1
	Perennial Forb Subtotal		1
		<i>Atriplex confertifolia</i>	2
	Perennial Shrub Subtotal		2
TB-223 Total Vegetation			7
TB-224	Bare		18
	Rock/Gravel		70
	Litter		10
	Vegetation		2
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex canescens</i>	1
	Perennial Shrub Subtotal		1
TB-224 Total Vegetation			2
TB-225	Bare		44
	Rock/Gravel		42
	Litter		10
	Vegetation		4
		<i>Halogeton glomeratus</i>	2
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
		<i>Atriplex gardneri</i>	1
	Perennial Shrub Subtotal		1
TB-225 Total Vegetation			4
TB-226	Bare		9
	Rock/Gravel		78
	Litter		7
	Vegetation		6
		<i>Descurainia pinnata</i>	1
		<i>Halogeton glomeratus</i>	1
		<i>Lappula occidentalis</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		5

Attachment C-11 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Unidentified</i>	1
	Undetermined Subtotal		1
TB-226 Total Vegetation			6
TB-227	Bare		77
	Rock/Gravel		21
	Litter		1
	Vegetation		1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
TB-227 Total Vegetation			1
TB-228	Bare		27
	Rock/Gravel		68
	Litter		2
	Vegetation		3
		<i>Lappula occidentalis</i>	1
	Annual Forb Subtotal		1
		<i>Atriplex obovata</i>	2
	Perennial Shrub Subtotal		2
TB-228 Total Vegetation			3
TB-229	Bare		63
	Rock/Gravel		32
	Litter		4
	Vegetation		1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		1
TB-229 Total Vegetation			1
TB-230	Bare		39
	Rock/Gravel		44
	Litter		10
	Vegetation		7
		<i>Descurainia pinnata</i>	1
		<i>Plantago patagonica</i>	3
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		6
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
TB-230 Total Vegetation			7
TB-231	Bare		53
	Rock/Gravel		34
	Litter		7
	Vegetation		6
		<i>Descurainia pinnata</i>	2

Attachment C-11 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Halogeton glomeratus</i>	2
		<i>Phacelia crenulata</i>	2
	Annual Forb Subtotal		6
TB-231 Total Vegetation			6
TB-232	Bare		44
	Rock/Gravel		40
	Litter		7
	Vegetation		9
		<i>Phacelia crenulata</i>	1
		<i>Salsola tragus</i>	4
	Annual Forb Subtotal		5
		<i>Achnatherum hymenoides</i>	1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		2
		<i>Ephedra Sp.</i>	2
	Perennial Shrub Subtotal		2
TB-232 Total Vegetation			9
TB-233	Bare		66
	Rock/Gravel		24
	Litter		7
	Vegetation		3
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex gardneri</i>	1
	Perennial Shrub Subtotal		1
TB-233 Total Vegetation			3
TB-234	Bare		9
	Rock/Gravel		83
	Litter		6
	Vegetation		2
		<i>Halogeton glomeratus</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		2
TB-234 Total Vegetation			2
TB-235	Bare		28
	Rock/Gravel		47
	Litter		16
	Vegetation		9
		<i>Descurainia pinnata</i>	1
		<i>Lappula occidentalis</i>	4
		<i>Salsola tragus</i>	2
		<i>Townsendia annua</i>	1

Attachment C-11 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Annual Forb Subtotal		8
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
TB-235 Total Vegetation			9
TB-236	Bare		55
	Rock/Gravel		18
	Litter		20
	Vegetation		7
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		1
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		4
		<i>Gutierrezia sarothrae</i>	2
	Perennial Shrub Subtotal		2
TB-236 Total Vegetation			7
TB-237	Bare		48
	Rock/Gravel		33
	Litter		14
	Vegetation		5
		<i>Descurainia pinnata</i>	1
		<i>Phacelia crenulata</i>	3
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		5
TB-237 Total Vegetation			5
TB-238	Bare		75
	Rock/Gravel		8
	Litter		11
	Vegetation		6
		<i>Descurainia pinnata</i>	1
		<i>Eriogonum gordonii</i>	1
	Annual Forb Subtotal		2
		<i>Atriplex obovata</i>	1
		<i>Sarcobatus vermiculatus</i>	3
	Perennial Shrub Subtotal		4
TB-238 Total Vegetation			6
TB-239	Bare		25
	Rock/Gravel		71
	Litter		2
	Vegetation		2
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		2
TB-239 Total Vegetation			2

Attachment C-11 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
TB-240	Bare		21
	Rock/Gravel		72
	Litter		4
	Vegetation		3
		<i>Atriplex powellii</i>	1
		<i>Eriogonum gordonii</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
TB-240 Total Vegetation			3

Attachment C-12. Spring Summary Average Ground Cover on Point Intercept Transects for All Communities

Community	Bare	Rock/Gravel	Litter	Vegetation
Arroyo				
Shrub	62.2	0.9	17.4	19.5
Alkali Wash	56.1	23.5	12.2	8.2
Badlands	51.4	38.8	6.3	3.5
Dunes	68.3	0.5	10.9	20.3
Sands	55.5	11.9	18.1	14.4
Thin Breaks	39.7	47.2	8.4	4.7

Attachment C-13. Spring Summary Frequency of Vegetation Species on Point Intercept Transects for all Communities.

Scientific Name	Alkali Wash	Arroyo Shrub	Badlands	Dunes	Sands	Thin Breaks
<i>Abronia fragrans</i>			1	4	3	
<i>Achnatherum hymenoides</i>	2	3		17	8	
<i>Agropyron cristatum</i>		4				
<i>Ambrosia acanthicarpa</i>	1			1		
<i>Aristida purpurea</i>					1	
<i>Artemisia dracunculus</i>		2				
<i>Artemisia filifolia</i>				4		
<i>Artemisia sp.</i>		6				
<i>Astragalus sp.</i>		1		1		
<i>Atriplex canescens</i>	2	25		3		
<i>Atriplex confertifolia</i>	5	1			24	8
<i>Atriplex gardneri</i>	3		3			
<i>Atriplex obovata</i>	17	9	1	1		5
<i>Atriplex powellii</i>	6	6	2		2	1
<i>Atriplex saccaria</i>	1		1			1
<i>Bouteloua gracilis</i>		1				
<i>Brickellia microphylla</i>		1				
<i>Bromus rubens</i>	1					
<i>Bromus tectorum</i>	7	3				1
<i>Chenactis steveoides</i>	1				11	
<i>Chenopodium incanum</i>		6				
<i>Cryptantha crassisejala</i>	15	15	5	50	53	4
<i>Cymopterus sp.</i>				1		
<i>Dalea sp.</i>		5				
<i>Descurainia pinnata</i>	27	45	2	36	28	5
<i>Descurainia sophia</i>		5		4	3	
<i>Dimorphocarpa wislizeni</i>	1			35	5	
<i>Elymus Elymoides</i>	1					
<i>Ephedra sp.</i>				25	2	
<i>Eremopyrum triticeum</i>	4	7				
<i>Ericameria [Chrysothamnus] nauseosa</i>	10	5	1			
<i>Erigeron bellidiastrum</i>		24		2		
<i>Erigeron sp.</i>		2				
<i>Erigonum sp.</i>		1				
<i>Eriogonum gordonii</i>	13		2			3
<i>Eriogonum leptocladon</i>				3		
<i>Erodium cicutarium</i>		1				
<i>Gilia leptomeria</i>	1					
<i>Grindelia squarrosa</i>	1	18				
<i>Gutierrezia sarothrae</i>	1	2			13	
<i>Halogeton glomeratus</i>	3					2
<i>Hordeum jubatum</i>	1	1				
<i>Hordeum pusillum</i>		41				2
<i>Ipomopsis pumila</i>	2	2	1		1	2

Attachment C-13 Cont'd.

Scientific Name	Alkali Wash	Arroyo Shrub	Badlands	Dunes	Sands	Thin Breaks
<i>Abronia fragrans</i>				1	4	3
<i>Lappula occidentalis</i>	4	8	7	1	1	10
<i>Linum aristatum</i>				1		
<i>Linum puberulum</i>				8		
<i>Lupinus pusillus</i>		1		5		
<i>Lycium pallidum</i>		1		4		
<i>Lygodesmia grandiflora</i>				2		
<i>Machaeranthera canescens</i>	2	3		11	2	
<i>Machaeranthera gracilis</i>	3					
<i>Mentzelia albicaulis</i>		1	1	11	6	
<i>Mentzelia pumila</i>	1				1	
<i>Mentzelia sp.</i>				4		
<i>Monolepis nutalliana</i>	1					
<i>Muhlenbergia pungens</i>		1		4		
<i>Oenothera canescens</i>				3		
<i>Oenothera pallida</i>				37	12	
<i>Oenothera sp.</i>				23		
<i>Opuntia polyacantha</i>					2	
<i>Phacelia crenulata</i>	3		1	1	33	1
<i>Plantago patagonica</i>	23	17	5	2	18	4
<i>Pleuraphis jamesii</i>	13	19		19	18	4
<i>Psoralidium lanceolatum</i>				1		
<i>Salsola tragus</i>	28	34	4	24	38	6
<i>Sarcobatus vermiculatus</i>		29			3	
<i>Senna sp.</i>		13		2		
<i>Sphaeralcea coccinea</i>	2	1			2	1
<i>Sphaeralcea parvifolia</i>		2		17	5	
<i>Sporobolus airoides</i>	27	69	4	1	38	6
<i>Sporobolus contractus</i>	1				1	
<i>Sporobolus cryptandrus</i>	1	2		3	1	
<i>Sporobolus giganteus</i>		2				
<i>Stephanomeria exigua</i>	1			10	4	
<i>Streptanthella longirostris</i>	1	2		1	1	
<i>Suaeda moquinii</i>	1	1				
<i>Townsendia annua</i>	24	10	2		6	3
<i>Townsendia incana</i>		1			3	
<i>Tragopogon dubius</i>		1				
<i>Unidentified</i>	1	0	3	0	0	0
<i>Verbena bracteata</i>		4				
<i>Vulpia octiflora</i>	1	1			3	
<i>Yucca harrimanae</i>				1		

Attachment C-14. Spring Arroyo Shrub Cover and Frequency Data by Point Intercept Transect.

Transect	Life Form	Scientific Name	Percent Cover
AS-01	Bare		69
	Rock/Gravel		0
	Litter		18
	Vegetation		13
		<i>Descurainia pinnata</i>	2
		<i>Lupinus pusillus</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		5
		<i>Astragalus sp.</i>	1
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
	Perennial Grass Subtotal		1
		<i>Artemisia sp.</i>	6
	Shrub Subtotal		6
AS-01 Total Vegetation			13
AS-03	Bare		87
	Rock/Gravel		0
	Litter		4
	Vegetation		9
		<i>Atriplex powellii</i>	1
	Annual Forb Subtotal		1
		<i>Sporobolus giganteus</i>	2
	Perennial Grass Subtotal		2
		<i>Atriplex canescens</i>	6
	Shrub Subtotal		6
AS-03 Total Vegetation			9
AS-05	Bare		60
	Rock/Gravel		0
	Litter		16
	Vegetation		24
		<i>Cryptantha crassisepala</i>	3
		<i>Descurainia pinnata</i>	3
		<i>Descurainia sophia</i>	2
		<i>Lappula occidentalis</i>	3
		<i>Machaeranthera canescens</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		14
		<i>Bromus tectorum</i>	1
	Annual Grass Subtotal		1
		<i>Sporobolus airoides</i>	1
Perennial Grass Subtotal		1	
	<i>Atriplex canescens</i>	2	

Attachment C-14 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Gutierrezia sarothrae</i>	2
		<i>Sarcobatus vermiculatus</i>	4
	Shrub Subtotal		8
AS-05 Total Vegetation			24
AS-07	Bare		66
	Rock/Gravel		2
	Litter		15
	Vegetation		17
		<i>Cryptantha crassisepala</i>	2
		<i>Descurainia pinnata</i>	2
		<i>Descurainia sophia</i>	2
		<i>Machaeranthera canescens</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		9
		<i>Vulpia octiflora</i>	1
	Annual Grass Subtotal		1
		<i>Atriplex canescens</i>	6
		<i>Sarcobatus vermiculatus</i>	1
	Shrub Subtotal		7
AS-07 Total Vegetation			17
AS-09	Bare		60
	Rock/Gravel		4
	Litter		18
	Vegetation		18
		<i>Cryptantha crassisepala</i>	2
		<i>Descurainia pinnata</i>	8
		<i>Machaeranthera canescens</i>	1
		<i>Salsola tragus</i>	4
	Annual Forb Subtotal		15
		<i>Muhlenbergia pungens</i>	1
		<i>Sporobolus cryptandrus</i>	1
	Perennial Grass Subtotal		2
		<i>Ericameria [Chrysothamnus] nauseosa</i>	1
	Shrub Subtotal		1
AS-09 Total Vegetation			18
AS-11	Bare		70
	Rock/Gravel		0
	Litter		9
	Vegetation		21
		<i>Descurainia pinnata</i>	8
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		9
		<i>Bromus tectorum</i>	2
	Annual Grass Subtotal		2

Attachment C-14 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Achnatherum hymenoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex canescens</i>	3
		<i>Brickellia microphylla</i>	1
		<i>Senna sp.</i>	5
	Shrub Subtotal		9
AS-11 Total Vegetation			21
AS-15	Bare		72
	Rock/Gravel		0
	Litter		10
	Vegetation		18
		<i>Descurainia pinnata</i>	2
		<i>Descurainia sophia</i>	1
		<i>Salsola tragus</i>	9
	Annual Forb Subtotal		12
		<i>Sphaeralcea parvifolia</i>	1
	Perennial Forb Subtotal		1
		<i>Atriplex canescens</i>	2
		<i>Senna sp.</i>	3
	Shrub Subtotal		5
AS-15 Total Vegetation			18
AS-17	Bare		86
	Rock/Gravel		0
	Litter		3
	Vegetation		11
		<i>Dalea sp.</i>	3
		<i>Descurainia pinnata</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		5
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		2
		<i>Senna sp.</i>	4
	Shrub Subtotal		4
AS-17 Total Vegetation			11
AS-19	Bare		92
	Rock/Gravel		3
	Litter		2
	Vegetation		3
		<i>Dalea sp.</i>	2
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		3
AS-19 Total Vegetation			3
AS-21	Bare		46
	Rock/Gravel		1

Attachment C-14 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Litter		16
	Vegetation		37
		<i>Atriplex powellii</i>	4
		<i>Descurainia pinnata</i>	1
		<i>Mentzelia albicaulis</i>	1
	Annual Forb Subtotal		6
		<i>Eremopyrum triticeum</i>	1
		<i>Hordeum pusillum</i>	2
	Annual Grass Subtotal		3
		<i>Hordeum jubatum</i>	1
	Perennial Forb Subtotal		1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	14
	Perennial Grass Subtotal		15
		<i>Atriplex obovata</i>	7
		<i>Sarcobatus vermiculatus</i>	5
	Shrub Subtotal		12
AS-21	Total Vegetation		37
AS-23	Bare		70
	Rock/Gravel		0
	Litter		23
	Vegetation		7
		<i>Descurainia pinnata</i>	2
	Annual Forb Subtotal		2
		<i>Atriplex obovata</i>	1
		<i>Sarcobatus vermiculatus</i>	3
		<i>Suaeda moquinii</i>	1
	Shrub Subtotal		5
AS-23	Total Vegetation		7
AS-25	Bare		90
	Rock/Gravel		0
	Litter		5
	Vegetation		5
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	2
	Annual Forb Subtotal		3
		<i>Senna sp.</i>	1
		<i>Unidentified</i>	1
	Forb Subtotal		2
AS-25	Total Vegetation		5
AS-27	Bare		70
	Rock/Gravel		0
	Litter		16
	Vegetation		14

Attachment C-14 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Descurainia pinnata</i>	2
		<i>Ipomopsis pumila</i>	1
		<i>Lappula occidentalis</i>	2
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		13
		<i>Sarcobatus vermiculatus</i>	1
	Shrub Subtotal		1
AS-27 Total Vegetation			14
AS-29	Bare		73
	Rock/Gravel		0
	Litter		9
	Vegetation		18
		<i>Cryptantha crassisejala</i>	3
		<i>Descurainia pinnata</i>	5
		<i>Salsola tragus</i>	2
		<i>Streptanthella longirostris</i>	2
	Annual Forb Subtotal		13
		<i>Townsendia incana</i>	1
	Perennial Forb Subtotal		1
		<i>Pleuraphis jamesii</i>	1
	Perennial Grass Subtotal		1
		<i>Ericameria [Chrysothamnus] nauseosa</i>	3
		<i>Sarcobatus vermiculatus</i>	1
	Shrub Subtotal		4
AS-29 Total Vegetation			18
AS-31	Bare		88
	Rock/Gravel		5
	Litter		3
	Vegetation		4
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		3
		<i>Sporobolus cryptandrus</i>	1
	Perennial Grass Subtotal		1
AS-31 Total Vegetation			4
AS-33	Bare		61
	Rock/Gravel		7
	Litter		13
	Vegetation		19
		<i>Cryptantha crassisejala</i>	1
		<i>Descurainia pinnata</i>	2
		<i>Lappula occidentalis</i>	3
		<i>Salsola tragus</i>	5
	Annual Forb Subtotal		11
		<i>Pleuraphis jamesii</i>	2

Attachment C-14 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Grass Subtotal		2
		<i>Ericameria [Chrysothamnus] nauseosa</i>	1
		<i>Sarcobatus vermiculatus</i>	5
	Shrub Subtotal		6
AS-33	Total Vegetation		19
AS-37	Bare		34
	Rock/Gravel		0
	Litter		36
	Vegetation		30
		<i>Atriplex powellii</i>	1
		<i>Descurainia pinnata</i>	3
		<i>Plantago patagonica</i>	2
		<i>Townsendia annua</i>	7
		<i>Tragopogon dubius</i>	1
	Annual Forb Subtotal		14
		<i>Hordeum pusillum</i>	13
	Annual Grass Subtotal		13
		<i>Atriplex obovata</i>	1
		<i>Sarcobatus vermiculatus</i>	2
	Shrub Subtotal		3
AS-37	Total Vegetation		30
AS-39	Bare		19
	Rock/Gravel		0
	Litter		23
	Vegetation		58
		<i>Erodium cicutarium</i>	1
	Annual Forb Subtotal		1
		<i>Hordeum pusillum</i>	26
	Annual Grass Subtotal		26
		<i>Artemisia dracunculus</i>	2
		<i>Grindelia squarrosa</i>	9
	Perennial Forb Subtotal		11
		<i>Bouteloua gracilis</i>	1
		<i>Pleuraphis jamesii</i>	6
		<i>Sporobolus airoides</i>	13
	Perennial Grass Subtotal		20
AS-39	Total Vegetation		58
AS-43	Bare		33
	Rock/Gravel		0
	Litter		39
	Vegetation		28
		<i>Cryptantha crassisepala</i>	3
		<i>Ipomopsis pumila</i>	1
		<i>Plantago patagonica</i>	7

Attachment C-14 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		13
	Annual Grass Subtotal	<i>Eremopyrum triticeum</i>	3
	Perennial Forb Subtotal	<i>Grindelia squarrosa</i>	3
	Perennial Grass Subtotal	<i>Sporobolus airoides</i>	5
	Shrub Subtotal	<i>Atriplex canescens</i>	3
		Unidentified	1
	Shrub Subtotal		4
AS-43 Total Vegetation			28
AS-44	Bare		37
	Rock/Gravel		0
	Litter		34
	Vegetation		29
		<i>Descurainia pinnata</i>	2
		<i>Plantago patagonica</i>	4
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		8
	Annual Grass Subtotal	<i>Eremopyrum triticeum</i>	3
	Forb Subtotal	<i>Erigeron sp.</i>	1
	Perennial Forb Subtotal	<i>Grindelia squarrosa</i>	5
		<i>Sphaeralcea coccinea</i>	1
	Perennial Grass Subtotal	<i>Achnatherum hymenoides</i>	1
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		5
	Shrub Subtotal	<i>Atriplex canescens</i>	3
		<i>Atriplex confertifolia</i>	1
		<i>Atriplex obovata</i>	1
		<i>Lycium pallidum</i>	1
	Shrub Subtotal		6
AS-44 Total Vegetation			29
AS-45	Bare		94
	Rock/Gravel		0
	Litter		0
	Vegetation		6
	Annual Forb Subtotal	<i>Chenopodium incanum</i>	6
AS-45 Total Vegetation			6

Attachment C-14 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover	
AS-46	Bare		38	
	Rock/Gravel		0	
	Litter		47	
	Vegetation		15	
			<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		1	
			<i>Grindelia squarrosa</i>	1
	Perennial Forb Subtotal		1	
			<i>Agropyron cristatum</i>	4
			<i>Pleuraphis jamesii</i>	4
			<i>Sporobolus airoides</i>	5
	Perennial Grass Subtotal		13	
	AS-46 Total Vegetation			15
	AS-47	Bare		44
Rock/Gravel			0	
Litter			39	
Vegetation			17	
			<i>Plantago patagonica</i>	3
Annual Forb Subtotal			3	
			<i>Erigeron sp.</i>	2
Forb Subtotal			2	
			<i>Sphaeralcea parvifolia</i>	1
Perennial Forb Subtotal			1	
			<i>Pleuraphis jamesii</i>	3
			<i>Sporobolus airoides</i>	8
Perennial Grass Subtotal			11	
AS-47 Total Vegetation			17	
AS-48	Bare		33	
	Rock/Gravel		0	
	Litter		20	
	Vegetation		47	
			<i>Erigeron bellidiastrum</i>	24
			<i>Verbena bracteata</i>	4
	Annual Forb Subtotal		28	
			<i>Sporobolus airoides</i>	19
	Perennial Grass Subtotal		19	
	AS-48 Total Vegetation			47

Attachment C-15. Spring Alkali Wash Cover and Frequency Data by Point Intercept Transect.

Transect	Life Form	Scientific Name	Percent Cover
AW-06	Bare		50
	Rock/Gravel		35
	Litter		9
	Total Vegetation		6
		<i>Plantago patagonica</i>	2
		<i>Townsendia annua</i>	2
	Annual Forb Subtotal		4
		<i>Atriplex obovata</i>	2
	Shrub Subtotal		2
	AW-06 Total Vegetation		6
AW-08	Bare		60
	Rock/Gravel		15
	Litter		15
	Total Vegetation		10
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Phacelia crenulata</i>	1
		<i>Plantago patagonica</i>	1
		<i>Townsendia annua</i>	4
	Annual Forb Subtotal		8
	<i>Sporobolus airoides</i>	1	
	<i>Sporobolus cryptandrus</i>	1	
Perennial Grass Subtotal		2	
AW-08 Total Vegetation		10	
AW-12	Bare		86
	Rock/Gravel		0
	Litter		9
	Total Vegetation		5
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		2
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		2
		<i>Atriplex obovata</i>	1
	Shrub Subtotal		1
AW-12 Total Vegetation		5	
AW-14	Bare		40
	Rock/Gravel		33
	Litter		15
	Total Vegetation		12

Attachment C-15 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Ipomopsis pumila</i>	1
		<i>Salsola tragus</i>	3
		<i>Streptanthella longirostris</i>	1
		<i>Townsendia annua</i>	5
	Annual Forb Subtotal		10
	Perennial Grass Subtotal	<i>Sporobolus airoides</i>	1
		<i>Unidentified</i>	1
	Unidentified Subtotal		1
AW-14 Total Vegetation			12
AW-16	Bare		70
	Rock/Gravel		22
	Litter		4
	Total Vegetation		4
		<i>Cryptantha crassisepala</i>	2
		<i>Lappula occidentalis</i>	1
		<i>Monolepis nutalliana</i>	1
	Annual Forb Subtotal		4
AW-16 Total Vegetation			4
AW-18	Bare		82
	Rock/Gravel		2
	Litter		10
	Total Vegetation		6
		<i>Monolepis nutalliana</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		3
	Perennial Forb Subtotal	<i>Machaeranthera gracilis</i>	3
AW-18 Total Vegetation			6
AW-20	Bare		74
	Rock/Gravel		9
	Litter		7
	Total Vegetation		10
		<i>Descurainia pinnata</i>	1
		<i>Ipomopsis pumila</i>	1
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		5
	Perennial Grass Subtotal	<i>Sporobolus airoides</i>	3
		<i>Atriplex canescens</i>	1
		<i>Atriplex obovata</i>	1
	Shrub Subtotal		2

Attachment C-15 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
AW-20 Total Vegetation			10
AW-22	Bare		40
	Rock/Gravel		6
	Litter		22
	Total Vegetation		32
		<i>Descurainia pinnata</i>	2
		<i>Lappula occidentalis</i>	1
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	2
		<i>Townsendia annua</i>	3
	Annual Forb Subtotal		9
		<i>Bromus tectorum</i>	7
	Annual Grass Subtotal		7
		<i>Sphaeralcea coccinea</i>	2
	Perennial Forb Subtotal		2
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	9
	Perennial Grass Subtotal		10
		<i>Atriplex canescens</i>	1
		<i>Atriplex gardneri</i>	1
		<i>Atriplex obovata</i>	2
Shrub Subtotal		4	
AW-22 Total Vegetation			32
AW-24	Bare		76
	Rock/Gravel		1
	Litter		11
	Total Vegetation		12
		<i>Ambrosia acanthicarpa</i>	1
		<i>Cryptantha crassisepala</i>	1
		<i>Dimorphocarpa wislizeni</i>	1
		<i>Phacelia crenulata</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		6
		<i>Stephanomeria exigua</i>	1
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	1
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		3
		<i>Ericameria [Chrysothamnus] nauseosa</i>	1
Shrub Subtotal		1	
	<i>Unidentified</i>	1	
Unidentified Subtotal		1	
AW-24 Total Vegetation			12

Attachment C-15 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
AW-26	Bare		46
	Rock/Gravel		43
	Litter		8
	Total Vegetation		3
		<i>Descurainia pinnata</i>	2
	Annual Forb Subtotal		2
		<i>Atriplex saccaria</i>	1
	Shrub Subtotal		1
	AW-26 Total Vegetation		3
	AW-28	Bare	
Rock/Gravel			15
Litter			6
Total Vegetation			11
		<i>Descurainia pinnata</i>	1
Annual Forb Subtotal			1
		<i>Sporobolus airoides</i>	2
Perennial Grass Subtotal			2
		<i>Ericameria [Chrysothamnus] nauseosa</i>	8
Shrub Subtotal			8
AW-28 Total Vegetation		11	
AW-30	Bare		55
	Rock/Gravel		33
	Litter		9
	Total Vegetation		3
		<i>Unidentified</i>	1
	Unidentified Subtotal		1
		<i>Atriplex confertifolia</i>	1
		<i>Atriplex obovata</i>	1
	Shrub Subtotal		2
	AW-30 Total Vegetation		3
AW-32	Bare		66
	Rock/Gravel		12
	Litter		17
	Total Vegetation		5
		<i>Atriplex powellii</i>	2
		<i>Eriogonum gordonii</i>	1
		<i>Halogeton glomeratus</i>	1
	Annual Forb Subtotal		4
		<i>Atriplex gardneri</i>	1
	Shrub Subtotal		1
AW-32 Total Vegetation		5	

Attachment C-15 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
AW-34	Bare		64
	Rock/Gravel		19
	Litter		6
	Total Vegetation		11
		<i>Descurainia pinnata</i>	5
		<i>Eriogonum gordonii</i>	2
		<i>Lappula occidentalis</i>	2
		<i>Atriplex powellii</i>	1
	Annual Forb Subtotal		10
		<i>Atriplex obovata</i>	1
	Shrub Subtotal		1
AW-34 Total Vegetation			11
AW-36	Bare		50
	Rock/Gravel		34
	Litter		9
	Total Vegetation		7
		<i>Atriplex powellii</i>	2
	Annual Forb Subtotal		2
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		3
		<i>Atriplex confertifolia</i>	1
		<i>Suaeda moquinii</i>	1
Shrub Subtotal		2	
AW-36 Total Vegetation			7
AW-44	Bare		63
	Rock/Gravel		4
	Litter		23
	Total Vegetation		10
		<i>Halogeton glomeratus</i>	1
		<i>Machaeranthera canescens</i>	1
		<i>Plantago patagonica</i>	1
		<i>Townsendia annua</i>	2
	Annual Forb Subtotal		5
		<i>Pleuraphis jamesii</i>	5
	Perennial Grass Subtotal		5
AW-44 Total Vegetation			10
AW-46	Bare		43
	Rock/Gravel		35
	Litter		8
	Vegetation		14
		<i>Cryptantha crassisepala</i>	1

Attachment C-15 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Descurainia pinnata</i>	2
		<i>Eriogonum gordonii</i>	5
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		10
	Shrub Subtotal	<i>Atriplex obovata</i>	3
	Shrub Subtotal		3
AW-46 Total Vegetation			13
AW-47	Bare		51
	Rock/Gravel		14
	Litter		23
	Vegetation		12
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	4
		<i>Plantago patagonica</i>	1
		<i>Salsola tragus</i>	2
		<i>Townsendia annua</i>	2
	Annual Forb Subtotal		10
	Perennial Grass Subtotal	<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
	Shrub Subtotal	<i>Atriplex obovata</i>	1
	Shrub Subtotal		1
AW-47 Total Vegetation			12
AW-48	Bare		64
	Rock/Gravel		2
	Litter		22
	Vegetation		12
		<i>Chenactis steveoides</i>	1
		<i>Cryptantha crassisepala</i>	3
		<i>Plantago patagonica</i>	6
	Annual Forb Subtotal		10
	Perennial Grass Subtotal	<i>Pleuraphis jamesii</i>	1
	Perennial Grass Subtotal		1
	Shrub Subtotal	<i>Atriplex confertifolia</i>	1
	Shrub Subtotal		1
AW-48 Total Vegetation			12
AW-49	Bare		55
	Rock/Gravel		36
	Litter		5
	Total Vegetation		4
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	1
	Annual Forb Subtotal		2

Attachment C-15 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Bromus rubens</i>	1
	Annual Grass Subtotal		1
		<i>Hordeum jubatum</i>	1
	Perennial Forb Subtotal		1
AW-49 Total Vegetation			4
AW-50	Bare		41
	Rock/Gravel		38
	Litter		20
	Total Vegetation		1
		<i>Cryptantha crassisepala</i>	1
	Annual Forb Subtotal		1
AW-50 Total Vegetation			1
AW-52	Bare		43
	Rock/Gravel		54
	Litter		0
	Vegetation		3
		<i>Lappula occidentalis</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		2
		<i>Atriplex obovata</i>	1
	Shrub Subtotal		1
AW-52 Total Vegetation			3
AW-54	Bare		53
	Rock/Gravel		34
	Litter		8
	Vegetation		5
		<i>Eriogonum gordonii</i>	5
	Annual Forb Subtotal		5
AW-54 Total Vegetation			5
AW-55	Bare		51
	Rock/Gravel		19
	Litter		18
	Vegetation		12
		<i>Cryptantha crassisepala</i>	2
		<i>Descurainia pinnata</i>	1
		<i>Gilia leptomeria</i>	1
		<i>Machaeranthera canescens</i>	1
		<i>Plantago patagonica</i>	3
		<i>Townsendia annua</i>	3
	Annual Forb Subtotal		11
		<i>Elymus Elymoides</i>	1
	Perennial Grass Subtotal		1

Attachment C-15 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
AW-55 Total Vegetation			12
AW-56	Bare		66
	Rock/Gravel		0
	Litter		16
	Vegetation		18
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Halogeton glomeratus</i>	1
		<i>Salsola tragus</i>	3
		<i>Townsendia annua</i>	1
		Annual Forb Subtotal	7
		<i>Eremopyrum triticeum</i>	4
		Annual Grass Subtotal	4
		<i>Grindelia squarrosa</i>	1
		<i>Mentzelia pumila</i>	1
		Perennial Forb Subtotal	2
		<i>Achnatherum hymenoides</i>	1
	<i>Pleuraphis jamesii</i>	1	
	<i>Sporobolus airoides</i>	3	
	Perennial Grass Subtotal	5	
AW-56 Total Vegetation			18
AW-65	Bare		30
	Rock/Gravel		51
	Litter		16
	Vegetation		3
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus contractus</i>	1
		Perennial Grass Subtotal	3
AW-65 Total Vegetation			3
AW-66	Bare		41
	Rock/Gravel		58
	Litter		0
	Total Vegetation		1
		<i>Cryptantha crassisepala</i>	1
	Annual Forb Subtotal	1	
AW-66 Total Vegetation			1
AW-68	Bare		47
	Rock/Gravel		38
	Litter		11
	Total Vegetation		4
		<i>Descurainia pinnata</i>	1
	<i>Salsola tragus</i>	1	

Attachment C-15 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Annual Forb Subtotal		2
		<i>Atriplex obovata</i>	2
	Shrub Subtotal		2
AW-68 Total Vegetation			4
AW-69	Bare		47
	Rock/Gravel		46
	Litter		4
	Total Vegetation		3
		<i>Atriplex powellii</i>	1
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		3
AW-69 Total Vegetation			3
AW-71	Bare		60
	Rock/Gravel		28
	Litter		10
	Total Vegetation		2
		<i>Descurainia pinnata</i>	1
		<i>Plantago patagonica</i>	1
	Annual Forb Subtotal		2
AW-71 Total Vegetation			2
AW-75	Bare		63
	Rock/Gravel		31
	Litter		6
	Total Vegetation		0
AW-75 Total Vegetation			0
AW-77	Bare		49
	Rock/Gravel		7
	Litter		27
	Total Vegetation		17
		<i>Cryptantha crassisepala</i>	2
		<i>Descurainia pinnata</i>	2
		<i>Phacelia crenulata</i>	1
		<i>Plantago patagonica</i>	4
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		11
		<i>Vulpia octiflora</i>	1
	Annual Grass Subtotal		1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		2
		<i>Atriplex confertifolia</i>	2

Attachment C-15 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Gutierrezia sarothrae</i>	1
	Shrub Subtotal		3
AW-77 Total Vegetation			17
AW-79	Bare		56
	Rock/Gravel		3
	Litter		29
	Total Vegetation		12
		<i>Descurainia pinnata</i>	2
		<i>Salsola tragus</i>	5
	Annual Forb Subtotal		7
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex gardneri</i>	1
		<i>Atriplex obovata</i>	2
		<i>Ericameria [Chrysothamnus] nauseosa</i>	1
	Shrub Subtotal		4
AW-79 Total Vegetation			12

Attachment C-16. Spring Badlands Cover and Frequency Data by Point Intercept Transect.

Transect	Life Form	Scientific Name	Percent Cover
BA-05	Bare		34
	Rock/Gravel		56
	Litter		7
	Vegetation		3
		<i>Lappula occidentalis</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		2
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
	BA-05 Total Vegetation		
BA-17	Bare		66
	Rock/Gravel		28
	Litter		5
	Vegetation		1
		<i>Eriogonum gordonii</i>	1
Annual Forb Subtotal			1
BA-17 Total Vegetation			1
BA-19	Bare		38
	Rock/Gravel		55
	Litter		2
	Vegetation		5
		<i>Eriogonum gordonii</i>	2
		<i>Lappula occidentalis</i>	1
	Annual Forb Subtotal		3
		<i>Atriplex gardneri</i>	2
	Shrub Subtotal		2
		<i>Unidentified</i>	1
Unidentified Subtotal			1
BA-19 Total Vegetation			5
BA-21	Bare		40
	Rock/Gravel		54
	Litter		4
	Vegetation		2
		<i>Atriplex gardneri</i>	1
	<i>Atriplex saccaria</i>	1	
Shrub Subtotal			2
BA-21 Total Vegetation			2
BA-23	Bare		34
	Rock/Gravel		52

Attachment C-16 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Litter		7
	Vegetation		7
		<i>Lappula occidentalis</i>	2
		<i>Phacelia crenulata</i>	1
		<i>Plantago patagonica</i>	3
	Annual Forb Subtotal		6
		<i>Unidentified</i>	1
	Unidentified Subtotal		1
BA-23 Total Vegetation			7
BA-25	Bare		51
	Rock/Gravel		38
	Litter		6
	Vegetation		5
		<i>Atriplex powellii</i>	1
		<i>Lappula occidentalis</i>	3
	Annual Forb Subtotal		4
		<i>Unidentified</i>	1
	Unidentified Subtotal		1
BA-25 Total Vegetation			5
BA-27	Bare		34
	Rock/Gravel		52
	Litter		8
	Vegetation		6
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	2
		<i>Salsola tragus</i>	2
	Annual Forb Subtotal		5
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
BA-27 Total Vegetation			6
BA-29	Bare		39
	Rock/Gravel		56
	Litter		3
	Vegetation		2
		<i>Ipomopsis pumila</i>	1
	Annual Forb Subtotal		1
		<i>Atriplex obovata</i>	1
	Shrub Subtotal		1
BA-29 Total Vegetation			2
BA-47	Bare		46
	Rock/Gravel		16
	Litter		25
	Vegetation		13

Attachment C-16 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Cryptantha crassisepala</i>	4
		<i>Mentzelia albicaulis</i>	1
		<i>Plantago patagonica</i>	2
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	2
	Annual Forb Subtotal		10
		<i>Abronia fragrans</i>	1
	Perennial Forb Subtotal		1
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		2
BA-47 Total Vegetation			13
BA-49	Bare		60
	Rock/Gravel		31
	Litter		9
	Vegetation		0
BA-49 Total Vegetation			0
BA-51	Bare		97
	Rock/Gravel		2
	Litter		1
	Vegetation		0
BA-51 Total Vegetation			0
BA-52	Bare		92
	Rock/Gravel		7
	Litter		0
	Vegetation		1
		<i>Atriplex powellii</i>	1
	Annual Forb Subtotal		1
BA-52 Total Vegetation			1
BA-54	Bare		39
	Rock/Gravel		56
	Litter		4
	Vegetation		1
		<i>Ericameria</i>	
		<i>[Chrysothamnus] nauseosa</i>	1
	Shrub Subtotal		1
BA-54 Total Vegetation			1

Attachment C-17. Spring Dunes Cover and Frequency Data by Point Intercept Transect.

Transect	Life Form	Scientific Name	Percent Cover	
DU-02 Total	Bare		61	
	Rock/Gravel		0	
	Litter		14	
	Vegetation		25	
			<i>Cryptantha crassisejala</i>	2
			<i>Descurainia pinnata</i>	1
			<i>Dimorphocarpa wislizeni</i>	1
			<i>Linum aristatum</i>	1
			<i>Linum puberulum</i>	1
			<i>Lygodesmia grandiflora</i>	1
			<i>Salsola tragus</i>	1
		Annual Forb Subtotal		8
			<i>Sphaeralcea parvifolia</i>	1
		Perennial Forb Subtotal		1
			<i>Achnatherum hymenoides</i>	3
			<i>Pleuraphis jamesii</i>	8
		Perennial Grass Subtotal		11
			<i>Artemisia filifolia</i>	2
			<i>Atriplex canescens</i>	1
			<i>Lycium pallidum</i>	2
		Shrub Subtotal		5
	DU-02 Total Vegetation			25
DU-04 Total	Bare		71	
	Rock/Gravel		0	
	Litter		7	
	Vegetation		22	
			<i>Descurainia pinnata</i>	1
			<i>Dimorphocarpa wislizeni</i>	1
			<i>Linum puberulum</i>	2
			<i>Salsola tragus</i>	2
		Annual Forb Subtotal		6
			<i>Sphaeralcea parvifolia</i>	3
			<i>Stephanomeria exigua</i>	3
		Perennial Forb Subtotal		6
			<i>Achnatherum hymenoides</i>	4
			<i>Pleuraphis jamesii</i>	1
		Perennial Grass Subtotal		5
			<i>Ephedra sp.</i>	3
			<i>Eriogonum leptocladon</i>	1
	Shrub Subtotal		4	
		<i>Unidentified</i>	1	
	Unidentified Subtotal		1	
DU-04 Total Vegetation			22	

Attachment C-17 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover	
DU-06 Total	Bare		73	
	Rock/Gravel		0	
	Litter		8	
	Vegetation		19	
			<i>Descurainia pinnata</i>	2
			<i>Salsola tragus</i>	6
	Annual Forb Subtotal			8
			<i>Oenothera pallida</i>	3
			<i>Sphaeralcea parvifolia</i>	1
	Perennial Forb Subtotal			4
			<i>Achnatherum hymenoides</i>	1
	Perennial Grass Subtotal			1
			<i>Ephedra sp.</i>	4
			<i>Eriogonum leptocladon</i>	2
Shrub Subtotal			6	
DU-06 Total Vegetation			19	
DU-10 Total	Bare		66	
	Rock/Gravel		0	
	Litter		8	
	Vegetation		26	
			<i>Cryptantha crassisepala</i>	1
			<i>Descurainia pinnata</i>	6
			<i>Dimorphocarpa wislizeni</i>	2
			<i>Linum puberulum</i>	1
			<i>Mentzelia albicaulis</i>	1
			<i>Salsola tragus</i>	1
	Annual Forb Subtotal			12
			<i>Sphaeralcea parvifolia</i>	3
			<i>Stephanomeria exigua</i>	1
	Perennial Forb Subtotal			4
			<i>Pleuraphis jamesii</i>	5
	Perennial Grass Subtotal			5
			<i>Ephedra sp.</i>	4
		<i>Lycium pallidum</i>	1	
Shrub Subtotal			5	
DU-10 Total Vegetation			26	
DN-14 Total	Bare		68	
	Rock/Gravel		0	
	Litter		10	
	Vegetation		22	
			<i>Cryptantha crassisepala</i>	5
		<i>Descurainia pinnata</i>	1	
		<i>Descurainia sophia</i>	1	

Attachment C-17 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Machaeranthera canescens</i>	1
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		11
		<i>Oenothera pallida</i>	7
		<i>Sphaeralcea parvifolia</i>	2
		<i>Stephanomeria exigua</i>	1
	Perennial Forb Subtotal		10
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
	DN-14 Total Vegetation		22
DN-15 Total	Bare		60
	Rock/Gravel		0
	Litter		14
	Vegetation		26
		<i>Descurainia pinnata</i>	2
		<i>Dimorphocarpa wislizeni</i>	6
		<i>Linum puberulum</i>	1
		<i>Streptanthella longirostris</i>	1
	Annual Forb Subtotal		10
		<i>Abronia fragrans</i>	3
		<i>Oenothera pallida</i>	1
		<i>Psoralidium lanceolatum</i>	1
	Perennial Forb Subtotal		5
		<i>Achnatherum hymenoides</i>	1
		<i>Sporobolus cryptandrus</i>	2
	Perennial Grass Subtotal		3
	Shrub Subtotal	<i>Ephedra sp.</i>	6
			6
	Succulent Subtotal	<i>Yucca harrimanaie</i>	1
			1
	Unidentified Subtotal	<i>Unidentified</i>	1
			1
	DN-15 Total Vegetation		26
DN-18 Total	Bare		56
	Rock/Gravel		0
	Litter		13
	Vegetation		31
		<i>Cryptantha crassisejala</i>	6
		<i>Descurainia pinnata</i>	4
		<i>Lupinus pusillus</i>	2
		<i>Mentzelia albicaulis</i>	1
	Annual Forb Subtotal		13
		<i>Oenothera canescens</i>	3
		<i>Oenothera pallida</i>	6

Attachment C-17 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Forb Subtotal		9
		<i>Achnatherum hymenoides</i>	3
	Perennial Grass Subtotal		3
		<i>Artemisia filifolia</i>	2
		<i>Atriplex canescens</i>	2
		<i>Senna sp.</i>	2
	Shrub Subtotal		6
DN-18 Total Vegetation			31
DN-24 Total	Bare		71
	Rock/Gravel		0
	Litter		3
	Vegetation		26
		<i>Cryptantha crassisejala</i>	6
		<i>Descurainia pinnata</i>	2
		<i>Dimorphocarpa wislizeni</i>	6
	Annual Forb Subtotal		14
		<i>Oenothera sp.</i>	10
		<i>Sphaeralcea parvifolia</i>	1
	Perennial Forb Subtotal		11
		<i>Achnatherum hymenoides</i>	1
	Perennial Grass Subtotal		1
DN-24 Total Vegetation			26
DN-26 Total	Bare		83
	Rock/Gravel		0
	Litter		5
	Vegetation		12
		<i>Dimorphocarpa wislizeni</i>	1
	Annual Forb Subtotal		1
		<i>Mentzelia sp.</i>	1
	Forb Subtotal		1
		<i>Oenothera sp.</i>	7
		<i>Sphaeralcea parvifolia</i>	2
	Perennial Forb Subtotal		9
		<i>Muhlenbergia pungens</i>	1
	Perennial Grass Subtotal		1
DN-26 Total Vegetation			12
DN-28 Total	Bare		69
	Rock/Gravel		0
	Litter		6
	Vegetation		25
		<i>Cryptantha crassisejala</i>	2
		<i>Descurainia pinnata</i>	2
		<i>Dimorphocarpa wislizeni</i>	4

Attachment C-17 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Salsola tragus</i>	5
	Annual Forb Subtotal		13
	Forb Subtotal	<i>Mentzelia sp.</i>	3
			3
	Perennial Forb Subtotal	<i>Oenothera sp.</i>	6
			6
	Perennial Grass Subtotal	<i>Achnatherum hymenoides</i>	1
		<i>Muhlenbergia pungens</i>	1
			2
	Shrub Subtotal	<i>Lycium pallidum</i>	1
			1
DN-28 Total Vegetation			25
DN-30 Total	Bare		62
	Rock/Gravel		0
	Litter		9
	Vegetation		29
		<i>Cryptantha crassisejala</i>	8
		<i>Descurainia pinnata</i>	6
		<i>Lupinus pusillus</i>	1
		<i>Machaeranthera canescens</i>	6
		<i>Phacelia crenulata</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		23
	Perennial Forb Subtotal	<i>Oenothera pallida</i>	1
		<i>Stephanomeria exigua</i>	1
			2
	Shrub Subtotal	<i>Ephedra sp.</i>	4
			4
DN-30 Total Vegetation			29
DN-32 Total	Bare		86
	Rock/Gravel		1
	Litter		10
	Vegetation		3
		<i>Lupinus pusillus</i>	1
	Annual Forb Subtotal		1
	Perennial Grass Subtotal	<i>Muhlenbergia pungens</i>	2
			2
DN-32 Total Vegetation			3
DN-34 Total	Bare		80
	Rock/Gravel		0
	Litter		7
	Vegetation		13
		<i>Descurainia pinnata</i>	1

Attachment C-17 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Dimorphocarpa wislizeni</i>	4
	Annual Forb Subtotal		5
		<i>Cymopterus sp.</i>	1
	Forb Subtotal		1
		<i>Oenothera sp.</i>	6
	Perennial Forb Subtotal		6
		<i>Achnatherum hymenoides</i>	1
	Perennial Grass Subtotal		1
DN-34 Total Vegetation			13
DN-36 Total	Bare		67
	Rock/Gravel		0
	Litter		11
	Vegetation		22
		<i>Cryptantha crassisejala</i>	3
		<i>Descurainia pinnata</i>	6
		<i>Dimorphocarpa wislizeni</i>	4
		<i>Lygodesmia grandiflora</i>	1
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		17
		<i>Oenothera pallida</i>	1
		<i>Stephanomeria exigua</i>	1
	Perennial Forb Subtotal		2
		<i>Pleuraphis jamesii</i>	2
	Perennial Grass Subtotal		2
		<i>Ephedra sp.</i>	1
	Shrub Subtotal		1
DN-36 Total Vegetation			22
DN-38 Total	Bare		69
	Rock/Gravel		0
	Litter		13
	Vegetation		18
		<i>Cryptantha crassisejala</i>	9
		<i>Dimorphocarpa wislizeni</i>	3
		<i>Lupinus pusillus</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		14
		<i>Astragalus sp.</i>	1
		<i>Oenothera sp.</i>	2
		<i>Stephanomeria exigua</i>	1
	Perennial Forb Subtotal		4
DN-38 Total Vegetation			18
DN-40 Total	Bare		71
	Rock/Gravel		0

Attachment C-17 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Litter		9
	Vegetation		20
		<i>Cryptantha crassisepala</i>	3
		<i>Descurainia pinnata</i>	2
		<i>Descurainia sophia</i>	3
		<i>Machaeranthera canescens</i>	2
		<i>Mentzelia albicaulis</i>	5
	Annual Forb Subtotal		15
		<i>Abronia fragrans</i>	1
		<i>Oenothera pallida</i>	1
		<i>Sphaeralcea parvifolia</i>	1
		<i>Stephanomeria exigua</i>	1
	Perennial Forb Subtotal		4
		<i>Pleuraphis jamesii</i>	1
	Perennial Grass Subtotal		1
DN-40 Total Vegetation			20
DN-42 Total	Bare		57
	Rock/Gravel		7
	Litter		17
	Vegetation		19
		<i>Ambrosia acanthicarpa</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Dimorphocarpa wislizeni</i>	2
		<i>Linum puberulum</i>	2
		<i>Machaeranthera canescens</i>	1
		<i>Mentzelia albicaulis</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		9
		<i>Oenothera pallida</i>	3
		<i>Sphaeralcea parvifolia</i>	3
	Perennial Forb Subtotal		6
		<i>Pleuraphis jamesii</i>	1
	Perennial Grass Subtotal		1
		<i>Ephedra sp.</i>	3
	Shrub Subtotal		3
DN-42 Total Vegetation			19
DN-44 Total	Bare		73
	Rock/Gravel		0
	Litter		6
	Vegetation		21
		<i>Cryptantha crassisepala</i>	5
		<i>Descurainia pinnata</i>	5
		<i>Dimorphocarpa wislizeni</i>	1
		<i>Linum puberulum</i>	1

Attachment C-17 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Machaeranthera canescens</i>	1
		<i>Mentzelia albicaulis</i>	3
	Annual Forb Subtotal		16
		<i>Stephanomeria exigua</i>	1
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	2
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus cryptandrus</i>	1
	Perennial Grass Subtotal		4
DN-44 Total Vegetation			21
DN-45 Total	Bare		55
	Rock/Gravel		2
	Litter		37
	Vegetation		6
		<i>Erigeron bellidiastrum</i>	2
		<i>Lappula occidentalis</i>	1
		<i>Plantago patagonica</i>	2
	Annual Forb Subtotal		5
		<i>Atriplex obovata</i>	1
	Shrub Subtotal		1
DN-45 Total Vegetation			6

Attachment C-18. Spring Sands Cover and Frequency Data by Point Intercept Transect.

Transect	Life Form	Scientific Name	Percent Cover	
SA-01 Total	Bare		76	
	Rock/Gravel		0	
	Litter		11	
	Vegetation		13	
		<i>Cryptantha crassisepala</i>	1	
		<i>Descurainia sophia</i>	1	
		<i>Phacelia crenulata</i>	1	
	Annual Forb Subtotal		3	
		<i>Achnatherum hymenoides</i>	3	
		<i>Aristida purpurea</i>	1	
		<i>Pleuraphis jamesii</i>	1	
	Perennial Grass Subtotal		5	
		<i>Gutierrezia sarothrae</i>	5	
	Shrub Subtotal		5	
SA-01 Total Vegetation			13	
SA-03 Total	Bare		59	
	Rock/Gravel		22	
	Litter		9	
	Vegetation		10	
		<i>Cryptantha crassisepala</i>	1	
		<i>Salsola tragus</i>	1	
		<i>Townsendia annua</i>	1	
	Annual Forb Subtotal		3	
		<i>Atriplex confertifolia</i>	5	
		<i>Gutierrezia sarothrae</i>	2	
	Shrub Subtotal		7	
	SA-03 Total Vegetation			10
	SA-05 Total	Bare		54
		Rock/Gravel		23
Litter			14	
Vegetation			9	
		<i>Chenactis steveoides</i>	3	
		<i>Townsendia annua</i>	1	
Annual Forb Subtotal			4	
		<i>Sphaeralcea coccinea</i>	1	
		<i>Stephanomeria exigua</i>	2	
Perennial Forb Subtotal			3	
		<i>Gutierrezia sarothrae</i>	1	
Shrub Subtotal			1	
		<i>Opuntia polyacantha</i>	1	
Succulent Subtotal			1	
SA-05 Total Vegetation			9	

Attachment C-18 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
SA-07 Total	Bare		59
	Rock/Gravel		3
	Litter		28
	Vegetation		10
		<i>Cryptantha crassisepala</i>	4
		<i>Descurainia pinnata</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		6
		<i>Vulpia octiflora</i>	1
	Annual Grass Subtotal		1
		<i>Sphaeralcea parvifolia</i>	1
	Perennial Forb Subtotal		1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
	<i>Atriplex confertifolia</i>	1	
Shrub Subtotal		1	
SA-07 Total Vegetation			10
SA-09 Total	Bare		58
	Rock/Gravel		12
	Litter		18
	Vegetation		12
		<i>Descurainia pinnata</i>	1
		<i>Phacelia crenulata</i>	2
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		4
		<i>Sporobolus contractus</i>	1
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		2
		<i>Atriplex confertifolia</i>	5
		<i>Gutierrezia sarothrae</i>	1
	Shrub Subtotal		6
SA-09 Total Vegetation			12
SA-13 Total	Bare		58
	Rock/Gravel		9
	Litter		19
	Vegetation		14
		<i>Cryptantha crassisepala</i>	4
		<i>Salsola tragus</i>	7
		<i>Townsendia annua</i>	2
	Annual Forb Subtotal		13
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		1
SA-13 Total Vegetation			14

Attachment C-18 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover	
SA-16 Total	Bare		56	
	Rock/Gravel		9	
	Litter		19	
	Vegetation		16	
			<i>Chenactis steveioides</i>	1
			<i>Descurainia sophia</i>	1
			<i>Phacelia crenulata</i>	1
	Annual Forb Subtotal			3
			<i>Mentzelia pumila</i>	1
	Perennial Forb Subtotal			1
			<i>Pleuraphis jamesii</i>	1
			<i>Sporobolus airoides</i>	7
	Perennial Grass Subtotal			8
			<i>Atriplex confertifolia</i>	1
			<i>Ephedra sp.</i>	1
			<i>Sarcobatus vermiculatus</i>	1
	Shrub Subtotal			3
		<i>Unidentified</i>	1	
Unidentified Subtotal				
SA-16 Total Vegetation			16	
SA-17 Total	Bare		73	
	Rock/Gravel		0	
	Litter		11	
	Vegetation		16	
			<i>Cryptantha crassisepala</i>	2
			<i>Descurainia pinnata</i>	6
			<i>Lappula occidentalis</i>	1
			<i>Salsola tragus</i>	1
	Annual Forb Subtotal			10
			<i>Townsendia incana</i>	3
	Perennial Forb Subtotal			3
			<i>Achnatherum hymenoides</i>	1
	Perennial Grass Subtotal			1
		<i>Sarcobatus vermiculatus</i>	2	
Shrub Subtotal			2	
SA-17 Total Vegetation			16	
SA-21 Total	Bare		63	
	Rock/Gravel		10	
	Litter		19	
	Vegetation		8	
			<i>Cryptantha crassisepala</i>	5
		<i>Phacelia crenulata</i>	2	
		<i>Plantago patagonica</i>	1	

Attachment C-18 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Annual Forb Subtotal		8
SA-21 Total Vegetation			8
SA-23 Total	Bare		54
	Rock/Gravel		9
	Litter		18
	Vegetation		19
		<i>Chenactis steveioides</i>	4
		<i>Descurainia pinnata</i>	1
		<i>Ipomopsis pumila</i>	1
		<i>Phacelia crenulata</i>	2
		<i>Salsola tragus</i>	1
		<i>Townsendia annua</i>	1
	Annual Forb Subtotal		10
		<i>Pleuraphis jamesii</i>	3
		<i>Sporobolus airoides</i>	1
	Perennial Grass Subtotal		4
		<i>Atriplex confertifolia</i>	5
	Shrub Subtotal		5
SA-23 Total Vegetation			19
SA-27 Total	Bare		57
	Rock/Gravel		18
	Litter		14
	Vegetation		11
		<i>Machaeranthera canescens</i>	1
		<i>Plantago patagonica</i>	6
	Annual Forb Subtotal		7
		<i>Vulpia octiflora</i>	1
	Annual Grass Subtotal		1
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		3
SA-27 Total Vegetation			11
SA-31 Total	Bare		64
	Rock/Gravel		0
	Litter		13
	Vegetation		23
		<i>Cryptantha crassisepala</i>	2
		<i>Phacelia crenulata</i>	5
		<i>Plantago patagonica</i>	8
	Annual Forb Subtotal		15
		<i>Abronia fragrans</i>	1
	Perennial Forb Subtotal		1
		<i>Achnatherum hymenoides</i>	3

Attachment C-18 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
		<i>Pleuraphis jamesii</i>	1
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		7
SA-31 Total Vegetation			23
SA-33 Total	Bare		52
	Rock/Gravel		6
	Litter		27
	Vegetation		15
		<i>Cryptantha crassisepala</i>	4
		<i>Descurainia pinnata</i>	3
		<i>Phacelia crenulata</i>	1
		<i>Plantago patagonica</i>	2
	Annual Forb Subtotal		10
		<i>Sporobolus airoides</i>	4
	Perennial Grass Subtotal		4
		<i>Unidentified</i>	1
	Unidentified Subtotal		1
SA-33 Total Vegetation			15
SA-36 Total	Bare		50
	Rock/Gravel		5
	Litter		27
	Vegetation		18
		<i>Cryptantha crassisepala</i>	3
		<i>Descurainia pinnata</i>	4
		<i>Machaeranthera canescens</i>	1
		<i>Phacelia crenulata</i>	9
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		18
SA-36 Total Vegetation			18
SA-37 Total	Bare		52
	Rock/Gravel		21
	Litter		11
	Vegetation		16
		<i>Cryptantha crassisepala</i>	1
		<i>Phacelia crenulata</i>	2
		<i>Salsola tragus</i>	4
	Annual Forb Subtotal		7
		<i>Achnatherum hymenoides</i>	1
		<i>Sporobolus airoides</i>	8
	Perennial Grass Subtotal		9
SA-37 Total Vegetation			16
SA-39 Total	Bare		43

Attachment C-18 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Rock/Gravel		3
	Litter		34
	Vegetation		20
		<i>Cryptantha crassisepala</i>	3
		<i>Phacelia crenulata</i>	8
		<i>Salsola tragus</i>	4
	Annual Forb Subtotal		15
		<i>Abronia fragrans</i>	1
		<i>Sphaeralcea parvifolia</i>	1
	Perennial Forb Subtotal		2
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		3
SA-39 Total Vegetation			20
SA-43 Total	Bare		48
	Rock/Gravel		22
	Litter		22
	Vegetation		8
		<i>Salsola tragus</i>	3
	Annual Forb Subtotal		3
		<i>Atriplex confertifolia</i>	1
		<i>Ephedra sp.</i>	1
		<i>Gutierrezia sarothrae</i>	3
	Shrub Subtotal		5
SA-43 Total Vegetation			8
SA-45 Total	Bare		70
	Rock/Gravel		0
	Litter		9
	Vegetation		21
		<i>Cryptantha crassisepala</i>	10
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		11
		<i>Pleuraphis jamesii</i>	7
		<i>Sporobolus airoides</i>	3
	Perennial Grass Subtotal		10
SA-45 Total Vegetation			21
SA-46 Total	Bare		46
	Rock/Gravel		35
	Litter		16
	Vegetation		3
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	2
	Annual Forb Subtotal		3

Attachment C-18 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
SA-46 Total Vegetation			3
SA-47 Total	Bare		64
	Rock/Gravel		21
	Litter		13
	Vegetation		2
		<i>Atriplex powellii</i>	2
	Annual Forb Subtotal		2
SA-47 Total Vegetation			2
SA-54 Total	Bare		47
	Rock/Gravel		2
	Litter		25
	Vegetation		26
		<i>Cryptantha crassisepala</i>	6
		<i>Descurainia pinnata</i>	5
		<i>Dimorphocarpa wislizeni</i>	2
		<i>Mentzelia albicaulis</i>	1
		<i>Salsola tragus</i>	8
		Annual Forb Subtotal	22
		<i>Abronia fragrans</i>	1
		<i>Sphaeralcea parvifolia</i>	1
		<i>Stephanomeria exigua</i>	1
	Perennial Forb Subtotal	3	
	<i>Sporobolus cryptandrus</i>	1	
	Perennial Grass Subtotal	1	
SA-54 Total Vegetation			26
SA-56 Total	Bare		63
	Rock/Gravel		0
	Litter		6
	Vegetation		31
		<i>Cryptantha crassisepala</i>	2
		<i>Descurainia pinnata</i>	2
		<i>Descurainia sophia</i>	1
		<i>Dimorphocarpa wislizeni</i>	3
		<i>Mentzelia albicaulis</i>	5
		<i>Salsola tragus</i>	1
		<i>Streptanthella longirostris</i>	1
		Annual Forb Subtotal	15
		<i>Oenothera pallida</i>	12
		<i>Sphaeralcea parvifolia</i>	2
		<i>Stephanomeria exigua</i>	1
	Perennial Forb Subtotal	15	
	<i>Opuntia polyacantha</i>	1	
	Succulent Subtotal	1	

Attachment C-18 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover	
SA-56 Total Vegetation			31	
SA-62 Total	Bare		50	
	Rock/Gravel		14	
	Litter		25	
	Vegetation		11	
		<i>Cryptantha crassisepala</i>	2	
		<i>Descurainia pinnata</i>	1	
		<i>Plantago patagonica</i>	1	
		<i>Salsola tragus</i>	1	
	Annual Forb Subtotal		5	
		<i>Sphaeralcea coccinea</i>	1	
	Perennial Forb Subtotal		1	
		<i>Pleuraphis jamesii</i>	4	
		<i>Sporobolus airoides</i>	1	
	Perennial Grass Subtotal		5	
SA-62 Total Vegetation			11	
SA-64 Total	Bare		43	
	Rock/Gravel		31	
	Litter		16	
	Vegetation		10	
		<i>Chenactis steveioides</i>	3	
		<i>Salsola tragus</i>	2	
	Annual Forb Subtotal		5	
		<i>Vulpia octiflora</i>	1	
	Annual Grass Subtotal		1	
		<i>Sporobolus airoides</i>	3	
	Perennial Grass Subtotal		3	
		<i>Atriplex confertifolia</i>	1	
	Shrub Subtotal		1	
	SA-64 Total Vegetation			10
SA-65 Total	Bare		43	
	Rock/Gravel		22	
	Litter		24	
	Vegetation		11	
		<i>Cryptantha crassisepala</i>	2	
		<i>Descurainia pinnata</i>	2	
		<i>Salsola tragus</i>	1	
		<i>Townsendia annua</i>	1	
	Annual Forb Subtotal		6	
		<i>Atriplex confertifolia</i>	5	
	Shrub Subtotal		5	
	SA-65 Total Vegetation			11

Attachment C-19. Spring Thin Breaks Cover and Frequency Data by Point Intercept Transect.

Transect	Life Form	Scientific Name	Percent Cover	
TB-06	Bare		47	
	Rock/Gravel		46	
	Litter		6	
	Vegetation		1	
		<i>Cryptantha crassisejala</i>	1	
	Annual Forb Subtotal		1	
TB-06 Total Vegetation			1	
TB-11	Bare		39	
	Rock/Gravel		43	
	Litter		7	
	Vegetation		11	
		<i>Cryptantha crassisejala</i>	1	
		<i>Eriogonum gordonii</i>	1	
		<i>Lappula occidentalis</i>	1	
		<i>Salsola tragus</i>	1	
		<i>Townsendia annua</i>	2	
		Annual Forb Subtotal		6
		<i>Atriplex confertifolia</i>	3	
		<i>Atriplex obovata</i>	2	
	Shrub Subtotal		5	
TB-11 Total Vegetation			11	
TB-18	Bare		25	
	Rock/Gravel		64	
	Litter		8	
	Vegetation		3	
		<i>Lappula occidentalis</i>	1	
		<i>Townsendia annua</i>	1	
		Annual Forb Subtotal		2
		<i>Sporobolus airoides</i>	1	
	Perennial Grass Subtotal		1	
TB-18 Total Vegetation			3	
TB-20	Bare		29	
	Rock/Gravel		50	
	Litter		14	
	Vegetation		7	
		<i>Descurainia pinnata</i>	2	
		<i>Ipomopsis pumila</i>	1	
		<i>Lappula occidentalis</i>	2	
	Annual Forb Subtotal		5	
	<i>Atriplex confertifolia</i>	1		

Attachment C-19 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Shrub Subtotal		1
		<i>Unidentified</i>	1
	Unidentified Subtotal		1
TB-20 Total Vegetation			7
TB-40	Bare		65
	Rock/Gravel		22
	Litter		5
	Vegetation		8
		<i>Lappula occidentalis</i>	4
	Annual Forb Subtotal		4
		<i>Hordeum pusillum</i>	2
	Annual Grass Subtotal		2
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		2
TB-40 Total Vegetation			8
TB-44	Bare		30
	Rock/Gravel		65
	Litter		2
	Vegetation		3
		<i>Halogeton glomeratus</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		2
		<i>Sphaeralcea coccinea</i>	1
	Perennial Forb Subtotal		1
TB-44 Total Vegetation			3
TB-47	Bare		26
	Rock/Gravel		54
	Litter		16
	Vegetation		4
		<i>Halogeton glomeratus</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		2
		<i>Atriplex confertifolia</i>	2
	Shrub Subtotal		2
TB-47 Total Vegetation			4
TB-48	Bare		50
	Rock/Gravel		31
	Litter		12
	Vegetation		7
		<i>Cryptantha crassisejala</i>	1
		<i>Lappula occidentalis</i>	1
		<i>Salsola tragus</i>	1

Attachment C-19 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Annual Forb Subtotal		3
		<i>Bromus tectorum</i>	1
	Annual Grass Subtotal		1
		<i>Pleuraphis jamesii</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex obovata</i>	2
	Shrub Subtotal		2
TB-48 Total Vegetation			7
TB-51	Bare		18
	Rock/Gravel		54
	Litter		20
	Vegetation		8
		<i>Descurainia pinnata</i>	1
		<i>Lappula occidentalis</i>	1
	Annual Forb Subtotal		2
		<i>Pleuraphis jamesii</i>	2
		<i>Sporobolus airoides</i>	2
	Perennial Grass Subtotal		3
		<i>Atriplex confertifolia</i>	1
		<i>Atriplex obovata</i>	1
	Shrub Subtotal		2
TB-51 Total Vegetation			8
TB- 53	Bare		62
	Rock/Gravel		31
	Litter		6
	Vegetation		1
		<i>Eriogonum gordonii</i>	1
	Annual Forb Subtotal		1
TB- 53 Total Vegetation			1
TB-55	Bare		53
	Rock/Gravel		44
	Litter		1
	Vegetation		2
		<i>Atriplex powellii</i>	1
		<i>Eriogonum gordonii</i>	1
	Annual Forb Subtotal		2
TB-55 Total Vegetation			2
TB-57	Bare		22
	Rock/Gravel		66
	Litter		10
	Vegetation		2
		<i>Sporobolus airoides</i>	1

Attachment C-19 Cont'd.

Transect	Life Form	Scientific Name	Percent Cover
	Perennial Grass Subtotal		1
		<i>Atriplex saccaria</i>	1
	Shrub Subtotal		1
TB-57 Total Vegetation			2
TB-59	Bare		50
	Rock/Gravel		28
	Litter		11
	Vegetation		11
		<i>Cryptantha crassisepala</i>	1
		<i>Descurainia pinnata</i>	1
		<i>Ipomopsis pumila</i>	1
		<i>Phacelia crenulata</i>	1
		<i>Plantago patagonica</i>	4
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		9
		<i>Pleuraphis jamesii</i>	1
	Perennial Grass Subtotal		1
		<i>Atriplex confertifolia</i>	1
	Shrub Subtotal		1
TB-59 Total Vegetation			11
TB-61	Bare		27
	Rock/Gravel		68
	Litter		5
	Vegetation		0
TB-61 Total Vegetation			0
TB-63	Bare		54
	Rock/Gravel		40
	Litter		4
	Vegetation		2
		<i>Descurainia pinnata</i>	1
		<i>Salsola tragus</i>	1
	Annual Forb Subtotal		2
TB-63 Total Vegetation			2

ATTACHMENT D
SHRUB DENSITY DATA

**Attachment D. Shrub Density Data
Table of Contents**

D-1	Fall	Summary of Average Shrub Density in All Vegetation Communities
D-2	Fall	Arroyo Shrub Shrub Density by Transect
D-3	Fall	Alkali Wash Shrub Density by Transect
D-4	Fall	Badlands Shrub Density by Transect
D-5	Fall	Dunes Shrub Density by Transect
D-6	Fall	Reference Arroyo Shrub Shrub Density by Transect
D-7	Fall	Reference Alkali Wash Shrub Density by Transect
D-8	Fall	Reference Sands Shrub Density by Transect
D-9	Fall	Sands Shrub Density by Transect
D-10	Fall	Thin Breaks Shrub Density by Transect

Attachment D-1. Fall Summary of Average Shrub Density in All Vegetation Communities

	Arroyo Shrub	Alkali Wash	Badlands	Dunes	Sands	Thin Breaks	Reference Arroyo Shrub	Reference Alkali Wash	Reference Sands
<i>Aremisia bigelovii</i>	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
<i>Artemisia filifolia</i>	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
<i>Aremisia tridentata</i>	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Atriplex canescens</i>	6.0	0.2	0.1	1.4	0.6	0.8	0.4	0.3	0.2
<i>Atriplex confertifolia</i>	0.0	2.7	0.3	0.1	10.0	4.6	0.2	0.6	4.8
<i>Atriplex gardneri</i>	0.0	3.0	2.5	0.1	0.1	0.9	0.3	2.0	0.5
<i>Atriplex obovata</i>	6.9	6.2	9.7	0.2	0.6	2.8	9.0	14.0	3.9
<i>Atriplex saccaria</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Chrysothamnus viscidiflorus</i>	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0
<i>Ephedra spp.</i>	1.2	0.0	0.1	3.0	0.1	0.2	0.0	0.0	0.5
<i>Eriogonum leptocladon</i>	0.3	0.0	0.0	1.8	0.1	0.0	0.0	0.0	0.0
<i>Ericameria [Chrysothamnus] nauseosus</i>	3.4	0.0	0.0	2.4	0.4	0.0	0.0	0.0	0.0
<i>Gutierrezia sarothrae</i>	4.0	0.7	0.1	6.0	15.4	2.5	1.6	1.9	47.9
<i>Isochoma tenuisecta</i>	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
<i>Krascheninnikovia lanata</i>	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
<i>Lycium pallidum</i>	0.1	0.0	0.0	0.8	0.1	0.0	0.3	0.0	0.0
<i>Paryella filifolia</i>	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Poliomintha incana</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Sarcobatus vermiculatus</i>	5.0	0.5	0.0	0.4	0.0	0.1	0.9	0.3	0.0
Unidentified	0.3	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Average Total Shrubs (stems per 100m2)	27.2	13.4	12.8	18.0	27.4	12.6	12.6	19.1	57.8
Average Density (stems per acre)	1,100.8	540.3	519.5	729.5	1,107.9	511.3	509.5	773.0	2,340.0
Standard Deviation	857.1	624.5	445.2	654.8	1,183.0	561.6	442.5	680.3	2,352.5
Average Total Shrubs (stems per 100m2) Without <i>Gutierrezia</i>	23.3	12.6	12.7	12.0	12.0	10.1	10.9	17.3	9.9
Average Density (stems per acre) Without <i>Gutierrezia</i>	940.9	510.9	513.9	486.6	485.6	408.6	443.1	698.1	402.6
Standard Deviation Without <i>Gutierrezia</i>	881.2	611.1	450.3	417.9	357.4	338.3	423.8	600.2	330.3

Attachment D-2. Fall Arroyo Shrub Shrub Density by Transect

	AS-041	AS-042	AS-043	AS-044	AS-045	AS-046	AS-047	AS-048	AS-049	AS-050	AS-051	AS-052
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	7	0	0	0	0	0
<i>Atriplex canescens</i>	20	5	0	10	0	1	8	3	5	10	4	7
<i>Atriplex confertifolia</i>	0	0	0	0	0	0	1	0	0	0	0	0
<i>Atriplex gardneri</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex obovata</i>	0	4	19	0	0	0	0	0	19	0	0	0
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	0	0	0	0	2	0	0	1	0	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	10	7	21	5	0	0	2	0	13
<i>Gutierrezia sarothrae</i>	11	0	0	2	14	0	5	0	0	2	0	0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	5	0	0	1	0	0	0	0	6
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	1	9	0	0	0	0	2	2	12	0	24	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0
Average Total Shrubs (stems per 100m2)	32	18	19	27	21	22	31	5	36	15	28	26
Average Density (stems per acre)	1,295.02	728.45	768.92	1,092.68	849.86	890.33	1,254.55	202.35	1,456.90	607.04	1,133.14	1,052.21
Average Total Shrubs (stems per 100m2) Without Gutierrezia	21	18	19	25	7	22	26	5	36	13	28	26
Average Density (stems per acre) Without Gutierrezia	849.86	728.45	768.92	1,011.74	283.29	890.33	1,052.21	202.35	1,456.90	526.10	1,133.14	1,052.21

Attachment D-2 Cont'd.

	AS-053	AS-054	AS-055	AS-056	AS-057	AS-058	AS-059	AS-060	AS-061	AS-062	AS-063	AS-064
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	10	0	6	0	0	0	2	11	7	2	0	3
<i>Atriplex confertifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex gardneri</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex obovata</i>	0	0	3	0	0	0	0	0	0	1	28	0
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	0	0	0	0	34
<i>Eriogonum leptocladon</i>	0	0	0	2	0	0	0	0	8	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	19	6	6	1	24	0	0	0	0
<i>Gutierrezia sarothrae</i>	0	0	0	7	13	3	3	2	14	0	0	0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	11	0	9	0	0	1	2	0	7	4	0	14
Unidentified	0	0	0	0	0	0	0	13	0	0	0	0
Average Total Shrubs (stems per 100m2)	21	0	18	28	19	10	8	50	36	7	28	51
Average Density (stems per acre)	849.86	0.00	728.45	1,133.14	768.92	404.69	323.76	2,023.47	1,456.90	283.29	1,133.14	2,063.94
Average Total Shrubs (stems per 100m2) Without <i>Gutierrezia</i>	21	0	18	21	6	7	5	48	22	7	28	51
Average Density (stems per acre) Without <i>Gutierrezia</i>	849.86	0.00	728.45	849.86	242.82	283.29	202.35	1,942.53	890.33	283.29	1,133.14	2,063.94

Attachment D-2 Cont'd.

	AS-065	AS-066	AS-067	AS-068	AS-069	AS-070	AS-071	AS-072	AS-073	AS-074	AS-075	AS-076
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	1	5	0	0	13	3	0	10	0	12	13	2
<i>Atriplex confertifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex gardneri</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex obovata</i>	0	0	0	7	0	0	76	0	103	0	0	3
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	10	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	3	0	0	2	0	8	0	0	0	0
<i>Gutierrezia sarothrae</i>	0	27	10	0	0	21	0	0	0	3	0	0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	4	0	0	15	3	13	0	8	2	10	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0
Average Total Shrubs (stems per 100m2)	11	36	13	7	28	29	89	18	111	17	23	5
Average Density (stems per acre)	445.16	1,456.90	526.10	283.29	1,133.14	1,173.61	3,601.78	728.45	4,492.11	687.98	930.80	202.35
Average Total Shrubs (stems per 100m2) Without <i>Gutierrezia</i>	11	9	3	7	28	8	89	18	111	14	23	5
Average Density (stems per acre) Without <i>Gutierrezia</i>	445.16	364.23	121.41	283.29	1,133.14	323.76	3,601.78	728.45	4,492.11	566.57	930.80	202.35

Attachment D-2 Cont'd.

	AS-077	AS-078	AS-079	AS-080	Arroyo Shrub Average
<i>Aremisia bigelovii</i>	0	0	0	0	0.0
<i>Artemisia filifolia</i>	0	0	0	0	0.0
<i>Aremisia tridentata</i>	0	0	0	0	0.2
<i>Atriplex canescens</i>	14	24	7	9	5.7
<i>Atriplex confertifolia</i>	0	0	0	0	0.0
<i>Atriplex gardneri</i>	0	0	0	0	0.0
<i>Atriplex obovata</i>	4	6	3	0	6.9
<i>Atriplex saccaria</i>	0	0	0	0	0.0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0.0
<i>Ephedra spp.</i>	0	0	0	0	1.2
<i>Eriogonum leptocladon</i>	0	0	0	0	0.3
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	7	3.4
<i>Gutierrezia sarothrae</i>	7	3	0	11	4.0
<i>Isochoma tenuisecta</i>	0	0	0	0	0.0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0.0
<i>Lycium pallidum</i>	2	0	0	0	0.1
<i>Paryella filifolia</i>	0	0	0	0	0.3
<i>Poliomintha incana</i>	0	0	0	0	0.0
<i>Sarcobatus vermiculatus</i>	9	16	8	15	5.0
Unidentified	0	0	0	0	0.3
Average Total Shrubs (stems per 100m2)	36	49	18	42	27.2
Average Density (stems per acre)	1,456.90	1,983.00	728.45	1,699.72	1100.8
Average Total Shrubs (stems per 100m2) Without <i>Gutierrezia</i>	29	46	18	31	23.25
Average Density (stems per acre) Without <i>Gutierrezia</i>	1,173.61	1,861.59	728.45	1,254.55	940.9

Attachment D-3. Fall Alkali Wash Shrub Density by Transect

	AW-001	AW-002	AW-003	AW-004	AW-005	AW-006	AW-007	AW-008	AW-009	AW-010	AW-011	AW-012	AW-013	AW-014
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex confertifolia</i>	0	0	0	0	0	0	2	0	0	1	0	0	1	0
<i>Atriplex gardneri</i>	3	7	0	52	0	0	0	0	1	0	0	0	0	0
<i>Atriplex obovata</i>	10	3	8	20	2	0	0	0	4	2	6	21	7	11
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum leptoclodon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gutierrezia sarothrae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	7	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	13.0	10.0	8.0	72.0	2.0	0.0	2.0	0.0	5.0	10.0	6.0	21.0	8.0	11.0
Density (stems per acre)	526.1	404.7	323.8	2,913.8	80.9	0.0	80.9	0.0	202.3	404.7	242.8	849.9	323.8	445.2
Total Shrubs (stems per 100m2)														
Without Gutierrezia	13.0	10.0	8.0	72.0	2.0	0.0	2.0	0.0	5.0	10.0	6.0	21.0	8.0	11.0
Density (stems per acre)														
Without Gutierrezia	526.1	404.7	323.8	2,913.8	80.9	0.0	80.9	0.0	202.3	404.7	242.8	849.9	323.8	445.2

Attachment D-3 Cont'd.

	AW-015	AW-016	AW-017	AW-018	AW-019	AW-020	AW-021	AW-022	AW-023	AW-024	AW-025	AW-026	AW-027	AW-028
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0
<i>Atriplex confertifolia</i>	7	0	0	1	0	0	2	3	0	0	0	0	0	0
<i>Atriplex gardneri</i>	4	17	1	4	0	12	0	2	0	0	0	16	0	0
<i>Atriplex obovata</i>	0	0	5	0	1	3	0	0	1	15	14	20	5	0
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gutierrezia sarothrae</i>	2	0	0	0	0	0	0	0	4	0	0	0	0	0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	4	4	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	13.0	17.0	6.0	5.0	1.0	15.0	2.0	5.0	10.0	19.0	14.0	36.0	5.0	0.0
Density (stems per acre)	526.1	688.0	242.8	202.3	40.5	607.0	80.9	202.3	404.7	768.9	566.6	1,456.9	202.3	0.0
Total Shrubs (stems per 100m2) Without <i>Gutierrezia</i>	11.0	17.0	6.0	5.0	1.0	15.0	2.0	5.0	6.0	19.0	14.0	36.0	5.0	0.0
Density (stems per acre) Without <i>Gutierrezia</i>	445.2	688.0	242.8	202.3	40.5	607.0	80.9	202.3	242.8	768.9	566.6	1,456.9	202.3	0.0

Attachment D-3 Cont'd.

	AW-029	AW-030	AW-031	AW-032	AW-033	AW-034	AW-035	AW-036	AW-037	AW-038	AW-039	AW-040	Average Alkali Wash
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Atriplex canescens</i>	0	0	0	0	0	7	0	0	0	0	0	0	0.2
<i>Atriplex confertifolia</i>	0	2	0	0	20	37	7	8	16	0	0	0	2.7
<i>Atriplex gardneri</i>	0	0	0	0	0	0	0	1	0	0	0	0	3.0
<i>Atriplex obovata</i>	4	22	1	2	19	12	7	0	0	7	15	0	6.2
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	1	0	0	0	0	0.0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Gutierrezia sarothrae</i>	0	0	0	0	0	0	0	23	0	0	0	0	0.7
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	1	0	0	0	0	0.0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	6	0	0.5
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Total Shrubs (stems per 100m2)	4.0	24.0	1.0	2.0	39.0	56.0	14.0	34.0	16.0	7.0	21.0	0.0	13.4
Density (stems per acre)	161.9	971.3	40.5	80.9	1578.3	2266.3	566.6	1,376.0	647.5	283.3	849.9	0.0	540.3
Total Shrubs (stems per 100m2) Without <i>Gutierrezia</i>	4.0	24.0	1.0	2.0	39.0	56.0	14.0	11.0	16.0	7.0	21.0	0.0	12.6
Density (stems per acre) Without <i>Gutierrezia</i>	161.9	971.3	40.5	80.9	1578.3	2266.3	566.6	445.2	647.5	283.3	849.9	0.0	510.9

Attachment D-4. Fall Badlands Shrub Density by Transect

	BA-081	BA-082	BA-083	BA-084	BA-085	BA-086	BA-087	BA-088	BA-089	BA-090	BA-091	BA-091*	BA-092	BA-093	BA-094
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex confertifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex gardneri</i>	0	5	1	0	9	0	0	27	1	6	0	11	9	0	0
<i>Atriplex obovata</i>	18	31	7	7	13	37	7	19	10	0	0	2	18	7	2
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gutierrezia sarothrae</i>	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	18.0	36.0	8.0	7.0	22.0	37.0	7.0	46.0	11.0	6.0	6.0	13.0	27.0	7.0	2.0
Density (stems per acre)	728.5	1,456.9	323.8	283.3	890.3	1,497.4	283.3	1,861.6	445.2	242.8	242.8	526.1	1,092.7	283.3	80.9
Total Shrubs (stems per 100m2)															
Without <i>Gutierrezia</i>	18.0	36.0	8.0	7.0	22.0	37.0	7.0	46.0	11.0	6.0	0.0	13.0	27.0	7.0	2.0
Density (stems per acre)															
Without <i>Gutierrezia</i>	728.5	1,456.9	323.8	283.3	890.3	1,497.4	283.3	1,861.6	445.2	242.8	0.0	526.1	1,092.7	283.3	80.9

Attachment D-4 Cont'd.

	BA-095	BA-096	BA-097	BA-098	BA-098*	BA-099	BA-100	BA-101	BA-101*	BA-102	BA-103	BA-104	BA-105	BA-106	BA-107
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	2	0	0	0	0	0	0	0	0	0	0	0	4	0	0
<i>Atriplex confertifolia</i>	0	0	0	0	0	9	0	0	0	0	0	0	3	0	0
<i>Atriplex gardneri</i>	0	1	0	8	3	0	2	0	4	1	0	0	0	0	0
<i>Atriplex obovata</i>	22	1	4	13	4	9	7	13	1	5	3	0	4	12	2
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gutierrezia sarothrae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	26.0	2.0	4.0	21.0	7.0	21.0	9.0	13.0	5.0	6.0	3.0	0.0	11.0	12.0	2.0
Density (stems per acre)	1,052.2	80.9	161.9	849.9	283.3	849.9	364.2	526.1	202.3	242.8	121.4	0.0	445.2	485.6	80.9
Total Shrubs (stems per 100m2)															
Without <i>Gutierrezia</i>	26.0	2.0	4.0	21.0	7.0	21.0	9.0	13.0	5.0	6.0	3.0	0.0	11.0	12.0	2.0
Density (stems per acre)															
Without <i>Gutierrezia</i>	1,052.2	80.9	161.9	849.9	283.3	849.9	364.2	526.1	202.3	242.8	121.4	0.0	445.2	485.6	80.9

Attachment D-4 Cont'd.

	BA-108	BA-109	BA-110	BA-111	BA-112	BA-113	BA-114	BA-115	BA-116	BA-117	BA-118	BA-119	BA-120	Average Badlands
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Atriplex canescens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
<i>Atriplex confertifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3
<i>Atriplex gardneri</i>	1	6	0	0	0	0	0	0	0	0	1	7	3	2.5
<i>Atriplex obovata</i>	15	25	18	3	11	5	10	3	0	2	16	21	9	9.7
<i>Atriplex saccaria</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Gutierrezia sarothrae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Total Shrubs (stems per 100m2)	17.0	31.0	18.0	3.0	11.0	5.0	10.0	3.0	0.0	2	17	28.0	12.0	12.8
Density (stems per acre)	688.0	1,254.6	728.5	121.4	445.2	202.3	404.7	121.4	0.0	80.9	688.0	1133.1	485.6	519.5
Total Shrubs (stems per 100m2)														
Without <i>Gutierrezia</i>	17.0	31.0	18.0	3.0	11.0	5.0	10.0	3.0	0.0	2.0	17.0	28.0	12.0	12.7
Density (stems per acre)														
Without <i>Gutierrezia</i>	688.0	1,254.6	728.5	121.4	445.2	202.3	404.7	121.4	0.0	80.9	688.0	1133.1	485.6	513.9

Attachment D-5. Fall Dunes Shrub Density by Transect

	DU-121	DU-122	DU-123	DU-124	DU-125	DU-126	DU-127	DU-128	DU-129	DU-130	DU-131	DU-132	DU-133	DU-134
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	1	3	2	3	0	10	2	0	5	2	4	0	1	0
<i>Atriplex confertifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex gardneri</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex obovata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	19	0	0	0	1	0	0	0	0	0	1	0	0	0
<i>Ephedra spp.</i>	0	0	0	0	8	0	0	2	0	1	1	0	0	6
<i>Eriogonum leptocladon</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	4	0	15	1	3	0	2	0	0	0	0	0	0
<i>Gutierrezia sarothrae</i>	0	0	0	0	2	0	0	6	65	2	0	0	36	27
<i>Isochoma tenuisecta</i>	0	4	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	29	0	0	0	0	0	0	0	2	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	9	0	0	0	0	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	20.0	12.0	31.0	18.0	12.0	22.0	2.0	10.0	70.0	5.0	8.0	0.0	37.0	33.0
Density (stems per acre)	809.4	485.6	1,254.6	728.5	485.6	890.3	80.9	404.7	2,832.9	202.3	323.8	0.0	1,497.4	1,335.5
Total Shrubs (stems per 100m2)														
Without <i>Gutierrezia</i>	20.0	12.0	31.0	18.0	10.0	22.0	2.0	4.0	5.0	3.0	8.0	0.0	1.0	6.0
Density (stems per acre)														
Without <i>Gutierrezia</i>	809.4	485.6	1,254.6	728.5	404.7	890.3	80.9	161.9	202.3	121.4	323.8	0.0	40.5	242.8

Attachment D-5 Cont'd.

	DU-135	DU-136	DU-137	DU-138	DU-139	DU-140	DU-141	DU-142	DU-143	DU-144	DU-145	DU-146	DU-147	DU-148
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	0	0	1	1	0	0	6	2	2	3	3	0	0	1
<i>Atriplex confertifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0
<i>Atriplex gardneri</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex obovata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	1	3	0	2	0	1	0	1
<i>Ephedra spp.</i>	4	4	0	0	0	0	0	2	0	13	1	4	2	1
<i>Eriogonum leptocladon</i>	0	7	3	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	14	0	12	0	22	0	0	0	0	0	0	3	5	0
<i>Gutierrezia sarothrae</i>	0	13	0	59	0	0	0	0	0	0	0	1	1	0
<i>Isochoma tenuisecta</i>	0	11	3	0	0	0	0	0	0	0	0	0	5	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	2	3	0	0	0	0	0	0	0	0	0	1	0
Unidentified	0	0	0	0	0	0	0	0	0	0	2	0	0	0
Total Shrubs (stems per 100m2)	18.0	37.0	22.0	60.0	22.0	0.0	7.0	7.0	2.0	18.0	6.0	9.0	15.0	3.0
Density (stems per acre)	728.5	1,497.4	890.3	2,428.2	890.3	0.0	283.3	283.3	80.9	728.5	242.8	364.2	607.0	121.4
Total Shrubs (stems per 100m2)														
Without <i>Gutierrezia</i>	18.0	24.0	22.0	1.0	22.0	0.0	7.0	7.0	2.0	18.0	6.0	8.0	14.0	3.0
Density (stems per acre)														
Without <i>Gutierrezia</i>	728.5	971.3	890.3	40.5	890.3	0.0	283.3	283.3	80.9	728.5	242.8	323.8	566.6	121.4

Attachment D-5 Cont'd.

	DU-149	DU-150	DU-151	DU-152	DU-153	DU-154	DU-155	DU-156	DU-157	DU-158	DU-159	DU-160	Average Dunes
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
<i>Artemisia filifolia</i>	1	0	0	0	0	0	0	0	0	1	0	0.0	0.1
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
<i>Atriplex canescens</i>	1	0	0	0	0	0	0	0	0	2	0	1.0	1.4
<i>Atriplex confertifolia</i>	0	0	3	0	0	0	0	0	0	0	0	0.0	0.1
<i>Atriplex gardneri</i>	0	0	0	0	0	0	0	0	4	0	0	0.0	0.1
<i>Atriplex obovata</i>	0	0	9	0	0	0	0	0	0	0	0	0.0	0.2
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	7	7	1	0	6	0	0.0	1.3
<i>Ephedra spp.</i>	3	17	0	0	6	11	5	3	0	1	8	15.0	3.0
<i>Eriogonum leptoclodon</i>	38	9	0	0	0	13	0	0	0	0	0	0.0	1.8
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	4	0	0	4	0	5	0.0	2.4
<i>Gutierrezia sarothrae</i>	9	0	1	0	15	0	3	0	0	0	0	0.0	6.0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0.0	0.6
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0.0	0.8
<i>Paryella filifolia</i>	1	0	0	0	0	0	0	0	0	0	0	0.0	0.0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	1	0	0	0	0.0	0.0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	0	0.0	0.4
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0.0	0.1
Total Shrubs (stems per 100m2)	53.0	26.0	13.0	0.0	21.0	35.0	15.0	5.0	8.0	10.0	13.0	16.0	18.0
Density (stems per acre)	2,144.9	1,052.2	526.1	0.0	849.9	1,416.4	607.0	202.3	323.8	404.7	526.1	647.5	729.5
Total Shrubs (stems per 100m2)													
Without <i>Gutierrezia</i>	44.0	26.0	12.0	0.0	6.0	35.0	12.0	5.0	8.0	10.0	13.0	16.0	12.0
Density (stems per acre)													
Without <i>Gutierrezia</i>	1,780.7	1,052.2	485.6	0.0	242.8	1,416.4	485.6	202.3	323.8	404.7	526.1	647.5	486.6

Attachment D-6. Fall Reference Arroyo Shrub Shrub Density by Transect

	RAS-041	RAS-042	RAS-043	RAS-044	RAS-045	RAS-046	RAS-047	RAS-049	RAS-050	RAS-051	RAS-052	RAS-053	RAS-054	RAS-055
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	0	6	0	0	0	0	0	0	0	1	0	0	0	0
<i>Atriplex confertifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex gardneri</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex obovata</i>	2	7	7	11	12	2	3	13	27	2	11	1	3	10
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gutierrezia sarothrae</i>	0	2	0	0	16	0	0	0	0	4	0	0	5	0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	3	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	1	0	0	0	0	3	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	2.0	18.0	7.0	11.0	28.0	2.0	3.0	14.0	27.0	7.0	11.0	1.0	11.0	10.0
Density (stems per acre)	80.9	728.5	283.3	445.2	1133.1	80.9	121.4	566.6	1092.7	283.3	445.2	40.5	445.2	404.7
Total Shrubs (stems per 100m2)														
Without Gutierrezia	2.0	16.0	7.0	11.0	12.0	2.0	3.0	14.0	27.0	3.0	11.0	1.0	6.0	10.0
Density (stems per acre)														
Without Gutierrezia	80.9	647.5	283.3	445.2	485.6	80.9	121.4	566.6	1092.7	121.4	445.2	40.5	242.8	404.7

Attachment D-6 Cont'd.

	RAS-056	RAS-057	RAS-058	RAS-059	RAS-060	RAS-061	RAS-062	RAS-063	RAS-064	RAS-065	RAS-066	RAS-067	RAS-068	RAS-069
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	0	0	1	0	0	0	0	3	0	0	0	2	0	0
<i>Atriplex confertifolia</i>	0	0	2	5	0	0	0	0	0	0	0	0	0	0
<i>Atriplex gardneri</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	2
<i>Atriplex obovata</i>	2	14	15	7	0	3	7	5	3	4	15	6	6	5
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gutierrezia sarothrae</i>	14	0	6	2	4	0	0	6	0	0	1	0	0	0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	2	2	0	0	0	9	0	5	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	16.0	14.0	26.0	16.0	4.0	3.0	8.0	23.0	3.0	9.0	16.0	8.0	6.0	7.0
Density (stems per acre)	647.5	566.6	1052.2	647.5	161.9	121.4	323.8	930.8	121.4	364.2	647.5	323.8	242.8	283.3
Total Shrubs (stems per 100m2)														
Without Gutierrezia	2.0	14.0	20.0	14.0	0.0	3.0	8.0	17.0	3.0	9.0	15.0	8.0	6.0	7.0
Density (stems per acre)														
Without Gutierrezia	80.9	566.6	809.4	566.6	0.0	121.4	323.8	688.0	121.4	364.2	607.0	323.8	242.8	283.3

Attachment D-6 Cont'd.

	RAS-070	RAS-071	RAS-072	RAS-073	RAS-074	RAS-075	RAS-076	RAS-077	RAS-078	RAS-079	RAS-080	Average Reference Arroyo Shrub
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Atriplex canescens</i>	0	0	0	0	0	0	0	0	1	0	0	0.4
<i>Atriplex confertifolia</i>	0	0	0	0	0	0	0	0	2	0	0	0.2
<i>Atriplex gardneri</i>	0	2	1	4	0	0	0	0	0	0	0	0.3
<i>Atriplex obovata</i>	12	7	4	45	8	5	20	11	21	7	7	9.0
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Gutierrezia sarothrae</i>	0	0	0	0	0	0	2	0	1	1	0	1.6
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Lycium pallidum</i>	0	0	0	0	1	0	6	0	0	0	0	0.3
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Sarcobatus vermiculatus</i>	0	0	0	11	0	0	0	0	0	1	0	0.9
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0.0
Total Shrubs (stems per 100m2)	12.0	9.0	5.0	60.0	9.0	5.0	28.0	11.0	25.0	9.0	7.0	12.6
Density (stems per acre)	485.6	364.2	202.3	2428.2	364.2	202.3	1133.1	445.2	1011.7	364.2	283.3	509.5
Total Shrubs (stems per 100m2)												
Without Gutierrezia	12.0	9.0	5.0	60.0	9.0	5.0	26.0	11.0	24.0	8.0	7.0	10.9
Density (stems per acre)												
Without Gutierrezia	485.6	364.2	202.3	2428.2	364.2	202.3	1052.2	445.2	971.3	323.8	283.3	443.1

Attachment D-7. Fall Reference Alkali Wash Shrub Density by Transect

	RAW-001	RAW-002	RAW-003	RAW-004	RAW-005	RAW-006	RAW-007	RAW-008	RAW-009	RAW-010	RAW-011	RAW-012	RAW-013	RAW-014
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	0	0	6	2	0	0	0	0	0	0	0	0	0	0
<i>Atriplex confertifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex gardneri</i>	0	2	0	0	0	0	1	0	0	0	0	0	0	6
<i>Atriplex obovata</i>	0	16	25	0	7	0	6	3	3	41	1	19	36	11
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gutierrezia sarothrae</i>	0	0	1	4	0	0	0	0	0	0	0	0	0	0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	0.0	18.0	32.0	7.0	7.0	0.0	7.0	3.0	3.0	41.0	1.0	19.0	36.0	17.0
Density (stems per acre)	0.0	728.5	1,295.0	283.3	283.3	0.0	283.3	121.4	121.4	1,659.2	40.5	768.9	1,456.9	688.0
Total Shrubs (stems per 100m2) Without <i>Gutierrezia</i>	0.0	18.0	31.0	3.0	7.0	0.0	7.0	3.0	3.0	41.0	1.0	19.0	36.0	17.0
Density (stems per acre) Without <i>Gutierrezia</i>	0.0	728.5	1,254.6	121.4	283.3	0.0	283.3	121.4	121.4	1,659.2	40.5	768.9	1,456.9	688.0

Attachment D-7 Cont'd.

	RAW-015	RAW-016	RAW-017	RAW-018	RAW-019	RAW-020	RAW-021	RAW-022	RAW-023	RAW-024	RAW-025	RAW-026	RAW-027	RAW-028
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	2
<i>Atriplex confertifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex gardneri</i>	0	0	24	0	1	0	15	2	0	0	0	0	0	0
<i>Atriplex obovata</i>	44	4	7	2	35	20	9	5	6	47	0	17	11	13
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gutierrezia sarothrae</i>	0	0	0	0	23	0	0	1	0	0	3	0	0	0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	7	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	44.0	4.0	31.0	2.0	59.0	20.0	24.0	8.0	6.0	47.0	11.0	17.0	11.0	15.0
Density (stems per acre)	1,780.7	161.9	1,254.6	80.9	2,387.7	809.4	971.3	323.8	242.8	1,902.1	445.2	688.0	445.2	607.0
Total Shrubs (stems per 100m2)														
Without <i>Gutierrezia</i>	44.0	4.0	31.0	2.0	36.0	20.0	24.0	7.0	6.0	47.0	8.0	17.0	11.0	15.0
Density (stems per acre)														
Without <i>Gutierrezia</i>	1,780.7	161.9	1,254.6	80.9	1,456.9	809.4	971.3	283.3	242.8	1,902.1	323.8	688.0	445.2	607.0

Attachment D-7 Cont'd.

	RAW-029	RAW-030	RAW-031	RAW-032	RAW-033	RAW-034	RAW-035	RAW-036	RAW-037	RAW-038	RAW-039	RAW-040	Reference Alkali Wash Average
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Atriplex canescens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.3
<i>Atriplex confertifolia</i>	16	0	0	0	0	0	8	0	0	0	1	0	0.6
<i>Atriplex gardneri</i>	0	0	14	0	0	4	0	0	2	9	0	1	2.0
<i>Atriplex obovata</i>	45	15	4	8	12	7	4	21	3	7	25	21	14.0
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Gutierrezia sarothrae</i>	0	0	0	0	0	0	42	0	0	0	0	0	1.9
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Sarcobatus vermiculatus</i>	5	0	0	0	0	0	0	0	0	0	0	0	0.3
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Total Shrubs (stems per 100m2)	66.0	15.0	18.0	8.0	12.0	11.0	54.0	21.0	5.0	16.0	26.0	22.0	19.1
Density (stems per acre)	2,671.0	607.0	728.5	323.8	485.6	445.2	2,185.4	849.9	202.3	647.5	1,052.2	890.3	773.0
Total Shrubs (stems per 100m2) Without <i>Gutierrezia</i>	66.0	15.0	18.0	8.0	12.0	11.0	12.0	21.0	5.0	16.0	26.0	22.0	17.3
Density (stems per acre) Without <i>Gutierrezia</i>	2,671.0	607.0	728.5	323.8	485.6	445.2	485.6	849.9	202.3	647.5	1,052.2	890.3	698.1

Attachment D-8. Fall Reference Sands Shrub Density by Transect

	RSA-081	RSA-082	RSA-083	RSA-084	RSA-085	RSA-086	RSA-087	RSA-088	RSA-089	RSA-090	RSA-091	RSA-092	RSA-093	RSA-095
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	0	0	0	0	1	0	0	0	0	0	2	1	0	0
<i>Atriplex confertifolia</i>	1	15	3	0	0	1	11	10	0	8	2	4	0	15
<i>Atriplex gardneri</i>	0	0	0	0	0	0	10	0	0	0	0	0	0	3
<i>Atriplex obovata</i>	7	0	0	0	0	0	2	1	10	6	0	0	1	2
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	1	0	0	0	0	0	0	0	3	2	0	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gutierrezia sarothrae</i>	0	97	151	0	73	21	0	90	0	2	134	104	3	17
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	8.0	112.0	155.0	0.0	74.0	22.0	23.0	101.0	10.0	16.0	141.0	111.0	4.0	37.0
Density (stems per acre)	323.8	4,532.6	6,272.8	0.0	2,994.7	890.3	930.8	4,087.4	404.7	647.5	5,706.2	4,492.1	161.9	1,497.4
Total Shrubs (stems per 100m2)														
Without <i>Gutierrezia</i>	8.0	15.0	4.0	0.0	1.0	1.0	23.0	11.0	10.0	14.0	7.0	7.0	1.0	20.0
Density (stems per acre)														
Without <i>Gutierrezia</i>	323.8	607.0	161.9	0.0	40.5	40.5	930.8	445.2	404.7	566.6	283.3	283.3	40.5	809.4

Attachment D-8 Cont'd.

	RSA-096	RSA-097	RSA-098	RSA-099	RSA-100	RSA-101	RSA-102	RSA-103	RSA-104	RSA-105	RSA-106	RSA-107	RSA-108	RSA-109
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex confertifolia</i>	7	8	0	1	31	0	8	11	0	3	0	0	6	0
<i>Atriplex gardneri</i>	0	0	0	0	0	0	6	0	0	0	1	0	0	0
<i>Atriplex obovata</i>	0	0	5	6	0	19	2	0	0	1	3	9	0	0
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	0	0	1	0	0	3	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gutierrezia sarothrae</i>	155	40	2	134	12	1	28	138	0	41	1	0	51	36
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	162.0	48.0	7.0	141.0	43.0	20.0	44.0	149.0	0.0	46.0	5.0	9.0	60.0	36.0
Density (stems per acre)	6,556.1	1,942.5	283.3	5,706.2	1,740.2	809.4	1,780.7	6,029.9	0.0	1,861.6	202.3	364.2	2,428.2	1,456.9
Total Shrubs (stems per 100m2)														
Without <i>Gutierrezia</i>	7.0	8.0	5.0	7.0	31.0	19.0	16.0	11.0	0.0	5.0	4.0	9.0	9.0	0.0
Density (stems per acre)														
Without <i>Gutierrezia</i>	283.3	323.8	202.3	283.3	1,254.6	768.9	647.5	445.2	0.0	202.3	161.9	364.2	364.2	0.0

Attachment D-8 Cont'd.

	RSA-110	RSA-111	RSA-112	RSA-113	RSA-114	RSA-115	RSA-116	RSA-117	RSA-118	RSA-119	RSA-120	Average Reference Sands
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Atriplex canescens</i>	1	0	0	0	0	0	0	0	4	0	0	0.2
<i>Atriplex confertifolia</i>	4	10	0	10	0	4	4	0	0	0	11	4.8
<i>Atriplex gardneri</i>	0	0	0	0	0	0	0	0	1	0	0	0.5
<i>Atriplex obovata</i>	0	0	38	0	4	0	2	15	7	11	0	3.9
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Ephedra spp.</i>	2	0	0	6	0	0	0	0	0	0	1	0.5
<i>Eriogonum leptoclodon</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Gutierrezia sarothrae</i>	73	103	0	175	0	20	0	0	0	0	165	47.9
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	0	0.0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0.0
Total Shrubs (stems per 100m2)	80.0	113.0	38.0	191.0	4.0	24.0	6.0	15.0	12.0	11.0	177.0	57.8
Density (stems per acre)	3237.6	4,573.0	1,537.8	7,729.7	161.9	971.3	242.8	607.0	485.6	445.2	7,163.1	2,340.0
Total Shrubs (stems per 100m2) Without <i>Gutierrezia</i>	7.0	10.0	38.0	16.0	4.0	4.0	6.0	15.0	12.0	11.0	12.0	9.9
Density (stems per acre) Without <i>Gutierrezia</i>	283.3	404.7	1,537.8	647.5	161.9	161.9	242.8	607.0	485.6	445.2	485.6	402.6

Attachment D-9. Fall Sands Shrub Density by Transect

	SA-161	SA-162	SA-163	SA-164	SA-165	SA-166	SA-167	SA-168	SA-169	SA-170	SA-171	SA-172	SA-173	SA-174
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	0	0	0	0	0	3	0	0	0	1	12	0	0	0
<i>Atriplex confertifolia</i>	8	12	15	30	3	0	12	11	20	17	0	8	4	3
<i>Atriplex gardneri</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex obovata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	16	0	0	0
<i>Gutierrezia sarothrae</i>	4	0	0	31	0	0	46	69	10	2	12	0	0	0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	4
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	12.0	12.0	15.0	61.0	3.0	3.0	58.0	80.0	30.0	20.0	41.0	8.0	4.0	7.0
Density (stems per acre)	485.6	485.6	607.0	2,468.6	121.4	121.4	2,347.2	3,237.6	1,214.1	809.4	1,659.2	323.8	161.9	283.3
Total Shrubs (stems per 100m2)														
Without <i>Gutierrezia</i>	8.0	12.0	15.0	30.0	3.0	3.0	12.0	11.0	20.0	18.0	29.0	8.0	4.0	7.0
Density (stems per acre)														
Without <i>Gutierrezia</i>	323.8	485.6	607.0	1,214.1	121.4	121.4	485.6	445.2	809.4	728.5	1,173.6	323.8	161.9	283.3

Attachment D-9 Cont'd.

	SA-175	SA-176	SA-177	SA-178	SA-179	SA-180	SA-181	SA-182	SA-183	SA-184	SA-185	SA-186	SA-187	SA-188
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	1	0	0	1	0	0	0	0	0	0	0	1	0	0
<i>Atriplex confertifolia</i>	0	13	3	3	19	13	0	14	9	13	31	0	0	0
<i>Atriplex gardneri</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex obovata</i>	0	0	0	12	0	0	1	0	0	1	0	0	0	1
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	1	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gutierrezia sarothrae</i>	0	4	15	1	10	0	0	0	13	4	56	1	7	11
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	4	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	1.0	17.0	19.0	17.0	29.0	13.0	5.0	14.0	22.0	18.0	87.0	2.0	7.0	12.0
Density (stems per acre)	40.5	688.0	768.9	688.0	1,173.6	526.1	202.3	566.6	890.3	728.5	3,520.8	80.9	283.3	485.6
Total Shrubs (stems per 100m2)														
Without <i>Gutierrezia</i>	1.0	13.0	4.0	16.0	19.0	13.0	5.0	14.0	9.0	14.0	31.0	1.0	0.0	1.0
Density (stems per acre)														
Without <i>Gutierrezia</i>	40.5	526.1	161.9	647.5	768.9	526.1	202.3	566.6	364.2	566.6	1254.6	40.5	0.0	40.5

Attachment D-9 Cont'd.

	SA-189	SA-190	SA-191	SA-192	SA-193	SA-194	SA-195	SA-196	SA-197	SA-198	SA-199	SA-200	Average Sands
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Atriplex canescens</i>	0	0	0	1	0	0	0	0	0	3	0	0	0.6
<i>Atriplex confertifolia</i>	30	5	20	0	17	3	25	21	5	0	13	0	10.0
<i>Atriplex gardneri</i>	0	0	0	0	0	0	0	0	3	0	0	0	0.1
<i>Atriplex obovata</i>	0	2	0	0	0	0	0	0	0	0	0	5	0.6
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Ephedra spp.</i>	0	0	0	1	0	0	0	0	0	0	0	2	0.1
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	3	0.1
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.4
<i>Gutierrezia sarothrae</i>	100	3	45	22	0	24	71	8	0	1	30	15	15.4
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.1
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.1
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Total Shrubs (stems per 100m2)	130.0	10.0	65.0	24.0	17.0	27.0	96.0	29.0	8.0	4.0	43.0	25.0	27.4
Density (stems per acre)	5,261.0	404.7	2,630.5	971.3	688.0	1,092.7	3,885.1	1,173.6	323.8	161.9	1,740.2	1,011.7	1,107.9
Total Shrubs (stems per 100m2)													
Without <i>Gutierrezia</i>	30.0	7.0	20.0	2.0	17.0	3.0	25.0	21.0	8.0	3.0	13.0	10.0	12.0
Density (stems per acre)													
Without <i>Gutierrezia</i>	1,214.1	283.3	809.4	80.9	688.0	121.4	1,011.7	849.9	323.8	121.4	526.1	404.7	485.6

Attachment D-10. Fall Thin Breaks Shrub Density by Transect

	TB-201	TB-201*	TB-202	TB-203	TB-204	TB-205	TB-206	TB-207	TB-208	TB-209	TB-210	TB-211	TB-212	TB-213
<i>Aremisia bigelovii</i>	0	20	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	0	0	0	0	0	0	0	0	0	0	0	8	0	0
<i>Atriplex confertifolia</i>	3	17	6	22	0	0	0	2	20	9	0	0	4	0
<i>Atriplex gardneri</i>	0	0	0	0	4	0	1	1	0	0	4	0	0	0
<i>Atriplex obovata</i>	9	0	0	10	6	0	0	0	0	0	1	1	0	0
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gutierrezia sarothrae</i>	1	12	0	3	0	0	0	0	0	0	0	0	8	0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	1	3	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	13.0	51.0	6.0	35.0	10.0	0.0	1.0	3.0	21.0	12.0	5.0	9.0	12.0	0.0
Density (stems per acre)	526.1	2,063.9	242.8	1,416.4	404.7	0.0	40.5	121.4	849.9	485.6	202.3	364.2	485.6	0.0
Total Shrubs (stems per 100m2)														
Without <i>Gutierrezia</i>	12.0	39.0	6.0	32.0	10.0	0.0	1.0	3.0	21.0	12.0	5.0	9.0	4.0	0.0
Density (stems per acre)														
Without <i>Gutierrezia</i>	485.6	1,578.3	242.8	1,295.0	404.7	0.0	40.5	121.4	849.9	485.6	202.3	364.2	161.9	0.0

Attachment D-10 Cont'd.

	TB-214	TB-215	TB-216	TB-217	TB-218	TB-219	TB-220	TB-221	TB-222	TB-223	TB-224	TB-225	TB-226	TB-227
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atriplex canescens</i>	0	0	0	0	0	0	2	3	0	0	16	0	0	0
<i>Atriplex confertifolia</i>	11	0	6	2	0	0	2	6	5	12	2	1	2	8
<i>Atriplex gardneri</i>	1	0	0	0	0	1	0	0	0	0	0	6	1	0
<i>Atriplex obovata</i>	5	4	0	0	0	0	0	5	0	0	0	2	3	4
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ephedra spp.</i>	0	0	0	3	0	0	0	0	0	0	0	0	0	0
<i>Eriogonum leptocladon</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gutierrezia sarothrae</i>	0	0	0	2	0	0	0	0	70	0	0	0	0	0
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sarcobatus vermiculatus</i>	0	2	2	0	0	0	0	0	0	0	0	0	0	0
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Shrubs (stems per 100m2)	17.0	6.0	8.0	8.0	0.0	1.0	4.0	14.0	75.0	12.0	18.0	9.0	6.0	12.0
Density (stems per acre)	688.0	242.8	323.8	323.8	0.0	40.5	161.9	566.6	3,035.2	485.6	728.5	364.2	242.8	485.6
Total Shrubs (stems per 100m2)														
Without <i>Gutierrezia</i>	17.0	6.0	8.0	6.0	0.0	1.0	4.0	14.0	5.0	12.0	18.0	9.0	6.0	12.0
Density (stems per acre)														
Without <i>Gutierrezia</i>	688.0	242.8	323.8	242.8	0.0	40.5	161.9	566.6	202.3	485.6	728.5	364.2	242.8	485.6

Attachment D-10 Cont'd.

	TB-228	TB-229	TB-230	TB-231	TB-232	TB-233	TB-234	TB-235	TB-236	TB-237	TB-238	TB-239	TB-240	Average Thin Breaks
<i>Aremisia bigelovii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5
<i>Artemisia filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Aremisia tridentata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Atriplex canescens</i>	0	5	0	0	0	0	0	0	0	0	0	0	0	0.8
<i>Atriplex confertifolia</i>	12	2	3	7	4	0	0	6	7	4	0	0	5	4.6
<i>Atriplex gardneri</i>	0	0	0	5	0	9	0	0	1	0	0	0	3	0.9
<i>Atriplex obovata</i>	7	0	9	0	0	2	0	0	0	3	25	11	6	2.8
<i>Atriplex saccaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Chrysothamnus viscidiflorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Ephedra spp.</i>	0	0	0	0	3	0	0	0	1	0	0	0	0	0.2
<i>Eriogonum leptocladon</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Ericameria [Chrysothamnus] nauseosus</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0.0
<i>Gutierrezia sarothrae</i>	2	0	1	0	5	0	0	0	0	0	0	0	0	2.5
<i>Isochoma tenuisecta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Krascheninnikovia lanata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
<i>Lycium pallidum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Paryella filifolia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Poliomintha incana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Sarcobatus vermiculatus</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0.1
Unidentified	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Total Shrubs (stems per 100m2)	21.0	7.0	13.0	12.0	13.0	11.0	0.0	6.0	9.0	7.0	26.0	11.0	14.0	12.6
Density (stems per acre)	849.9	283.3	526.1	485.6	526.1	445.2	0.0	242.8	364.2	283.3	1,052.2	445.2	566.6	511.3
Total Shrubs (stems per 100m2)														
Without Gutierrezia	19.0	7.0	12.0	12.0	8.0	11.0	0.0	6.0	9.0	7.0	26.0	11.0	14.0	10.1
Density (stems per acre)														
Without Gutierrezia	768.9	283.3	485.6	485.6	323.8	445.2	0.0	242.8	364.2	283.3	1,052.2	445.2	566.6	408.6

ATTACHMENT E
CONSTANCY DATA

**Attachment E. Constancy Data
Table of Contents**

E-1	Fall	Summary of Arroyo Shrub Constancy Species
E-2	Fall	Summary of Alkali Wash Constancy Species
E-3	Fall	Summary of Badlands Constancy Species
E-4	Fall	Summary of Dunes Constancy Species
E-5	Fall	Summary of Reference Arroyo Shrub Constancy Species
E-6	Fall	Summary of Reference Alkali Wash Constancy Species
E-7	Fall	Summary of Reference Sands Constancy Species
E-8	Fall	Summary of Sands Constancy Species
E-9	Fall	Summary of Thin Breaks Constancy Species
E-10	Spring	Summary of Arroyo Shrub Constancy Species
E-11	Spring	Summary of Alkali Wash Constancy Species
E-12	Spring	Summary of Badlands Constancy Species
E-13	Spring	Summary of Dunes Constancy Species
E-14	Spring	Summary of Sands Constancy Species
E-15	Spring	Summary of Thin Breaks Constancy Species

Attachment E-1. Fall Summary of Arroyo Shrub Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Ambrosia acanthicarpa</i>	1	2.5%
	<i>Atriplex powellii</i>	10	25.0%
	<i>Cordylanthus wrightii</i>	10	25.0%
	<i>Cryptantha</i>	1	2.5%
	<i>Cryptantha crassisepala</i>	26	65.0%
	<i>Descurainia pinnata</i>	35	87.5%
	<i>Descurainia sophia</i>	1	2.5%
	<i>Dimorphocarpa wislizenii</i>	4	10.0%
	<i>Erigeron bellidiastrum</i>	1	2.5%
	<i>Eriogonum divaricatum</i>	1	2.5%
	<i>Eriogonum gordonii</i>	2	5.0%
	<i>Halogeton glomeratus</i>	7	17.5%
	<i>Ipomopsis pumila</i>	2	5.0%
	<i>Lappula occidentalis</i>	6	15.0%
	<i>Linum puberulum</i>	3	7.5%
	<i>Machaeranthera canescens</i>	13	32.5%
	<i>Malacothrix sonchoides</i>	3	7.5%
	<i>Mentzelia albicaulis</i>	8	20.0%
	<i>Pectis cylindrica</i>	1	2.5%
	<i>Phacelia crenulata</i>	1	2.5%
	<i>Plantago patagonica</i>	7	17.5%
	<i>Portulaca oleracea</i>	1	2.5%
	<i>Salsola tragus</i>	37	92.5%
	<i>Streptanthella longirostris</i>	7	17.5%
	<i>Townsendia annua</i>	9	22.5%
	Unknown	3	7.5%
	Annual Grasses	<i>Bouteloua barbata</i>	3
<i>Bromus tectorum</i>		12	30.0%
<i>Eragrostis cilianensis</i>		2	5.0%
<i>Hordeum pusillum</i>		2	5.0%
<i>Monroa squarrosa</i>		4	10.0%
<i>Vulpia octoflora</i>		12	30.0%
Forbs	<i>Astragalus spp.</i>	1	2.5%
	<i>Chenopodium spp.</i>	4	10.0%
	<i>Penstemon spp.</i>	1	2.5%
Perennial Forbs	<i>Abronia fragrans</i>	1	2.5%
	<i>Allium spp.</i>	1	2.5%
	<i>Artemisia ludoviciana</i>	1	2.5%
	<i>Chamaesaracha coronopus</i>	1	2.5%
	<i>Chamaesyce fendleri</i>	3	7.5%

Attachment E-1 Cont'd.

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
	<i>Dalea spp.</i>	1	2.5%
	<i>Grindelia squarrosa</i>	2	5.0%
	<i>Lygodesmia grandiflora</i>	1	2.5%
	<i>Mentzelia pumila</i>	4	10.0%
	<i>Oenothera pallida</i>	1	2.5%
	<i>Oenothera spp.</i>	5	12.5%
	<i>Sphaeralcea coccinea</i>	2	5.0%
	<i>Sphaeralcea parvifolia</i>	12	30.0%
	<i>Stephanomeria exigua</i>	5	12.5%
	<i>Unknown</i>	1	2.5%
	<i>Verbena bracteata</i>	2	5.0%
Perennial Grasses	<i>Achnatherum hymenoides</i>	15	37.5%
	<i>Agropyron cristatum</i>	2	5.0%
	<i>Aristida purpurea</i>	2	5.0%
	<i>Elymus elymoides</i>	2	5.0%
	<i>Muhlenbergia pungens</i>	1	2.5%
	<i>Pascopyrum smithii</i>	1	2.5%
	<i>Pleuraphis jamesii</i>	16	40.0%
	<i>Sporobolus airoides</i>	28	70.0%
	<i>Sporobolus contractus</i>	2	5.0%
	<i>Sporobolus cryptandrus</i>	7	17.5%
	<i>Sporobolus flexuosus</i>	1	2.5%
	<i>Sporobolus giganteus</i>	4	10.0%
	<i>Unknown</i>	1	2.5%
Perennial Succulents	<i>Opuntia polyacantha</i>	12	30.0%
	<i>Unknown</i>	1	2.5%
Shrubs	<i>Artemisia dracunculus</i>	1	2.5%
	<i>Artemisia filifolia</i>	1	2.5%
	<i>Artemisia tridentata</i>	1	2.5%
	<i>Atriplex canescens</i>	27	67.5%
	<i>Atriplex confertifolia</i>	2	5.0%
	<i>Atriplex obovata</i>	11	27.5%
	<i>Ephedra spp.</i>	4	10.0%
	<i>Ericameria [Chrysothamnus] nauseosus</i>	16	40.0%
	<i>Eriogonum leptocladon</i>	4	10.0%
	<i>Gutierrezia sarothrae</i>	20	50.0%
	<i>Isocoma tenuisecta</i>	1	2.5%
	<i>Lycium pallidum</i>	3	7.5%
	<i>Parryella filifolia</i>	3	7.5%
	<i>Sarcobatus vermiculatus</i>	23	57.5%
Unidentified	<i>Unknown</i>	8	20.0%

Attachment E-10. Spring Summary of Arroyo Shrub Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy	
Annual Forbs	<i>Ambrosia acanthicarpa</i>	3	9.1%	
	<i>Atriplex powellii</i>	13	39.4%	
	<i>Chaenactis stevioides</i>	9	27.3%	
	<i>Chenopodium incanum</i>	4	12.1%	
	<i>Cleome lutea</i>	2	6.1%	
	<i>Cryptantha crassisepala</i>	19	57.6%	
	<i>Descurainia pinnata</i>	30	90.9%	
	<i>Descurainia sophia</i>	4	12.1%	
	<i>Dimorphocarpa wislizeni</i>	4	12.1%	
	<i>Erigeron bellidiastrum</i>	2	6.1%	
	<i>Eriogonum gordonii</i>	19	57.6%	
	<i>Gilia leptomeria</i>	2	6.1%	
	<i>Halogeton glomeratus</i>	18	54.5%	
	<i>Ipomopsis pumila</i>	16	48.5%	
	<i>Lappula occidentalis</i>	20	60.6%	
	<i>Linum puberulum</i>	1	3.0%	
	<i>Lupinus pusillus</i>	2	6.1%	
	<i>Machaeranthera canescens</i>	6	18.2%	
	<i>Malacothrix sonchoides</i>	3	9.1%	
	<i>Mentzelia albicaulis</i>	6	18.2%	
	<i>Monolepis nuttalliana</i>	5	15.2%	
	<i>Phacelia crenulata</i>	27	81.8%	
	<i>Plantago patagonica</i>	21	63.6%	
	<i>Salsola tragus</i>	30	90.9%	
	<i>Stenogonum salsuginosum</i>	7	21.2%	
	<i>Streptanthella longirostris</i>	7	21.2%	
	<i>Townsendia annua</i>	21	63.6%	
	<i>Tragopogon dubius</i>	6	18.2%	
	Annual Grasses	<i>Bromus rubens</i>	4	12.1%
		<i>Bromus tectorum</i>	12	36.4%
		<i>Eremopyrum triticeum</i>	5	15.2%
		<i>Hordeum pusillum</i>	1	3.0%
		<i>Vulpia octoflora</i>	10	30.3%
Forbs	<i>Chenopodium sp.</i>	1	3.0%	
	<i>Streptanthus cordatus</i>	1	3.0%	
Perennial Forbs	<i>Abronia fragrans</i>	5	15.2%	
	<i>Allium sp.</i>	2	6.1%	
	<i>Chamaesaracha coronopus</i>	3	9.1%	
	<i>Cymopterus acaulis</i>	1	3.0%	
	<i>Cymopterus bulbosus</i>	2	6.1%	
	<i>Eriogonum jamesii</i>	2	6.1%	
	<i>Gaillardia pinnatifida</i>	3	9.1%	
	<i>Lygodesmia grandiflora</i>	1	3.0%	
	<i>Machaeranthera gracilis</i>	1	3.0%	
	<i>Mentzelia pumila</i>	10	30.3%	

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Ambrosia acanthicarpa</i>	3	9.1%
	<i>Oenothera albicaulis</i>	1	3.0%
	<i>Oenothera pallida</i>	3	9.1%
	<i>Platyschuhria integrifolia</i>	1	3.0%
	<i>Sphaeralcea coccinea</i>	11	33.3%
	<i>Sphaeralcea parvifolia</i>	5	15.2%
	<i>Spirodela polyrrhiza</i>	1	3.0%
	<i>Stephanomeria exigua</i>	11	33.3%
	<i>Suaeda moquinii</i>	4	12.1%
	<i>Townsendia incana</i>	5	15.2%
Perennial Grasses	<i>Achnatherum hymenoides</i>	11	33.3%
	<i>Aristida purpurea</i>	2	6.1%
	<i>Elymus elymoides</i>	4	12.1%
	<i>Hordeum jubatum</i>	4	12.1%
	<i>Pascopyrum smithii</i>	1	3.0%
	<i>Pleuraphis jamesii</i>	18	54.5%
	<i>Sporobolus airoides</i>	26	78.8%
	<i>Sporobolus contractus</i>	2	6.1%
	<i>Sporobolus cryptandrus</i>	4	12.1%
	<i>Sporobolus giganteus</i>	1	3.0%
Shrubs	<i>Artemisia filifolia</i>	1	3.0%
	<i>Atriplex canescens</i>	4	12.1%
	<i>Atriplex confertifolia</i>	9	27.3%
	<i>Atriplex gardneri</i>	6	18.2%
	<i>Atriplex obovata</i>	28	84.8%
	<i>Atriplex saccaria</i>	4	12.1%
	<i>Ericameria [Chrysothamnus] nauseosus</i>	3	9.1%
	<i>Eriogonum leptocladon</i>	1	3.0%
	<i>Gutierrezia sarothrae</i>	4	12.1%
	<i>Sarcobatus vermiculatus</i>	5	15.2%
Succulent	<i>Opuntia polyacantha</i>	9	27.3%
Unknown	unknown	1	3.0%
Alkali Wash Number of Species		76	

Attachment E-11. Spring Summary of Alkali Wash Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Ambrosia acanthicarpa</i>	7	29.2%
	<i>Atriplex powellii</i>	11	45.8%
	<i>Chaenactis stevioides</i>	6	25.0%
	<i>Chenopodium incanum</i>	8	33.3%
	<i>Cleome lutea</i>	4	16.7%
	<i>Cordylanthus wrightii</i>	8	33.3%
	<i>Cryptantha crassisepala</i>	16	66.7%
	<i>Dalea leporina</i>	2	8.3%
	<i>Descurainia pinnata</i>	20	83.3%
	<i>Descurainia sophia</i>	3	12.5%
	<i>Dimorphocarpa wislizeni</i>	7	29.2%
	<i>Erigeron bellidiastrum</i>	6	25.0%
	<i>Eriogonum divaricatum</i>	1	4.2%
	<i>Eriogonum gordonii</i>	2	8.3%
	<i>Erodium cicutarium</i>	3	12.5%
	<i>Gilia leptomeria</i>	7	29.2%
	<i>Halogeton glomeratus</i>	2	8.3%
	<i>Ipomopsis longiflora</i>	2	8.3%
	<i>Ipomopsis pumila</i>	9	37.5%
	<i>Lappula occidentalis</i>	7	29.2%
	<i>Lupinus pusillus</i>	3	12.5%
	<i>Machaeranthera canescens</i>	9	37.5%
	<i>Malacothrix sonchoides</i>	4	16.7%
	<i>Mentzelia albicaulis</i>	6	25.0%
	<i>Nama hispidum</i>	1	4.2%
	<i>Phacelia crenulata</i>	11	45.8%
	<i>Plantago patagonica</i>	10	41.7%
	<i>Salsola tragus</i>	16	66.7%
	<i>Stenogonum salsuginosum</i>	9	37.5%
	<i>Streptanthella longirostris</i>	8	33.3%
	<i>Townsendia annua</i>	14	58.3%
	<i>Tragopogon dubius</i>	8	33.3%
	Annual Grasses	<i>Bromus tectorum</i>	13
<i>Eremopyrum triticeum</i>		5	20.8%
<i>Hordeum pusillum</i>		3	12.5%
<i>Vulpia octoflora</i>		9	37.5%
Forbs	<i>Amaranthus sp.</i>	1	4.2%
	<i>Chenopodium sp.</i>	2	8.3%
	<i>Cymopterus sp.</i>	1	4.2%
Perennial Forbs	<i>Abronia fragrans</i>	7	29.2%
	<i>Artemisia dracunculus</i>	5	20.8%
	<i>Astragalus mollissimus</i>	3	12.5%
	<i>Astragalus sp.</i>	1	4.2%
	<i>Chamaesaracha coronopus</i>	2	8.3%

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy	
Annual Forbs	<i>Ambrosia acanthicarpa</i>	7	29.2%	
	<i>Chamaesyce fendleri</i>	1	4.2%	
	<i>Cymopterus bulbosus</i>	1	4.2%	
	<i>Grindelia squarrosa</i>	4	16.7%	
	<i>Linum aristatum</i>	1	4.2%	
	<i>Mentzelia pumila</i>	5	20.8%	
	<i>Oenothera albicaulis</i>	1	4.2%	
	<i>Oenothera pallida</i>	8	33.3%	
	<i>Psoralidium lanceolatum</i>	1	4.2%	
	<i>Senecio flaccidus</i>	1	4.2%	
	<i>Senecio spartoides</i>	1	4.2%	
	<i>Sphaeralcea coccinea</i>	5	20.8%	
	<i>Sphaeralcea parvifolia</i>	9	37.5%	
	<i>Spirodela polyrrhiza</i>	1	4.2%	
	<i>Stephanomeria exigua</i>	9	37.5%	
	<i>Suaeda moquinii</i>	2	8.3%	
	<i>Townsendia incana</i>	2	8.3%	
	<i>Verbena bracteata</i>	2	8.3%	
	Perennial Grasses	<i>Achnatherum hymenoides</i>	10	41.7%
		<i>Agropyron cristatum</i>	3	12.5%
<i>Aristida purpurea</i>		1	4.2%	
<i>Bouteloua gracilis</i>		4	16.7%	
<i>Elymus elymoides</i>		5	20.8%	
<i>Hordeum jubatum</i>		1	4.2%	
<i>Pleuraphis jamesii</i>		13	54.2%	
<i>Sporobolus airoides</i>		17	70.8%	
<i>Sporobolus contractus</i>		3	12.5%	
<i>Sporobolus cryptandrus</i>		3	12.5%	
<i>Sporobolus giganteus</i>		5	20.8%	
Shrubs		<i>Atriplex canescens</i>	14	58.3%
		<i>Atriplex confertifolia</i>	4	16.7%
	<i>Atriplex obovata</i>	11	45.8%	
	<i>Atriplex saccaria</i>	1	4.2%	
	<i>Brickellia microphylla</i>	1	4.2%	
	<i>Ericameria [Chrysothamnus] nauseosus</i>	3	12.5%	
	<i>Eriogonum leptocladon</i>	1	4.2%	
	<i>Gutierrezia sarothrae</i>	10	41.7%	
	<i>Lycium pallidum</i>	1	4.2%	
	<i>Sarcobatus vermiculatus</i>	11	45.8%	
	<i>Senna sp.</i>	9	37.5%	
Succulent	<i>Opuntia polyacantha</i>	2	8.3%	
Unknown	unknown	1	4.2%	
Arroyo Shrub Number of Species		85		

Attachment E-12. Spring Summary of Badlands Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Ambrosia acanthicarpa</i>	2	15.4%
	<i>Atriplex powellii</i>	12	92.3%
	<i>Chaenactis stevioides</i>	2	15.4%
	<i>Cryptantha crassisepala</i>	6	46.2%
	<i>Descurainia pinnata</i>	6	46.2%
	<i>Descurainia sophia</i>	1	7.7%
	<i>Eriogonum gordonii</i>	8	61.5%
	<i>Erodium cicutarium</i>	1	7.7%
	<i>Halogeton glomeratus</i>	6	46.2%
	<i>Ipomopsis pumila</i>	4	30.8%
	<i>Lappula occidentalis</i>	8	61.5%
	<i>Machaeranthera canescens</i>	3	23.1%
	<i>Malacothrix sonchoides</i>	1	7.7%
	<i>Mentzelia albicaulis</i>	1	7.7%
	<i>Phacelia crenulata</i>	7	53.8%
	<i>Plantago patagonica</i>	8	61.5%
	<i>Salsola tragus</i>	6	46.2%
	<i>Stenogonum salsuginosum</i>	8	61.5%
	<i>Streptanthella longirostris</i>	3	23.1%
	Annual Forbs	<i>Townsendia annua</i>	10
<i>Tragopogon dubius</i>		1	7.7%
Annual Grasses	<i>Bromus tectorum</i>	4	30.8%
	<i>Eremopyrum triticeum</i>	1	7.7%
	<i>Vulpia octoflora</i>	1	7.7%
Perennial Forbs	<i>Abronia fragrans</i>	2	15.4%
	<i>Allium sp.</i>	1	7.7%
	<i>Chaetopappa ericoides</i>	1	7.7%
	<i>Cymopterus bulbosus</i>	1	7.7%
	<i>Mentzelia pumila</i>	2	15.4%
	<i>Oenothera albicaulis</i>	1	7.7%
	<i>Sphaeralcea coccinea</i>	7	53.8%
Perennial Grasses	<i>Stephanomeria exigua</i>	2	15.4%
	<i>Hordeum jubatum</i>	4	30.8%
	<i>Pleuraphis jamesii</i>	6	46.2%
	<i>Sporobolus airoides</i>	6	46.2%
Shrubs	<i>Atriplex confertifolia</i>	3	23.1%
	<i>Atriplex gardneri</i>	3	23.1%
	<i>Atriplex obovata</i>	10	76.9%
	<i>Atriplex saccaria</i>	2	15.4%
	<i>Ephedra torreyana</i>	1	7.7%
	<i>Eriogonum leptocladon</i>	1	7.7%
	<i>Gutierrezia sarothrae</i>	2	15.4%
	<i>Sarcobatus vermiculatus</i>	2	15.4%
Succulent	<i>Opuntia polyacantha</i>	1	7.7%
Badlands Number of Species		44	

Attachment E-13. Spring Summary of Dunes Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Ambrosia acanthicarpa</i>	7	36.8%
	<i>Atriplex powellii</i>	2	10.5%
	<i>Cryptantha crassisepala</i>	17	89.5%
	<i>Descurainia pinnata</i>	17	89.5%
	<i>Descurainia sophia</i>	6	31.6%
	<i>Dimorphocarpa wislizeni</i>	17	89.5%
	<i>Erigeron bellidiastrum</i>	1	5.3%
	<i>Halogeton glomeratus</i>	1	5.3%
	<i>Ipomopsis pumila</i>	1	5.3%
	<i>Lappula occidentalis</i>	1	5.3%
	<i>Linum puberulum</i>	8	42.1%
	<i>Lupinus pusillus</i>	13	68.4%
	<i>Machaeranthera canescens</i>	8	42.1%
	<i>Mentzelia albicaulis</i>	10	52.6%
	<i>Monolepis nuttalliana</i>	1	5.3%
	<i>Pectis angustifolia</i>	1	5.3%
	<i>Phacelia crenulata</i>	6	31.6%
	<i>Plantago patagonica</i>	3	15.8%
	<i>Salsola tragus</i>	15	78.9%
	<i>Stenogonum salsuginosum</i>	2	10.5%
	<i>Streptanthella longirostris</i>	8	42.1%
	<i>Townsendia annua</i>	5	26.3%
	Annual Grasses	<i>Bromus tectorum</i>	2
Forbs	<i>Astragalus sp.</i>	9	47.4%
	<i>Cymopterus sp.</i>	3	15.8%
	<i>Mentzelia sp.</i>	2	10.5%
	unknown	2	10.5%
Perennial Forbs	<i>Abronia fragrans</i>	7	36.8%
	<i>Apocynum cannabinum</i>	1	5.3%
	<i>Chaetopappa ericoides</i>	1	5.3%
	<i>Cymopterus bulbosus</i>	4	21.1%
	<i>Evolvulus nuttallianus</i>	1	5.3%
	<i>Linum aristatum</i>	1	5.3%
	<i>Lygodesmia grandiflora</i>	9	47.4%
	<i>Mentzelia pumila</i>	5	26.3%
	<i>Oenothera albicaulis</i>	4	21.1%
	<i>Oenothera caespitosa</i>	1	5.3%
	<i>Oenothera pallida</i>	14	73.7%
	<i>Oenothera sp.</i>	3	15.8%
	<i>Penstemon strictiformis</i>	1	5.3%
	<i>Psoralidium lanceolatum</i>	2	10.5%
	<i>Rumex hymenosepalus</i>	1	5.3%
	<i>Sphaeralcea coccinea</i>	1	5.3%
	<i>Sphaeralcea parvifolia</i>	17	89.5%
	<i>Stephanomeria exigua</i>	14	73.7%

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy	
Annual Forbs	<i>Ambrosia acanthicarpa</i>	7	36.8%	
	<i>Townsendia incana</i>	2	10.5%	
	<i>Yucca harrimaniae</i>	1	5.3%	
Perennial Grasses	<i>Achnatherum hymenoides</i>	16	84.2%	
	<i>Aristida purpurea</i>	1	5.3%	
	<i>Muhlenbergia pungens</i>	7	36.8%	
	<i>Pleuraphis jamesii</i>	15	78.9%	
	<i>Sporobolus airoides</i>	11	57.9%	
	<i>Sporobolus cryptandrus</i>	2	10.5%	
	<i>Sporobolus giganteus</i>	3	15.8%	
Shrubs	<i>Artemisia filifolia</i>	2	10.5%	
	<i>Atriplex canescens</i>	11	57.9%	
	<i>Atriplex obovata</i>	2	10.5%	
	<i>Ephedra torreyana</i>	9	47.4%	
	<i>Eriogonum leptocladon</i>	1	5.3%	
	<i>Gutierrezia sarothrae</i>	2	10.5%	
	<i>Krascheninnikovia lanata</i>	1	5.3%	
	<i>Lycium pallidum</i>	3	15.8%	
	<i>Senna sp.</i>	2	10.5%	
	Succulent	<i>Opuntia polyacantha</i>	2	10.5%
	Unknown	<i>Unknown</i>	1	5.3%
Dunes Number of Species		65		

Attachment E-14. Spring Summary of Sands Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy	
Annual Forbs	<i>Ambrosia acanthicarpa</i>	3	12.5%	
	<i>Atriplex powellii</i>	3	12.5%	
	<i>Chaenactis stevioides</i>	18	75.0%	
	<i>Chenopodium incanum</i>	2	8.3%	
	<i>Cleome lutea</i>	1	4.2%	
	<i>Cryptantha crassisejala</i>	22	91.7%	
	<i>Descurainia pinnata</i>	21	87.5%	
	<i>Descurainia sophia</i>	6	25.0%	
	<i>Dimorphocarpa wislizeni</i>	6	25.0%	
	<i>Eriogonum divaricatum</i>	1	4.2%	
	<i>Eriogonum gordonii</i>	2	8.3%	
	<i>Gilia leptomeria</i>	2	8.3%	
	<i>Halogeton glomeratus</i>	2	8.3%	
	<i>Ipomopsis pumila</i>	11	45.8%	
	<i>Lappula occidentalis</i>	9	37.5%	
	<i>Linum puberulum</i>	1	4.2%	
	<i>Lupinus pusillus</i>	3	12.5%	
	<i>Machaeranthera canescens</i>	14	58.3%	
	<i>Malacothrix sonchoides</i>	4	16.7%	
	<i>Mentzelia albicaulis</i>	10	41.7%	
	<i>Monolepis nuttalliana</i>	1	4.2%	
	<i>Phacelia crenulata</i>	22	91.7%	
	<i>Plantago patagonica</i>	13	54.2%	
	<i>Salsola tragus</i>	21	87.5%	
	<i>Stenogonum salsuginosum</i>	3	12.5%	
	<i>Streptanthella longirostris</i>	8	33.3%	
	<i>Townsendia annua</i>	17	70.8%	
	<i>Tragopogon dubius</i>	1	4.2%	
	Annual Grasses	<i>Bromus tectorum</i>	7	29.2%
		<i>Eremopyrum triticeum</i>	1	4.2%
		<i>Vulpia octoflora</i>	13	54.2%
	Forbs	<i>Camissonia scapoidea</i>	1	4.2%
<i>Cymopterus sp.</i>		4	16.7%	
<i>Descurainia pinnata</i>		1	4.2%	
<i>Ipomopsis sp.</i>		1	4.2%	
Perennial Forbs	<i>Abronia fragrans</i>	9	37.5%	
	<i>Agoseris glauca</i>	1	4.2%	
	<i>Aletes macdougallii</i>	2	8.3%	
	<i>Astragalus mollissimus</i>	3	12.5%	
	<i>Chaetopappa ericoides</i>	5	20.8%	
	<i>Chamaesaracha coronopus</i>	1	4.2%	
	<i>Cymopterus bulbosus</i>	5	20.8%	
	<i>Gaillardia pinnatifida</i>	1	4.2%	
	<i>Linum aristatum</i>	1	4.2%	
	<i>Lygodesmia grandiflora</i>	1	4.2%	

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Ambrosia acanthicarpa</i>	3	12.5%
	<i>Mentzelia pumila</i>	6	25.0%
	<i>Oenothera pallida</i>	6	25.0%
	<i>Oenothera sp.</i>	2	8.3%
	<i>Penstemon strictiformis</i>	1	4.2%
	<i>Rumex hymenosepalus</i>	1	4.2%
	<i>Sphaeralcea coccinea</i>	5	20.8%
	<i>Sphaeralcea parvifolia</i>	14	58.3%
	<i>Stephanomeria exigua</i>	16	66.7%
	<i>Townsendia incana</i>	1	4.2%
	Perennial Grasses	<i>Achnatherum hymenoides</i>	16
<i>Aristida purpurea</i>		1	4.2%
<i>Elymus elymoides</i>		2	8.3%
<i>Elymus trachycaulus</i>		1	4.2%
<i>Hordeum jubatum</i>		2	8.3%
<i>Muhlenbergia pungens</i>		1	4.2%
<i>Pleuraphis jamesii</i>		19	79.2%
<i>Sporobolus airoides</i>		20	83.3%
<i>Sporobolus contractus</i>		3	12.5%
<i>Sporobolus cryptandrus</i>		8	33.3%
Shrubs		<i>Atriplex canescens</i>	3
	<i>Atriplex confertifolia</i>	17	70.8%
	<i>Atriplex gardneri</i>	1	4.2%
	<i>Atriplex obovata</i>	4	16.7%
	<i>Ephedra torreyana</i>	3	12.5%
	<i>Eriogonum leptocladon</i>	2	8.3%
	<i>Gutierrezia sarothrae</i>	9	37.5%
	<i>Krascheninnikovia lanata</i>	2	8.3%
	<i>Lycium pallidum</i>	1	4.2%
	<i>Sarcobatus vermiculatus</i>	3	12.5%
	<i>Senna sp.</i>	1	4.2%
Succulent	<i>Opuntia polyacantha</i>	13	54.2%
	<i>Sclerocactus whipplei</i>	1	4.2%
Sands	Number of Species	77	

Attachment E-15. Spring Summary of Thin Breaks Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy	
Annual Forbs	<i>Atriplex powellii</i>	7	43.8%	
	<i>Chaenactis stevioides</i>	3	18.8%	
	<i>Chenopodium incanum</i>	1	6.3%	
	<i>Cryptantha crassisepala</i>	8	50.0%	
	<i>Descurainia pinnata</i>	10	62.5%	
	<i>Descurainia sophia</i>	5	31.3%	
	<i>Erigeron bellidiastrum</i>	1	6.3%	
	<i>Eriogonum divaricatum</i>	1	6.3%	
	<i>Eriogonum gordonii</i>	5	31.3%	
	<i>Gilia leptomeria</i>	1	6.3%	
	<i>Halogeton glomeratus</i>	5	31.3%	
	<i>Ipomopsis pumila</i>	9	56.3%	
	<i>Lappula occidentalis</i>	10	62.5%	
	<i>Machaeranthera canescens</i>	2	12.5%	
	<i>Mentzelia albicaulis</i>	6	37.5%	
	<i>Phacelia crenulata</i>	7	43.8%	
	<i>Picradeniopsis woodhouse</i>	2	12.5%	
	<i>Plantago patagonica</i>	3	18.8%	
	<i>Salsola tragus</i>	12	75.0%	
	<i>Stenogonum salsuginosum</i>	1	6.3%	
	<i>Streptanthella longirostris</i>	3	18.8%	
	<i>Townsendia annua</i>	8	50.0%	
	<i>Tragopogon dubius</i>	1	6.3%	
	<i>Bromus rubens</i>	1	6.3%	
	Annual Grasses	<i>Bromus tectorum</i>	2	12.5%
		<i>Hordeum pusillum</i>	1	6.3%
		<i>Vulpia octoflora</i>	1	6.3%
Forbs	<i>Descurainia pinnata</i>	1	6.3%	
Perennial Forbs	<i>Abronia fragrans</i>	2	12.5%	
	<i>Chaetopappa ericoides</i>	2	12.5%	
	<i>Chamaesaracha coronopus</i>	1	6.3%	
	<i>Gaillardia pinnatifida</i>	2	12.5%	
	<i>Mentzelia pumila</i>	1	6.3%	
	<i>Platyschkuhria integrifolia</i>	1	6.3%	
	<i>Sphaeralcea coccinea</i>	6	37.5%	
	<i>Sphaeralcea parvifolia</i>	1	6.3%	
	<i>Suaeda moquinii</i>	1	6.3%	
	Perennial Grasses	<i>Achnatherum hymenoides</i>	2	12.5%
		<i>Agropyron cristatum</i>	1	6.3%
<i>Aristida purpurea</i>		1	6.3%	
<i>Pleuraphis jamesii</i>		5	31.3%	
<i>Sporobolus airoides</i>		11	68.8%	
Perennial Grasses	<i>Sporobolus contractus</i>	1	6.3%	
Shrubs	<i>Atriplex canescens</i>	1	6.3%	
	<i>Atriplex confertifolia</i>	9	56.3%	

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Atriplex powellii</i>	7	43.8%
	<i>Atriplex gardneri</i>	1	6.3%
	<i>Atriplex obovata</i>	7	43.8%
	<i>Atriplex saccaria</i>	4	25.0%
	<i>Ericameria [Chrysothamnus]</i> <i>nauseosus</i>	1	6.3%
	<i>Gutierrezia sarothrae</i>	2	12.5%
Succulent	<i>Opuntia polyacantha</i>	5	31.3%
Thin Breaks	Number of Species	<i>51</i>	

Attachment E-2. Fall Summary of Alkali Wash Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Atriplex powellii</i>	19	47.5%
	<i>Chenopodium incanum</i>	1	2.5%
	<i>Cryptantha crassisejala</i>	13	32.5%
	<i>Descurainia pinnata</i>	36	90.0%
	<i>Dimorphocarpa wislizenii</i>	1	2.5%
	<i>Erigeron bellidiastrum</i>	5	12.5%
	<i>Eriogonum gordonii</i>	8	20.0%
	<i>Eriogonum hookerii</i>	1	2.5%
	<i>Gilia spp.</i>	1	2.5%
	<i>Halogeton glomeratus</i>	20	50.0%
	<i>Ipomopsis pumila</i>	8	20.0%
	<i>Lappula occidentalis</i>	18	45.0%
	<i>Linum puberulum</i>	1	2.5%
	<i>Machaeranthera canescens</i>	9	22.5%
	<i>Malacothrix sonchoides</i>	1	2.5%
	<i>Mentzelia albicaulis</i>	4	10.0%
	<i>Monolepis nuttalliana</i>	1	2.5%
	<i>Phacelia crenulata</i>	9	22.5%
	<i>Plantago patagonica</i>	16	40.0%
	<i>Salsola tragus</i>	34	85.0%
	<i>Stenogonum salsuginosum</i>	1	2.5%
	<i>Townsendia annua</i>	20	50.0%
	<i>Unknown</i>	1	2.5%
Annual Grasses	<i>Bouteloua barbata</i>	2	5.0%
	<i>Bromus tectorum</i>	5	12.5%
	<i>Eremopyrum triticeum</i>	1	2.5%
	<i>Hordeum pusillum</i>	1	2.5%
	<i>Monroa squarrosa</i>	3	7.5%
	<i>Unknown</i>	1	2.5%
	<i>Vulpia octoflora</i>	4	10.0%
Perennial Forbs	<i>Allium spp.</i>	1	2.5%
	<i>Chaetopappa ericoides</i>	1	2.5%
	<i>Chamaesaracha coronopus</i>	2	5.0%
	<i>Chamaesyce fendleri</i>	4	10.0%
	<i>Lygodesmia grandiflora</i>	1	2.5%
	<i>Mentzelia pumila</i>	1	2.5%
	<i>Sphaeralcea coccinea</i>	6	15.0%
	<i>Sphaeralcea parvifolia</i>	8	20.0%
	<i>Stephanomeria exigua</i>	1	2.5%
Perennial Grasses	<i>Achnatherum hymenoides</i>	8	20.0%
	<i>Elymus elymoides</i>	1	2.5%
	<i>Hordeum jubatum</i>	1	2.5%

Attachment E-2 Cont'd.

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
	<i>Pleuraphis jamesii</i>	14	35.0%
	<i>Sporobolus airoides</i>	23	57.5%
	<i>Sporobolus cryptandrus</i>	10	25.0%
Perennial Succulents	<i>Opuntia polyacantha</i>	6	15.0%
Shrubs	<i>Atriplex canescens</i>	3	7.5%
	<i>Atriplex confertifolia</i>	14	35.0%
	<i>Atriplex gardneri</i>	13	32.5%
	<i>Atriplex obovata</i>	28	70.0%
	<i>Ephedra spp.</i>	1	2.5%
	<i>Gutierrezia sarothrae</i>	4	10.0%
	<i>Krascheninnikovia lanata</i>	1	2.5%
	<i>Sarcobatus vermiculatus</i>	4	10.0%

Alkali Wash Number of Species 54

Attachment E-3. Fall Summary of Badlands Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Atriplex powellii</i>	34	79.1%
	<i>Chenopodium incanum</i>	1	2.3%
	<i>Cryptantha crassisejala</i>	3	7.0%
	<i>Descurainia pinnata</i>	22	51.2%
	<i>Erigeron bellidiastrum</i>	1	2.3%
	<i>Eriogonum gordonii</i>	30	69.8%
	<i>Halogeton glomeratus</i>	8	18.6%
	<i>Ipomopsis pumila</i>	6	14.0%
	<i>Lappula occidentalis</i>	18	41.9%
	<i>Linum puberulum</i>	1	2.3%
	<i>Machaeranthera canescens</i>	1	2.3%
	<i>Mentzelia albicaulis</i>	1	2.3%
	<i>Monolepis nuttalliana</i>	1	2.3%
	<i>Phacelia crenulata</i>	8	18.6%
	<i>Plantago patagonica</i>	12	27.9%
	<i>Salsola tragus</i>	25	58.1%
	<i>Stenogonum salsuginosum</i>	1	2.3%
<i>Townsendia annua</i>	10	23.3%	
Annual Grasses	<i>Bouteloua barbata</i>	2	4.7%
	<i>Bromus tectorum</i>	2	4.7%
	<i>Eragrostis cilianensis</i>	1	2.3%
	<i>Hordeum pusillum</i>	6	14.0%
	<i>Vulpia octoflora</i>	1	2.3%
Forbs	<i>Chenopodium spp.</i>	1	2.3%
Perennial Forbs	<i>Abronia fragrans</i>	1	2.3%
	<i>Chamaesaracha coronopus</i>	1	2.3%
	<i>Chamaesyce fendleri</i>	1	2.3%
	<i>Lygodesmia grandiflora</i>	4	9.3%
	<i>Sphaeralcea coccinea</i>	11	25.6%
	<i>Sphaeralcea parvifolia</i>	1	2.3%
	<i>Suaeda moquinii</i>	15	34.9%
	<i>Verbena bracteata</i>	1	2.3%
Perennial Grasses	<i>Achnatherum hymenoides</i>	3	7.0%
	<i>Hordeum jubatum</i>	2	4.7%
	<i>Pleuraphis jamesii</i>	3	7.0%
	<i>Sporobolus airoides</i>	16	37.2%
	<i>Sporobolus contractus</i>	1	2.3%
	<i>Sporobolus flexuosus</i>	1	2.3%
Perennial Succulents	<i>Opuntia polyacantha</i>	4	9.3%

Attachment E-3 Cont'd.

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Shrubs	<i>Atriplex canescens</i>	2	4.7%
	<i>Atriplex confertifolia</i>	2	4.7%
	<i>Atriplex gardneri</i>	20	46.5%
	<i>Atriplex obovata</i>	41	95.3%
	<i>Atriplex saccaria</i>	1	2.3%
	<i>Ephedra spp.</i>	1	2.3%
	<i>Sarcobatus vermiculatus</i>	1	2.3%
Badlands Number of Species		46	

Attachment E-4. Fall Summary of Dunes Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Ambrosia acanthicarpa</i>	25	62.5%
	<i>Atriplex powellii</i>	1	2.5%
	<i>Cordylanthus wrightii</i>	3	7.5%
	<i>Cryptantha crassisejala</i>	32	80.0%
	<i>Descurainia pinnata</i>	33	82.5%
	<i>Dimorphocarpa wislizenii</i>	25	62.5%
	<i>Gilia spp.</i>	1	2.5%
	<i>Ipomopsis pumila</i>	6	15.0%
	<i>Lappula occidentalis</i>	1	2.5%
	<i>Linum puberulum</i>	8	20.0%
	<i>Lupinus pusillus</i>	3	7.5%
	<i>Machaeranthera canescens</i>	27	67.5%
	<i>Malacothrix sonchoides</i>	2	5.0%
	<i>Mentzelia albicaulis</i>	24	60.0%
	<i>Phacelia crenulata</i>	15	37.5%
	<i>Plantago patagonica</i>	4	10.0%
	<i>Salsola tragus</i>	37	92.5%
	<i>Streptanthella longirostris</i>	11	27.5%
	<i>Townsendia annua</i>	14	35.0%
	Annual Grasses	<i>Bromus tectorum</i>	2
<i>Monroa squarrosa</i>		1	2.5%
<i>Vulpia octoflora</i>		8	20.0%
Forbs	<i>Astragalus spp.</i>	4	10.0%
	<i>Penstemon spp.</i>	3	7.5%
Perennial Forbs	<i>Abronia fragrans</i>	6	15.0%
	<i>Chaetopappa ericoides</i>	11	27.5%
	<i>Chamaesyce fendleri</i>	2	5.0%
	<i>Linum aristatum</i>	1	2.5%
	<i>Mentzelia pumila</i>	5	12.5%
	<i>Oenothera pallida</i>	11	27.5%
	<i>Oenothera spp.</i>	3	7.5%
	<i>Penstemon angustifolius</i>	6	15.0%
	<i>Platyschkuhria integrifolia</i>	1	2.5%
	<i>Psoralidium lanceolatum</i>	1	2.5%
	<i>Rumex hymenosepalus</i>	1	2.5%
	<i>Senecio spartoides</i>	2	5.0%
	<i>Sphaeralcea coccinea</i>	3	7.5%
	<i>Sphaeralcea parvifolia</i>	28	70.0%
	<i>Stephanomeria exigua</i>	19	47.5%
<i>Townsendia incana</i>	1	2.5%	

Attachment E-4 Cont'd.

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Perennial Grasses	<i>Achnatherum hymenoides</i>	32	80.0%
	<i>Aristida purpurea</i>	11	27.5%
	<i>Muhlenbergia pungens</i>	18	45.0%
	<i>Pleuraphis jamesii</i>	32	80.0%
	<i>Sporobolus airoides</i>	26	65.0%
	<i>Sporobolus contractus</i>	5	12.5%
	<i>Sporobolus cryptandrus</i>	9	22.5%
	<i>Sporobolus giganteus</i>	2	5.0%
Perennial Succulents	<i>Opuntia polyacantha</i>	8	20.0%
Shrubs	<i>Artemisia filifolia</i>	2	5.0%
	<i>Atriplex canescens</i>	21	52.5%
	<i>Atriplex confertifolia</i>	1	2.5%
	<i>Atriplex gardneri</i>	2	5.0%
	<i>Atriplex obovata</i>	1	2.5%
	<i>Chrysothamnus greeni</i>	1	2.5%
	<i>Chrysothamnus viscidiflorus</i>	11	27.5%
	<i>Ephedra spp.</i>	25	62.5%
	<i>Ericameria [Chrysothamnus] nauseosus</i>	12	30.0%
	<i>Eriogonum leptocladon</i>	10	25.0%
	<i>Gutierrezia sarothrae</i>	16	40.0%
	<i>Isocoma tenuisecta</i>	4	10.0%
	<i>Krascheninnikovia lanata</i>	1	2.5%
	<i>Lycium pallidum</i>	2	5.0%
	<i>Parryella filifolia</i>	2	5.0%
	<i>Sarcobatus vermiculatus</i>	4	10.0%
	<i>Unknown</i>	1	2.5%
<i>Yucca spp.</i>	5	12.5%	
Unidentified	<i>Unknown</i>	3	7.5%
<hr/> Dunes Number of Species		68	

Attachment E-5. Fall Summary of Reference Arroyo Shrub Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Aster spp.</i>	4	10.3%
	<i>Atriplex powellii</i>	9	23.1%
	<i>Cryptantha crassisejala</i>	13	33.3%
	<i>Cycloloma atriplicifolium</i>	1	2.6%
	<i>Descurainia pinnata</i>	29	74.4%
	<i>Dimorphocarpa wislizenii</i>	1	2.6%
	<i>Erigeron bellidiastrum</i>	15	38.5%
	<i>Eriogonum gordonii</i>	5	12.8%
	<i>Erodium cicutarium</i>	4	10.3%
	<i>Halogeton glomeratus</i>	10	25.6%
	<i>Ipomopsis pumila</i>	5	12.8%
	<i>Lappula occidentalis</i>	12	30.8%
	<i>Machaeranthera canescens</i>	6	15.4%
	<i>Malacothrix sonchoides</i>	2	5.1%
	<i>Mentzelia albicaulis</i>	4	10.3%
	<i>Pectis cylindrica</i>	2	5.1%
	<i>Phacelia crenulata</i>	2	5.1%
	<i>Plantago patagonica</i>	32	82.1%
	<i>Portulaca oleracea</i>	2	5.1%
	<i>Salsola tragus</i>	24	61.5%
	<i>Stenogonum salsuginosum</i>	1	2.6%
<i>Townsendia annua</i>	14	35.9%	
<i>Unknown</i>	1	2.6%	
Annual Grasses	<i>Aegilops cylindrica</i>	2	5.1%
	<i>Bouteloua barbata</i>	7	17.9%
	<i>Bromus rubens</i>	1	2.6%
	<i>Bromus tectorum</i>	19	48.7%
	<i>Eragrostis cilianensis</i>	3	7.7%
	<i>Hordeum pusillum</i>	34	87.2%
	<i>Monroa squarrosa</i>	9	23.1%
	<i>Vulpia octoflora</i>	15	38.5%
Forbs	<i>Aster spp.</i>	7	17.9%
	<i>Chenopodium spp.</i>	1	2.6%
	<i>Penstemon spp.</i>	1	2.6%
	<i>Senecio sp.</i>	1	2.6%
	<i>Unknown</i>	1	2.6%
Perennial Forbs	<i>Allium spp.</i>	1	2.6%
	<i>Artemisia dracunculus</i>	1	2.6%
	<i>Chamaesaracha coronopus</i>	1	2.6%
	<i>Chamaesyce fendleri</i>	5	12.8%
	<i>Eriogonum jamesii</i>	1	2.6%

Attachment E-5 Cont'd.

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
	<i>Grindelia squarrosa</i>	34	87.2%
	<i>Oenothera spp.</i>	1	2.6%
	<i>Rumex hymenosepalus</i>	2	5.1%
	<i>Senecio flaccidus</i>	4	10.3%
	<i>Sphaeralcea coccinea</i>	17	43.6%
	<i>Sphaeralcea parvifolia</i>	12	30.8%
Perennial Grasses	<i>Achnatherum hymenoides</i>	3	7.7%
	<i>Elymus elymoides</i>	2	5.1%
	<i>Pascopyrum smithii</i>	2	5.1%
	<i>Pleuraphis jamesii</i>	28	71.8%
	<i>Sporobolus airoides</i>	38	97.4%
	<i>Sporobolus cryptandrus</i>	2	5.1%
Perennial Succulents	<i>Opuntia polyacantha</i>	12	30.8%
Shrubs	<i>Atriplex canescens</i>	6	15.4%
	<i>Atriplex confertifolia</i>	3	7.7%
	<i>Atriplex gardneri</i>	3	7.7%
	<i>Atriplex obovata</i>	37	94.9%
	<i>Gutierrezia sarothrae</i>	13	33.3%
	<i>Lycium pallidum</i>	3	7.7%
	<i>Sarcobatus vermiculatus</i>	8	20.5%
Unidentified	<i>Unknown</i>	1	2.6%
Reference Arroyo Shrub			
Number of Species		62	

Attachment E-6. Fall Summary of Reference Alkali Wash Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Atriplex powellii</i>	10	25.0%
	<i>Chaenactis stevioides</i>	1	2.5%
	<i>Cryptantha crassisejala</i>	15	37.5%
	<i>Descurainia pinnata</i>	36	90.0%
	<i>Dimorphocarpa wislizenii</i>	1	2.5%
	<i>Erigeron bellidiastrum</i>	2	5.0%
	<i>Eriogonum gordonii</i>	12	30.0%
	<i>Erodium cicutarium</i>	2	5.0%
	<i>Halogeton glomeratus</i>	29	72.5%
	<i>Ipomopsis pumila</i>	17	42.5%
	<i>Lappula occidentalis</i>	28	70.0%
	<i>Linum puberulum</i>	2	5.0%
	<i>Machaeranthera canescens</i>	11	27.5%
	<i>Mentzelia albicaulis</i>	1	2.5%
	<i>Pectis cylindrica</i>	1	2.5%
	<i>Phacelia crenulata</i>	17	42.5%
	<i>Plantago patagonica</i>	30	75.0%
	<i>Portulaca oleracea</i>	1	2.5%
	<i>Salsola tragus</i>	33	82.5%
	<i>Stenogonum salsuginosum</i>	3	7.5%
<i>Townsendia annua</i>	30	75.0%	
<i>Tragopogon dubius</i>	1	2.5%	
<i>Unknown</i>	1	2.5%	
Annual Grasses	<i>Bouteloua barbata</i>	12	30.0%
	<i>Bromus tectorum</i>	10	25.0%
	<i>Eragrostis cilianensis</i>	3	7.5%
	<i>Hordeum pusillum</i>	7	17.5%
	<i>Monroa squarrosa</i>	9	22.5%
	<i>Vulpia octoflora</i>	8	20.0%
Forbs	<i>Eriogonum spp.</i>	1	2.5%
	<i>Unknown</i>	1	2.5%
Perennial Forbs	<i>Chamaesaracha coronopus</i>	3	7.5%
	<i>Chamaesyce fendleri</i>	7	17.5%
	<i>Eriogonum jamesii</i>	1	2.5%
	<i>Grindelia squarrosa</i>	3	7.5%
	<i>Linum aristatum</i>	1	2.5%
	<i>Lygodesmia grandiflora</i>	4	10.0%
	<i>Sphaeralcea coccinea</i>	29	72.5%
	<i>Sphaeralcea parvifolia</i>	6	15.0%
	<i>Stephanomeria exigua</i>	2	5.0%

Attachment E-6 Cont'd.

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Perennial Grasses	<i>Achnatherum hymenoides</i>	8	20.0%
	<i>Aristida purpurea</i>	1	2.5%
	<i>Elymus elymoides</i>	1	2.5%
	<i>Pascopyrum smithii</i>	1	2.5%
	<i>Pleuraphis jamesii</i>	17	42.5%
	<i>Sporobolus airoides</i>	30	75.0%
	<i>Sporobolus contractus</i>	5	12.5%
Perennial Succulents	<i>Opuntia polyacantha</i>	9	22.5%
	<i>Opuntia.</i>	1	2.5%
Shrubs	<i>Atriplex canescens</i>	5	12.5%
	<i>Atriplex confertifolia</i>	5	12.5%
	<i>Atriplex gardneri</i>	14	35.0%
	<i>Atriplex obovata</i>	38	95.0%
	<i>Gutierrezia sarothrae</i>	6	15.0%
	<i>Sarcobatus vermiculatus</i>	5	12.5%
Unidentified	<i>Unknown</i>	6	15.0%
Reference Alkali Wash			
Number of Species		57	

Attachment E-7. Fall Summary of Reference Sands Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Ambrosia acanthicarpa</i>	3	7.7%
	<i>Atriplex powellii</i>	1	2.6%
	<i>Chaenactis stevioides</i>	2	5.1%
	<i>Cryptantha crassisejala</i>	32	82.1%
	<i>Descurainia pinnata</i>	32	82.1%
	<i>Dimorphocarpa wislizenii</i>	7	17.9%
	<i>Erigeron bellidiastrum</i>	3	7.7%
	<i>Halogeton glomeratus</i>	5	12.8%
	<i>Ipomopsis polycladon</i>	1	2.6%
	<i>Ipomopsis pumila</i>	8	20.5%
	<i>Lappula occidentalis</i>	17	43.6%
	<i>Machaeranthera canescens</i>	25	64.1%
	<i>Malacothrix sonchoides</i>	6	15.4%
	<i>Mentzelia albicaulis</i>	19	48.7%
	<i>Phacelia crenulata</i>	31	79.5%
	<i>Plantago patagonica</i>	36	92.3%
	<i>Salsola tragus</i>	38	97.4%
	<i>Stenogonum salsuginosum</i>	2	5.1%
	<i>Streptanthella longirostris</i>	1	2.6%
	<i>Townsendia annua</i>	27	69.2%
<i>Unknown</i>	1	2.6%	
Annual Grasses	<i>Aegilops cylindrica</i>	1	2.6%
	<i>Bromus tectorum</i>	11	28.2%
	<i>Monroa squarrosa</i>	4	10.3%
	<i>Vulpia octoflora</i>	15	38.5%
Forbs	<i>Astragalus spp.</i>	1	2.6%
Perennial Forbs	<i>Abronia fragrans</i>	12	30.8%
	<i>Allium spp.</i>	3	7.7%
	<i>Chaetopappa ericoides</i>	3	7.7%
	<i>Chamaesaracha coronopus</i>	1	2.6%
	<i>Chamaesyce fendleri</i>	1	2.6%
	<i>Eriogonum gordonii</i>	1	2.6%
	<i>Evolvulus nuttallianus</i>	4	10.3%
	<i>Grindelia squarrosa</i>	1	2.6%
	<i>Linum aristatum</i>	2	5.1%
	<i>Lygodesmia grandiflora</i>	4	10.3%
	<i>Machaeranthera gracilis</i>	1	2.6%
	<i>Mentzelia pumila</i>	8	20.5%
	<i>Sphaeralcea coccinea</i>	23	59.0%
	<i>Sphaeralcea parvifolia</i>	17	43.6%
	<i>Stephanomeria exigua</i>	9	23.1%
	<i>Townsendia incana</i>	1	2.6%

Attachment E-7 Cont'd.

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Perennial Grasses	<i>Achnatherum hymenoides</i>	27	69.2%
	<i>Aristida purpurea</i>	2	5.1%
	<i>Elymus elymoides</i>	2	5.1%
	<i>Muhlenbergia pungens</i>	1	2.6%
	<i>Pleuraphis jamesii</i>	30	76.9%
	<i>Sporobolus airoides</i>	34	87.2%
	<i>Sporobolus cryptandrus</i>	10	25.6%
Perennial Succulents	<i>Opuntia polyacantha</i>	19	48.7%
Shrubs	<i>Atriplex canescens</i>	5	12.8%
	<i>Atriplex confertifolia</i>	25	64.1%
	<i>Atriplex gardneri</i>	5	12.8%
	<i>Atriplex obovata</i>	18	46.2%
	<i>Ephedra spp.</i>	7	17.9%
	<i>Gutierrezia sarothrae</i>	23	59.0%
	<i>Lycium pallidum</i>	1	2.6%
Unidentified	<i>Unknown</i>	1	2.6%
Reference Sands			
Number of Species		58	

Attachment E-8. Fall Summary of Sands Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Ambrosia acanthicarpa</i>	4	10.0%
	<i>Atriplex powellii</i>	2	5.0%
	<i>Chaenactis stevioides</i>	1	2.5%
	<i>Cryptantha crassisejala</i>	33	82.5%
	<i>Descurainia pinnata</i>	27	67.5%
	<i>Descurainia sophia</i>	2	5.0%
	<i>Dimorphocarpa wislizenii</i>	8	20.0%
	<i>Erigeron bellidiastrum</i>	2	5.0%
	<i>Halogeton glomeratus</i>	4	10.0%
	<i>Ipomopsis pumila</i>	5	12.5%
	<i>Lappula occidentalis</i>	10	25.0%
	<i>Machaeranthera canescens</i>	25	62.5%
	<i>Malacothrix sonchoides</i>	4	10.0%
	<i>Mentzelia albicaulis</i>	15	37.5%
	<i>Phacelia crenulata</i>	24	60.0%
	<i>Plantago patagonica</i>	11	27.5%
	<i>Salsola tragus</i>	40	100.0%
	<i>Streptanthella longirostris</i>	5	12.5%
	<i>Townsendia annua</i>	16	40.0%
	Annual Grasses	<i>Bromus tectorum</i>	7
<i>Vulpia octoflora</i>		5	12.5%
Forbs	<i>Chenopodium spp.</i>	1	2.5%
	<i>Cryptantha</i>	1	2.5%
Perennial Forbs	<i>Abronia fragrans</i>	4	10.0%
	<i>Asclepius sanjuanensis</i>	1	2.5%
	<i>Astragalus mollissimus</i>	1	2.5%
	<i>Chaetopappa ericoides</i>	9	22.5%
	<i>Eriogonum jamesii</i>	1	2.5%
	<i>Linum aristatum</i>	3	7.5%
	<i>Lygodesmia grandiflora</i>	1	2.5%
	<i>Mentzelia pumila</i>	2	5.0%
	<i>Oenothera pallida</i>	1	2.5%
	<i>Penstemon angustifolius</i>	1	2.5%
	<i>Sphaeralcea coccinea</i>	10	25.0%
	<i>Sphaeralcea parvifolia</i>	8	20.0%
	<i>Stephanomeria exigua</i>	8	20.0%
	<i>Townsendia incana</i>	1	2.5%
Perennial Grasses	<i>Achnatherum hymenoides</i>	33	82.5%
	<i>Aristida purpurea</i>	3	7.5%
	<i>Pleuraphis jamesii</i>	32	80.0%

Attachment E-8 Cont'd.

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
	<i>Sporobolus airoides</i>	36	90.0%
	<i>Sporobolus contractus</i>	1	2.5%
	<i>Sporobolus cryptandrus</i>	9	22.5%
Perennial Succulents	<i>Opuntia polyacantha</i>	18	45.0%
Shrubs	<i>Atriplex canescens</i>	7	17.5%
	<i>Atriplex confertifolia</i>	29	72.5%
	<i>Atriplex gardneri</i>	3	7.5%
	<i>Atriplex obovata</i>	7	17.5%
	<i>Ephedra spp.</i>	3	7.5%
	<i>Ericameria [Chrysothamnus] nauseosus</i>	1	2.5%
	<i>Eriogonum leptocladon</i>	1	2.5%
	<i>Gutierrezia sarothrae</i>	24	60.0%
	<i>Krascheninnikovia lanata</i>	1	2.5%
	<i>Lycium pallidum</i>	1	2.5%
Unidentified	<i>Unknown</i>	1	2.5%
<hr/> Sands Number of Species		55	

Attachment E-9. Fall Summary of Thin Breaks Constancy Species

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
Annual Forbs	<i>Atriplex powellii</i>	19	46.3%
	<i>Cryptantha crassiseppala</i>	19	46.3%
	<i>Cycloloma atriplicifolium</i>	2	4.9%
	<i>Descurainia pinnata</i>	32	78.0%
	<i>Erigeron sp.</i>	1	2.4%
	<i>Eriogonum gordonii</i>	14	34.1%
	<i>Halogeton glomeratus</i>	18	43.9%
	<i>Ipomopsis pumila</i>	14	34.1%
	<i>Lappula occidentalis</i>	23	56.1%
	<i>Linum puberulum</i>	2	4.9%
	<i>Machaeranthera canescens</i>	7	17.1%
	<i>Malacothrix sonchoides</i>	5	12.2%
	<i>Mentzelia albicaulis</i>	11	26.8%
	<i>Phacelia crenulata</i>	14	34.1%
	<i>Plantago patagonica</i>	10	24.4%
	<i>Salsola tragus</i>	38	92.7%
	<i>Stenogonum salsuginosum</i>	7	17.1%
	<i>Streptanthella longirostris</i>	5	12.2%
	<i>Townsendia annua</i>	14	34.1%
	<i>Unknown</i>	1	2.4%
Annual Grasses	<i>Bromus tectorum</i>	5	12.2%
	<i>Eremopyrum triticeum</i>	1	2.4%
	<i>Vulpia octoflora</i>	3	7.3%
Forbs	<i>Astragalus spp.</i>	1	2.4%
Perennial Forbs	<i>Astragalus mollissimus</i>	1	2.4%
	<i>Chaetopappa ericoides</i>	4	9.8%
	<i>Chamaesyce fendleri</i>	1	2.4%
	<i>Eriogonum jamesii</i>	1	2.4%
	<i>Grindelia squarrosa</i>	1	2.4%
	<i>Lygodesmia grandiflora</i>	4	9.8%
	<i>Mentzelia pumila</i>	2	4.9%
	<i>Platyschkuhria integrifolia</i>	1	2.4%
	<i>Platyschkuhria integrifolia var. oblongifolia</i>	1	2.4%
	<i>Sphaeralcea coccinea</i>	8	19.5%
	<i>Sphaeralcea parvifolia</i>	6	14.6%
	<i>Stephanomeria exigua</i>	2	4.9%
	<i>Unknown</i>	1	2.4%
	Perennial Grasses	<i>Achnatherum hymenoides</i>	11
<i>Aristida purpurea</i>		1	2.4%

Attachment E-9 Cont'd.

Life Form	Scientific Name	Occurrence (# of Transects)	Constancy
	<i>Hesperostipa comata</i>	1	2.4%
	<i>Pleuraphis jamesii</i>	16	39.0%
	<i>Sporobolus airoides</i>	27	65.9%
	<i>Sporobolus contractus</i>	1	2.4%
	<i>Sporobolus cryptandrus</i>	4	9.8%
Perennial Succulents	<i>Opuntia polyacantha</i>	9	22.0%
	<i>Sclerocactus cloveriae</i>	2	4.9%
Shrubs	<i>Artemisia bigelovii</i>	1	2.4%
	<i>Atriplex canescens</i>	4	9.8%
	<i>Atriplex confertifolia</i>	23	56.1%
	<i>Atriplex gardneri</i>	11	26.8%
	<i>Atriplex obovata</i>	17	41.5%
	<i>Ephedra spp.</i>	1	2.4%
	<i>Ericameria [Chrysothamnus]</i> <i>nauseosus</i>	2	4.9%
	<i>Eriogonum leptocladon</i>	2	4.9%
	<i>Gutierrezia sarothrae</i>	12	29.3%
	<i>Krascheninnikovia lanata</i>	2	4.9%
	<i>Sarcobatus vermiculatus</i>	5	12.2%
	<i>Yucca spp.</i>	1	2.4%
Unidentified	<i>Unknown</i>	3	7.3%
Thin Breaks Number of Species		59	

ATTACHMENT F
PRODUCTION DATA

**Attachment F. Production Data
Table of Contents**

F-1	Fall	Arroyo Shrub Production Summary
F-1a	Fall	Arroyo Shrub Production by Transect
F-2	Fall	Alkali Wash Production Summary
F-2a	Fall	Alkali Wash Production by Transect
F-3	Fall	Badlands Production Summary
F-3a	Fall	Badlands Production by Transect
F-4	Fall	Dunes Production Summary
F-4a	Fall	Dunes Shrub Production by Transect
F-5	Fall	Reference Arroyo Shrub Production Summary
F-5a	Fall	Reference Arroyo Shrub Production by Transect
F-6	Fall	Reference Alkali Wash Production Summary
F-6a	Fall	Reference Alkali Wash Production by Transect
F-7	Fall	Reference Sands Production Summary
F-7a	Fall	Reference Sands Production by Transect
F-8	Fall	Sands Production Summary
F-8a	Fall	Sands Production by Transect
F-9	Fall	Thin Breaks Production Summary
F-9a	Fall	Thin Breaks Production by Transect

Attachment F-1. Arroyo Shrub Production Summary

Life Form	Scientific Name	Air Dry Weight (g/m²)	Air Dry Weight (lbs/acre)
	<i>Bromus tectorum</i>	0.5	4.5
	<i>Hordeum pusillum</i>	0.3	2.2
	<i>Monroa squarrosa</i>	2.6	23.4
	<i>Vulpia octoflora</i>	0.7	6.1
Annual Grass Subtotal		4.1	36.2
	<i>Atriplex powellii</i>	0.7	6.5
	<i>Cordylanthus wrightii</i>	1.9	16.7
	<i>Cryptantha crassisepala</i>	0.5	4.4
	<i>Descurainia pinnata</i>	2.5	22.3
	<i>Halogeton glomeratus</i>	17.0	151.4
	<i>Ipomopsis pumila</i>	0.3	2.2
	<i>Lappula occidentalis</i>	0.3	2.2
	<i>Linum puberulum</i>	1.0	8.9
	<i>Machaeranthera canescens</i>	2.1	19.0
	<i>Malacothrix sonchoides</i>	2.5	22.3
	<i>Mentzelia albicaulis</i>	0.8	7.1
	<i>Plantago patagonica</i>	1.0	9.2
	<i>Salsola tragus</i>	9.9	88.2
	<i>Townsendia annua</i>	0.2	2.0
Annual Forb Subtotal		40.6	362.6
	<i>Chenopodium sp.</i>	38.0	339.0
Forb Subtotal		38.0	339.0
	<i>Abronia fragrans</i>	0.3	2.2
	<i>Grindelia squarrosa</i>	31.0	276.6
	<i>Oenothera pallida</i>	4.7	41.9
	<i>Stephanomeria exigua</i>	0.3	2.2
Perennial Forb Subtotal		36.2	323.0
	<i>Achnatherum hymenoides</i>	0.3	2.2
	<i>Bouteloua gracilis</i>	0.3	2.2
	<i>Pleuraphis jamesii</i>	4.0	35.7
	<i>Sporobolus airoides</i>	4.2	37.4
	<i>Sporobolus contractus</i>	0.3	2.2
	<i>Sporobolus cryptandrus</i>	0.7	6.2
	<i>Sporobolus giganteus</i>	1.7	15.3
Perennial Grass Subtotal		11.4	101.3
	<i>Atriplex canescens</i>	11.1	99.1
	<i>Atriplex obovata</i>	25.4	226.6
	<i>Ephedra sp.</i>	67.2	599.5
	<i>Ericameria [Chrysothamnus]</i>	31.2	277.9

Attachment F-1 Cont'd.

Life Form	Scientific Name	Air Dry Weight (g/m2)	Air Dry Weight (lbs/acre)	
	<i>nauseosus</i>			
	<i>Eriogonum leptocladon</i>	3.1	28.1	
	<i>Gutierrezia sarothrae</i>	3.1	27.8	
	<i>Isocoma tenuisecta</i>	3.9	34.8	
	<i>Parryella filifolia</i>	102.0	910.0	
	<i>Sarcobatus vermiculatus</i>	11.6	103.6	
Shrub Subtotal		258.6	2307.4	
	Unknown	1.8	15.8	
Unknown Subtotal		1.8	15.8	
		Air Dry Weight (g/m2)	Air Dry Weight (lbs/acre)	Standard Deviation of lbs/acre
Arroyo Shrub Total		390.7	3485.4	156.5

Attachment F-1a. Arroyo Shrub Production by Transect

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)	
AS-041		DEPI	<i>Descurainia pinnata</i>	1.6	14.3	
		SATR12	<i>Salsola tragus</i>	0.3	2.2	
	Annual Forb Subtotal			1.9	16.5	
	Perennial Grasses Subtotal	PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2	
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2	
				0.5	4.5	
	Shrub Subtotal	ATCA2	<i>Atriplex canescens</i>	2.9	25.9	
	AS-041 Total			5.3	46.8	
	AS-042	Annual Forb Subtotal	ATPO2	<i>Atriplex powellii</i>	0.3	2.2
			DEPI	<i>Descurainia pinnata</i>	4.0	35.7
SATR12			<i>Salsola tragus</i>	3.8	33.9	
Shrub Subtotal		ATCA2	<i>Atriplex canescens</i>	1.7	15.2	
AS-042 Total				9.8	87.0	
AS-043	Annual Forb Subtotal	DEPI	<i>Descurainia pinnata</i>	0.3	2.2	
		PLPA2	<i>Plantago patagonica</i>	2.6	23.2	
		TOAN	<i>Townsendia annua</i>	0.1	0.9	
	Annual Grasses Subtotal			3.0	26.3	
	Perennial Grasses Subtotal	BRTE	<i>Bromus tectorum</i>	0.3	2.2	
		MOSQ	<i>Monroa squarrosa</i>	0.3	2.2	
				0.5	4.5	
	Shrub Subtotal	PLJA	<i>Pleuraphis jamesii</i>	3.5	31.3	
		SPAI	<i>Sporobolus airoides</i>	2.6	22.8	
	AS-043 Total			9.5	84.8	
AS-044	Annual Forb Subtotal	CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2	
				0.3	2.2	
	Perennial Grasses Subtotal	SPGI	<i>Sporobolus giganteus</i>	1.1	9.8	
	Shrub Subtotal		<i>Ericameria</i>			
		ERNA10	<i>[Chrysothamnus] nauseosus</i>	5.2	46.4	
		PAFI4	<i>Parryella filifolia</i>	102.0	910.0	
	AS-044 Total			107.2	956.4	
			108.6	968.5		
	Annual Forb Subtotal	COWR2	<i>Cordylanthus wrightii</i>	2.0	17.8	
		DEPI	<i>Descurainia pinnata</i>	1.0	8.9	
			3.0	26.8		
			<i>Ericameria</i>			
		ERNA10	<i>[Chrysothamnus] nauseosus</i>	2.5	22.3	

Attachment F-1a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Shrub Subtotal			2.5	22.3
		Unk 4		0.7	6.2
	Unknown Subtotal			0.7	6.2
AS-045 Total				6.2	55.3
	Annual Forb Subtotal	SATR12	<i>Salsola tragus</i>	20.0	178.4
				20.0	178.4
	Perennial Grasses Subtotal	ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
				0.3	2.2
	Shrub Subtotal	ERNA10	<i>Ericameria [Chrysothamnus] nauseosus</i>	7.1	63.6
				7.1	63.6
AS-046 Total				27.4	244.2
		COWR2	<i>Cordylanthus wrightii</i>	2.0	17.8
		CRCR3	<i>Cryptantha crassisejala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	3.0	26.8
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			5.5	49.1
	Annual Grasses Subtotal	VUOC	<i>Vulpia octoflora</i>	0.3	2.2
				0.3	2.2
	Perennial Grasses Subtotal	SPGI	<i>Sporobolus giganteus</i>	2.3	20.9
				2.3	20.9
	Shrub Subtotal	GUSA2	<i>Gutierrezia sarothrae</i>	1.8	16.1
				1.8	16.1
AS-047 Total				9.9	88.2
		ATPO2	<i>Atriplex powellii</i>	1.7	15.2
		SATR12	<i>Salsola tragus</i>	8.0	71.4
	Annual Forb Subtotal			9.7	86.5
	Shrub Subtotal	ATCA2	<i>Atriplex canescens</i>	0.5	4.5
				0.5	4.5
AS-048 Total				10.2	91.0
		DEPI	<i>Descurainia pinnata</i>	0.7	6.2
		SATR12	<i>Salsola tragus</i>	0.8	7.1
	Annual Forb Subtotal			1.5	13.4
		ATOB	<i>Atriplex obovata</i>	27.0	240.9
		SAVE4	<i>Sarcobatus vermiculatus</i>	3.8	33.9
	Shrub Subtotal			30.8	274.8
AS-049 Total				32.3	288.2
		DEPI	<i>Descurainia pinnata</i>	3.3	29.4
		SATR12	<i>Salsola tragus</i>	2.8	25.0
	Annual Forb Subtotal			6.1	54.4
	Annual Grasses Subtotal	BRTE	<i>Bromus tectorum</i>	0.3	2.2
				0.3	2.2

Attachment F-1a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		SPAI	<i>Sporobolus airoides</i>	5.0	44.6
	Perennial Grasses Subtotal			5.0	44.6
		ATCA2	<i>Atriplex canescens</i>	1.5	13.4
	Shrub Subtotal			1.5	13.4
AS-050 Total				12.9	114.6
		DEPI	<i>Descurainia pinnata</i>	1.0	8.9
		SATR12	<i>Salsola tragus</i>	17.0	151.7
	Annual Forb Subtotal			18.0	160.6
		SAVE4	<i>Sarcobatus vermiculatus</i>	42.0	374.7
	Shrub Subtotal			42.0	374.7
AS-051 Total				60.0	535.3
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	6.0	53.5
		SATR12	<i>Salsola tragus</i>	26.4	235.5
	Annual Forb Subtotal			32.7	291.3
AS-052 Total				32.7	291.3
		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	2.6	23.2
		SATR12	<i>Salsola tragus</i>	7.2	64.2
	Annual Forb Subtotal			10.3	91.9
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grasses Subtotal			0.3	2.2
		SAVE4	<i>Sarcobatus vermiculatus</i>	5.7	50.9
	Shrub Subtotal			5.7	50.9
AS-053 Total				16.3	145.0
		NONE	<i>NONE</i>	0.0	0.0
	NONE Subtotal			0.0	0.0
AS-054 Total				0.0	0.0
		DEPI	<i>Descurainia pinnata</i>	1.9	17.0
		SATR12	<i>Salsola tragus</i>	1.2	10.7
	Annual Forb Subtotal			3.1	27.7
		PLJA	<i>Pleuraphis jamesii</i>	1.0	9.3
	Perennial Grasses Subtotal			1.0	9.3
		ATCA2	<i>Atriplex canescens</i>	34.0	303.3
		SAVE4	<i>Sarcobatus vermiculatus</i>	2.0	17.8
	Shrub Subtotal			36.0	321.2
AS-055 Total				40.1	358.1
		COWR2	<i>Cordylanthus wrightii</i>	1.0	8.9
		LIPU4	<i>Linum puberulum</i>	1.0	8.9
		SATR12	<i>Salsola tragus</i>	4.0	35.7

Attachment F-1a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Annual Forb Subtotal			6.0	53.5
		BRTE	<i>Bromus tectorum</i>	0.3	2.2
	Annual Grasses Subtotal			0.3	2.2
		OEPA	<i>Oenothera pallida</i>	4.7	41.9
	Perennial Forb Subtotal			4.7	41.9
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	4.3	38.4
		SPCO4	<i>Sporobolus contractus</i>	0.3	2.2
	Perennial Grasses Subtotal			4.8	42.8
			<i>Ericameria</i>		
		ERNA10	<i>[Chrysothamnus] nauseosus</i>	159.0	1418.6
	Shrub Subtotal			159.0	1418.6
		OTHER	<i>Dalea sp.</i>	3.8	33.9
	Unknown Subtotal			3.8	33.9
AS-056 Total				178.6	1593.0
			<i>Ericameria</i>		
		ERNA10	<i>[Chrysothamnus] nauseosus</i>	1.3	11.2
	Shrub Subtotal			1.3	11.2
AS-057 Total				1.3	11.2
		CRCR3	<i>Cryptantha crassisejala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	3.0	26.8
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	7.0	62.5
	Annual Forb Subtotal			10.5	93.7
AS-058 Total				10.5	93.7
		COWR2	<i>Cordylanthus wrightii</i>	4.4	39.3
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	9.0	80.3
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			13.9	124.0
		ISTE2	<i>Isocoma tenuisecta</i>	3.9	34.8
	Shrub Subtotal			3.9	34.8
AS-059 Total				17.8	158.8
		DEPI	<i>Descurainia pinnata</i>	1.6	14.3
		SATR12	<i>Salsola tragus</i>	44.3	395.2
	Annual Forb Subtotal			45.9	409.5
		BRTE	<i>Bromus tectorum</i>	0.3	2.2
	Annual Grasses Subtotal			0.3	2.2
			<i>Ericameria</i>		
		ERNA10	<i>[Chrysothamnus] nauseosus</i>	33.0	294.4
	Shrub Subtotal			33.0	294.4
AS-060 Total				79.2	706.2

Attachment F-1a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
AS-061		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		MEAL6	<i>Mentzelia albicaulis</i>	0.8	7.1
		SATR12	<i>Salsola tragus</i>	7.8	69.6
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			9.1	81.2
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grasses Subtotal			0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	1.2	11.0
		SPAI	<i>Sporobolus airoides</i>	4.5	40.0
	Perennial Grasses Subtotal			5.7	51.0
AS-061 Total			15.1	134.4	
AS-062		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	11.2	99.9
	Annual Forb Subtotal			11.5	102.2
		SPAI	<i>Sporobolus airoides</i>	2.5	22.3
	Perennial Grasses Subtotal			2.5	22.3
AS-062 Total			14.0	124.5	
AS-063		HAGL	<i>Halogeton glomeratus</i>	39.0	347.9
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	12.0	107.1
	Annual Forb Subtotal			51.3	457.2
		CHENO	<i>Chenopodium sp.</i>	38.0	339.0
	forb Subtotal			38.0	339.0
		GRSQ	<i>Grindelia squarrosa</i>	31.0	276.6
	Perennial Forb Subtotal			31.0	276.6
		SPAI	<i>Sporobolus airoides</i>	28.8	256.9
	Perennial Grasses Subtotal			28.8	256.9
	ATOB	<i>Atriplex obovata</i>	82.0	731.6	
Shrub Subtotal			82.0	731.6	
AS-063 Total			231.1	2061.4	
AS-064		CRCR3	<i>Cryptantha crassisepala</i>	1.0	8.9
		DEPI	<i>Descurainia pinnata</i>	1.5	13.4
		MACA2	<i>Machaeranthera canescens</i>	0.5	4.5
		SATR12	<i>Salsola tragus</i>	4.9	43.7
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			8.2	72.7
		EPHED	<i>Ephedra sp.</i>	67.2	599.5
		SAVE4	<i>Sarcobatus vermiculatus</i>	6.8	60.7
	Shrub Subtotal			74.0	660.2
		Unk 1		0.8	7.1
Unknown Subtotal			0.8	7.1	
AS-064 Total			83.0	740.1	
		COWR2	<i>Cordylanthus wrightii</i>	0.3	2.2

Attachment F-1a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		MACA2	<i>Machaeranthera canescens</i>	3.5	31.3
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			4.3	38.0
		BRTE	<i>Bromus tectorum</i>	1.5	13.4
		VUOC	<i>Vulpia octoflora</i>	2.0	17.8
	Annual Grasses Subtotal			3.5	31.2
		ABFR2	<i>Abronia fragrans</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	16.7	149.2
		SPCR	<i>Sporobolus cryptandrus</i>	0.7	6.2
	Perennial Grasses Subtotal			17.7	157.6
		ERLE9	<i>Eriogonum leptocladon</i>	3.1	28.1
	Shrub Subtotal			3.1	28.1
AS-065 Total				28.8	257.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		MOSQ	<i>Monroa squarrosa</i>	5.0	44.6
	Annual Grasses Subtotal			5.0	44.6
		BOGR2	<i>Bouteloua gracilis</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	0.5	4.8
	Perennial Grasses Subtotal			0.8	7.0
AS-066 Total				6.3	56.1
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	8.0	71.4
	Annual Forb Subtotal			8.5	75.8
		ERNA10	<i>Ericameria</i> <i>[Chrysothamnus] nauseosus</i>	10.0	89.2
	Shrub Subtotal			10.0	89.2
AS-067 Total				18.5	165.1
		SATR12	<i>Salsola tragus</i>	3.0	26.8
	Annual Forb Subtotal			3.0	26.8
		HOPU	<i>Hordeum pusillum</i>	0.3	2.2
	Annual Grasses Subtotal			0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	1.7	15.5
	Perennial Grasses Subtotal			1.7	15.5
AS-068 Total				5.0	44.5
		DEPI	<i>Descurainia pinnata</i>	2.0	17.8
		MACA2	<i>Machaeranthera canescens</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	18.0	160.6

Attachment F-1a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Annual Forb Subtotal			20.3	180.7
		ATCA2	<i>Atriplex canescens</i>	22.0	196.3
		SAVE4	<i>Sarcobatus vermiculatus</i>	21.0	187.4
	Shrub Subtotal			43.0	383.6
AS-069 Total				63.3	564.3
		COWR2	<i>Cordylanthus wrightii</i>	1.6	14.3
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
	Annual Forb Subtotal			2.1	18.7
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grasses Subtotal			0.3	2.2
		STEX	<i>Stephanomeria exigua</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		ATCA2	<i>Atriplex canescens</i>	4.5	40.1
		GUSA2	<i>Gutierrezia sarothrae</i>	7.3	65.1
	Shrub Subtotal			11.8	105.3
AS-070 Total				14.4	128.5
		ATOB	<i>Atriplex obovata</i>	3.6	32.1
	Shrub Subtotal			3.6	32.1
AS-071 Total				3.6	32.1
		CRCR3	<i>Cryptantha crassisepala</i>	0.5	4.5
		DEPI	<i>Descurainia pinnata</i>	1.4	12.5
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		MACA2	<i>Machaeranthera canescens</i>	4.3	38.1
		SATR12	<i>Salsola tragus</i>	32.0	285.5
	Annual Forb Subtotal			38.4	342.8
		SPAI	<i>Sporobolus airoides</i>	1.2	10.6
	Perennial Grasses Subtotal			1.2	10.6
AS-072 Total				39.6	353.4
		DEPI	<i>Descurainia pinnata</i>	0.1	0.9
		HAGL	<i>Halogeton glomeratus</i>	1.0	8.9
	Annual Forb Subtotal			1.1	9.8
		ATOB	<i>Atriplex obovata</i>	10.6	94.6
	Shrub Subtotal			10.6	94.6
AS-073 Total				11.7	104.4
		DEPI	<i>Descurainia pinnata</i>	3.7	33.0
		MASO	<i>Malacothrix sonchoides</i>	2.5	22.3
		SATR12	<i>Salsola tragus</i>	11.9	106.2
	Annual Forb Subtotal			18.1	161.5
		PLJA	<i>Pleuraphis jamesii</i>	1.0	8.5
	Perennial Grasses Subtotal			1.0	8.5
		ATCA2	<i>Atriplex canescens</i>	9.5	84.8

Attachment F-1a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
AS-074 Total		SAVE4	<i>Sarcobatus vermiculatus</i>	5.8	51.7
	Shrub Subtotal			15.3	136.5
AS-075 Total		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	11.0	98.1
	Annual Forb Subtotal			11.3	100.4
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grasses Subtotal			0.3	2.2
AS-075 Total		ATCA2	<i>Atriplex canescens</i>	50.0	446.1
		SAVE4	<i>Sarcobatus vermiculatus</i>	12.0	107.1
	Shrub Subtotal			62.0	553.2
AS-075 Total			73.5	655.8	
AS-076 Total		SATR12	<i>Salsola tragus</i>	2.9	25.9
	Annual Forb Subtotal			2.9	25.9
AS-076 Total			2.9	25.9	
AS-077 Total		DEPI	<i>Descurainia pinnata</i>	7.4	66.0
		SATR12	<i>Salsola tragus</i>	9.5	84.8
	Annual Forb Subtotal			16.9	150.8
		ATCA2	<i>Atriplex canescens</i>	3.0	27.1
		SAVE4	<i>Sarcobatus vermiculatus</i>	5.4	48.2
AS-077 Total	Shrub Subtotal			8.4	75.3
	AS-077 Total			25.3	226.1
AS-078 Total		HAGL	<i>Halogeton glomeratus</i>	10.9	97.2
		SATR12	<i>Salsola tragus</i>	1.0	8.9
	Annual Forb Subtotal			11.9	106.2
		SPAI	<i>Sporobolus airoides</i>	2.7	24.1
	Perennial Grasses Subtotal			2.7	24.1
AS-078 Total		ATOB	<i>Atriplex obovata</i>	3.8	33.9
	Shrub Subtotal			3.8	33.9
AS-078 Total			18.4	164.2	
AS-079 Total		CRCR3	<i>Cryptantha crassisejala</i>	2.2	19.6
		DEPI	<i>Descurainia pinnata</i>	13.6	121.3
		SATR12	<i>Salsola tragus</i>	7.0	62.5
	Annual Forb Subtotal			22.8	203.4
AS-079 Total		ATCA2	<i>Atriplex canescens</i>	1.7	15.2
	Shrub Subtotal			1.7	15.2
AS-079 Total			24.5	218.6	
AS-079 Total		DEPI	<i>Descurainia pinnata</i>	4.0	35.7
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	14.0	124.9
	Annual Forb Subtotal			18.3	162.8
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2

Attachment F-1a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m²)	Air Dry Weight (lbs/acre)
	Perennial Grasses Subtotal			0.3	2.2
		ATCA2	<i>Atriplex canescens</i>	1.9	17.0
		GUSA2	<i>Gutierrezia sarothrae</i>	0.3	2.2
	Shrub Subtotal			2.2	19.2
AS-080 Total				20.7	184.2

Attachment F-2. Alkali Wash Production Summary

LifeForm	Scientific Name	Air Dry Weight (g/m ³)	Air Dry Weight (lbs/acre)
	<i>Hordeum pusillum</i>	3.9	34.8
	<i>Monroa squarrosa</i>	0.3	2.2
	<i>Vulpia octoflora</i>	0.3	2.2
Annual Grass	Subtotal	4.4	39.2
	<i>Atriplex powellii</i>	5.2	45.9
	<i>Cryptantha crassisejala</i>	0.8	6.8
	<i>Descurainia pinnata</i>	0.4	3.4
	<i>Erigeron bellidiastrum</i>	1.7	14.7
	<i>Eriogonum gordonii</i>	1.3	11.9
	<i>Halogeton glomeratus</i>	18.5	165.1
	<i>Lappula occidentalis</i>	0.6	5.4
	<i>Linum puberulum</i>	0.3	2.2
	<i>Machaeranthera canescens</i>	1.6	14.5
	<i>Malacothrix sonchoides</i>	0.3	2.2
	<i>Plantago patagonica</i>	2.1	19.1
	<i>Salsola tragus</i>	6.6	58.9
	<i>Townsendia annua</i>	0.7	6.0
Annual Forb	Subtotal	39.9	356.1
	<i>Allium spp.</i>	0.1	0.9
	<i>Lygodesmia grandiflora</i>	0.3	2.2
	<i>Sphaeralcea coccinea</i>	1.8	15.6
	<i>Sphaeralcea parvifolia</i>	0.7	6.4
Perennial Forb	Subtotal	2.8	25.2
	<i>Achnatherum hymenoides</i>	0.3	2.2
	<i>Hordeum jubatum</i>	2.1	18.7
	<i>Pleuraphis jamesii</i>	2.4	21.5
	<i>Sporobolus airoides</i>	2.0	17.5
	<i>Sporobolus cryptandrus</i>	1.5	13.3
Perennial Grass	Subtotal	8.2	73.3
	<i>Atriplex canescens</i>	2.7	24.1
	<i>Atriplex confertifolia</i>	19.2	170.9
	<i>Atriplex gardneri</i>	4.1	36.7
	<i>Atriplex obovata</i>	14.4	128.2
	<i>Gutierrezia sarothrae</i>	7.8	69.6
Shrub	Subtotal	48.1	429.5
	Unknown	6.3	56.2
Unknown	Subtotal	6.3	56.2

Attachment F-2 Cont'd.

	Air Dry Weight (g/m²)	Air Dry Weight (lbs/acre)	Standard Deviation of lbs/acre
Alkali Wash Total	109.8	979.5	75.4

Attachment F-2a. Alkali Wash Production by Transect

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
AW-001		ATPO2	<i>Atriplex powellii</i>	17.0	151.7
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	7.8	69.6
	Annual Forb Subtotal			25.1	223.5
		ATOB	<i>Atriplex obovata</i>	15.5	138.3
	Shrub Subtotal			15.5	138.3
AW-001 Total				40.6	361.8
AW-002		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	2.0	17.8
	Annual Forb Subtotal			2.5	22.3
		ATGA	<i>Atriplex gardneri</i>	2.1	18.7
	Shrub Subtotal			2.1	18.7
AW-002 Total				4.6	41.0
AW-003		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	20.0	178.4
	Annual Forb Subtotal			20.3	180.7
		ATOB	<i>Atriplex obovata</i>	10.0	89.2
	Shrub Subtotal			10.0	89.2
	AW-003 Total				30.3
AW-004		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	3.4	30.3
		SATR12	<i>Salsola tragus</i>	7.1	63.3
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			11.3	100.4
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		SPPA2	<i>Sphaeralcea parvifolia</i>	0.7	6.4
	Perennial Forb Subtotal			0.7	6.4
		PLJA	<i>Pleuraphis jamesii</i>	2.8	24.8
	SPAI	<i>Sporobolus airoides</i>	0.7	6.0	
Perennial Grass Subtotal			3.5	30.8	
AW-004 Total				15.7	139.8
AW-005		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	5.8	51.7
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			6.8	60.7
		MOSQ	<i>Monroa squarrosa</i>	0.3	2.2

Attachment F-2a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Annual Grass Subtotal			0.3	2.2
AW-005 Total				7.1	62.9
		HAGL	<i>Halogeton glomeratus</i>	0.5	4.5
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	5.5	49.1
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			6.8	60.2
	Perennial Grass Subtotal	SPAI	<i>Sporobolus airoides</i>	1.4	12.8
AW-006 Total				8.2	73.1
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			0.8	6.7
AW-007 Total				0.8	6.7
		HAGL	<i>Halogeton glomeratus</i>	38.0	339.0
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			38.3	341.3
AW-008 Total				38.3	341.3
		ATPO2	<i>Atriplex powellii</i>	2.5	22.3
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	53.0	472.9
	Annual Forb Subtotal			55.8	497.4
AW-009 Total				55.8	497.4
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	1.4	12.5
		LAOC3	<i>Lappula occidentalis</i>	1.0	8.9
		SATR12	<i>Salsola tragus</i>	10.0	89.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			13.2	117.3
	Perennial Grass Subtotal	SPAI	<i>Sporobolus airoides</i>	3.7	32.6
AW-010 Total				16.8	149.9
	NONE Subtotal	NONE	NONE	0.0	0.0
AW-011 Total				0.0	0.0
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	0.8	7.1

Attachment F-2a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		PLPA2	<i>Plantago patagonica</i>	4.0	35.7
		SATR12	<i>Salsola tragus</i>	0.4	3.6
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			5.7	50.9
		ATGA	<i>Atriplex gardneri</i>	1.2	10.5
	Shrub Subtotal			1.2	10.5
AW-012 Total				6.9	61.3
		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		LIPU4	<i>Linum puberulum</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	1.0	8.9
		SATR12	<i>Salsola tragus</i>	15.0	133.8
		TOAN	<i>Townsendia annua</i>	1.0	8.9
	Annual Forb Subtotal			17.8	158.4
		LYGR	<i>Lygodesmia grandiflora</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
AW-013 Total				18.0	160.6
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	1.9	17.0
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			2.4	21.4
AW-014 Total				2.4	21.4
		SATR12	<i>Salsola tragus</i>	10.0	89.2
	Annual Forb Subtotal			10.0	89.2
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	6.0	53.5
	Perennial Grass Subtotal			6.3	55.8
AW-015 Total				16.3	145.0
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	3.5	31.2
		TOAN	<i>Townsendia annua</i>	1.0	8.9
	Annual Forb Subtotal			5.3	46.8
		SPCOC	<i>Sphaeralcea coccinea</i>	0.9	8.0
	Perennial Forb Subtotal			0.9	8.0
		SPAI	<i>Sporobolus airoides</i>	1.7	15.3
	Perennial Grass Subtotal			1.7	15.3
		ATGA	<i>Atriplex gardneri</i>	10.3	91.8
	Shrub Subtotal			10.3	91.8
AW-016 Total				18.2	161.9
		ATPO2	<i>Atriplex powellii</i>	21.0	187.4

Attachment F-2a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Annual Forb Subtotal			21.0	187.4
		Unk 2		6.3	56.2
	Unknown Subtotal			6.3	56.2
AW-017 Total				27.3	243.6
	Annual Forb Subtotal	HAGL	<i>Halogeton glomeratus</i>	38.0	339.0
AW-018 Total				38.0	339.0
	NONE Subtotal	NONE	NONE	0.0	0.0
AW-019 Total				0.0	0.0
	Annual Forb Subtotal	PLPA2	<i>Plantago patagonica</i>	3.1	27.7
	Annual Grass Subtotal	HOPU	<i>Hordeum pusillum</i>	3.9	34.8
	Perennial Grass Subtotal	SPAI	<i>Sporobolus airoides</i>	0.8	6.7
	Shrub Subtotal	ATOB	<i>Atriplex obovata</i>	17.0	151.7
AW-020 Total				24.7	220.8
	Annual Forb Subtotal	ATPO2	<i>Atriplex powellii</i>	0.3	2.2
AW-021 Total				0.3	2.2
	Annual Forb Subtotal	ATPO2	<i>Atriplex powellii</i>	3.3	29.4
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	7.4	66.0
	Perennial Grass Subtotal	SPAI	<i>Sporobolus airoides</i>	0.3	2.2
AW-022 Total				11.2	99.9
	Annual Forb Subtotal	CRCR3	<i>Cryptantha crassisejala</i>	2.3	20.5
		MASO	<i>Malacothrix sonchoides</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	17.0	151.7
	Perennial Grass Subtotal	PLJA	<i>Pleuraphis jamesii</i>	2.8	24.6
AW-023 Total				22.3	199.0
	Annual Forb Subtotal	ATPO2	<i>Atriplex powellii</i>	3.4	30.3
		SATR12	<i>Salsola tragus</i>	4.2	37.5
	Annual Forb Subtotal			7.6	67.8

Attachment F-2a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
AW-024 Total		ATOB	<i>Atriplex obovata</i>	3.9	34.8
	Shrub Subtotal			3.9	34.8
AW-025 Total		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		MACA2	<i>Machaeranthera canescens</i>	1.6	14.5
		PLPA2	<i>Plantago patagonica</i>	2.1	18.7
		SATR12	<i>Salsola tragus</i>	2.6	23.2
		TOAN	<i>Townsendia annua</i>	1.3	11.6
	Annual Forb Subtotal			7.9	70.2
		SPCOC	<i>Sphaeralcea coccinea</i>	1.6	14.3
	Perennial Forb Subtotal			1.6	14.3
		SPAI	<i>Sporobolus airoides</i>	0.8	6.7
		SPCR	<i>Sporobolus cryptandrus</i>	0.5	4.4
Perennial Grass Subtotal			1.2	11.1	
AW-025 Total			10.7	95.6	
AW-026 Total		ATPO2	<i>Atriplex powellii</i>	1.6	14.3
		DEPI	<i>Descurainia pinnata</i>	2.0	17.8
		ERGO	<i>Eriogonum gordonii</i>	0.8	7.1
	Annual Forb Subtotal			4.4	39.3
		SPCOC	<i>Sphaeralcea coccinea</i>	0.7	6.4
	Perennial Forb Subtotal			0.7	6.4
		HOJU	<i>Hordeum jubatum</i>	2.1	18.7
		SPAI	<i>Sporobolus airoides</i>	2.6	23.1
	Perennial Grass Subtotal			4.7	41.8
	AW-026 Total			9.8	87.5
AW-027 Total		ATPO2	<i>Atriplex powellii</i>	10.0	89.2
		ERGO	<i>Eriogonum gordonii</i>	3.8	33.9
	Annual Forb Subtotal			13.8	123.1
		ATGA	<i>Atriplex gardneri</i>	2.9	25.9
		ATOB	<i>Atriplex obovata</i>	3.3	29.4
	Shrub Subtotal			6.2	55.3
AW-027 Total			20.0	178.4	
AW-028 Total		HAGL	<i>Halogeton glomeratus</i>	7.8	69.6
	Annual Forb Subtotal			7.8	69.6
AW-028 Total			7.8	69.6	
AW-029 Total		HAGL	<i>Halogeton glomeratus</i>	27.0	240.9
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			27.3	243.1
		PLJA	<i>Pleuraphis jamesii</i>	1.0	8.9
	Perennial Grass Subtotal			1.0	8.9
AW-029 Total			28.3	252.0	

Attachment F-2a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		LAOC3	<i>Lappula occidentalis</i>	1.6	14.3
		PLPA2	<i>Plantago patagonica</i>	1.9	17.0
		TOAN	<i>Townsendia annua</i>	2.8	25.0
	Annual Forb Subtotal			6.3	56.2
		ALLIUM	<i>Allium spp.</i>	0.1	0.9
		SPCOC	<i>Sphaeralcea coccinea</i>	4.0	35.7
	Perennial Forb Subtotal			4.1	36.6
		PLJA	<i>Pleuraphis jamesii</i>	4.1	36.6
		SPAI	<i>Sporobolus airoides</i>	2.7	24.3
	Perennial Grass Subtotal			6.8	60.8
AW-030 Total				17.2	153.6
		HAGL	<i>Halogeton glomeratus</i>	19.0	169.5
		SATR12	<i>Salsola tragus</i>	1.5	13.4
	Annual Forb Subtotal			20.5	182.9
AW-031 Total				20.5	182.9
		ATPO2	<i>Atriplex powellii</i>	2.0	17.8
	Annual Forb Subtotal			2.0	17.8
AW-032 Total				2.0	17.8
		ERBE	<i>Erigeron bellidiastrum</i>	1.0	8.9
	Annual Forb Subtotal			1.0	8.9
AW-033 Total				1.0	8.9
		ERBE	<i>Erigeron bellidiastrum</i>	2.3	20.5
	Annual Forb Subtotal			2.3	20.5
		ATCA2	<i>Atriplex canescens</i>	2.7	24.1
		ATCO	<i>Atriplex confertifolia</i>	36.0	321.2
		ATOB	<i>Atriplex obovata</i>	44.0	392.6
	Shrub Subtotal			82.7	737.8
AW-034 Total				85.0	758.4
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	2.4	21.4
		SATR12	<i>Salsola tragus</i>	4.0	35.7
	Annual Forb Subtotal			6.7	59.3
		SPCOC	<i>Sphaeralcea coccinea</i>	1.5	13.7
	Perennial Forb Subtotal			1.5	13.7
AW-035 Total				8.2	73.0
		CRCR3	<i>Cryptantha crassisejala</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	12.0	107.1
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			12.5	111.5
		SPAI	<i>Sporobolus airoides</i>	0.7	6.2
	Perennial Grass Subtotal			0.7	6.2

Attachment F-2a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m2)	Air Dry Weight (lbs/acre)
		GUSA2	<i>Gutierrezia sarothrae</i>	7.8	69.6
	Shrub Subtotal			7.8	69.6
AW-036 Total				21.0	187.4
		DEPI	<i>Descurainia pinnata</i>	0.8	7.1
		HAGL	<i>Halogeton glomeratus</i>	9.8	87.4
		SATR12	<i>Salsola tragus</i>	1.7	15.2
	Annual Forb Subtotal			12.3	109.7
	Shrub Subtotal	ATCO	<i>Atriplex confertifolia</i>	2.3	20.5
AW-037 Total				2.3	20.5
		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		ATOB	<i>Atriplex obovata</i>	0.3	2.2
		ATOB	<i>Atriplex obovata</i>	21.0	187.4
	Shrub Subtotal			21.3	189.6
AW-038 Total				21.8	194.0
		NONE	<i>NONE</i>	0.0	0.0
	NONE Subtotal			0.0	0.0
AW-039 Total				0.0	0.0
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	1.9	17.0
		SATR12	<i>Salsola tragus</i>	11.8	105.3
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			14.2	126.7
	Annual Grass Subtotal	VUOC	<i>Vulpia octoflora</i>	0.3	2.2
				0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	1.4	12.8
		SPAI	<i>Sporobolus airoides</i>	2.3	20.1
		SPCR	<i>Sporobolus cryptandrus</i>	2.5	22.3
	Perennial Grass Subtotal			6.2	55.2
AW-040 Total				20.6	184.1

Attachment F-3. Badland Production Summary

LifeForm	Scientific Name	Air Dry Weight (g/m²)	Air Dry Weight (lbs/acre)	
	<i>Bromus tectorum</i>	0.3	2.2	
	<i>Hordeum pusillum</i>	0.3	2.2	
Annual Grass Subtotal		0.5	4.5	
	<i>Atriplex powellii</i>	1.8	16.4	
	<i>Descurainia pinnata</i>	0.5	4.4	
	<i>Eriogonum divaricatum</i>	0.3	2.2	
	<i>Eriogonum gordonii</i>	0.7	6.6	
	<i>Halogeton glomeratus</i>	5.2	46.2	
	<i>Ipomopsis pumila</i>	0.3	2.2	
	<i>Lappula occidentalis</i>	0.3	2.2	
	<i>Phacelia crenulata</i>	1.1	9.8	
	<i>Plantago patagonica</i>	0.3	2.2	
	<i>Salsola tragus</i>	2.4	21.8	
	<i>Townsendia annua</i>	0.3	2.2	
Annual Forb Subtotal		13.0	116.4	
	<i>Lygodesmia grandiflora</i>	0.8	7.1	
	<i>Sphaeralcea coccinea</i>	3.2	28.5	
	<i>Suaeda moquini</i>	1.3	11.4	
Perennial Forb Subtotal		5.3	47.1	
	<i>Pleuraphis jamesii</i>	0.3	2.2	
	<i>Sporobolus airoides</i>	1.4	12.3	
Perennial Grass Subtotal		1.6	14.6	
	<i>Atriplex canescens</i>	16.0	142.7	
	<i>Atriplex gardneri</i>	5.7	51.0	
	<i>Atriplex obovata</i>	20.9	186.8	
	<i>Atriplex saccaria</i>	5.5	49.1	
Shrub Subtotal		48.2	429.6	
				Standard Deviation of lbs/acre
Badlands Total		68.6	612.1	109.5

Attachment F-3a. Badlands Production by Transect.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
BA-081 Total		SPCOC	<i>Sphaeralcea coccinea</i>	3.2	28.5
	Perennial Forb Subtotal			3.2	28.5
				3.2	28.5
BA-082 Total		ATOB	<i>Atriplex obovata</i>	5.0	44.6
	Shrub Subtotal			5.0	44.6
				5.0	44.6
BA-083 Total		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	2.0	17.8
	Annual Forb Subtotal			2.3	20.1
			2.3	20.1	
BA-084 Total		NONE	<i>NONE</i>	0.0	0.0
	NONE Subtotal			0.0	0.0
				0.0	0.0
BA-085 Total		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
	Annual Forb Subtotal			0.3	2.2
		ATOB	<i>Atriplex obovata</i>	7.9	70.5
	Shrub Subtotal			7.9	70.5
				8.2	72.7
BA-086 Total		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
	Annual Forb Subtotal			0.3	2.2
		ATOB	<i>Atriplex obovata</i>	41.0	365.8
	Shrub Subtotal			41.0	365.8
			41.3	368.0	
BA-087 Total		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
				0.5	4.5
BA-088 Total		ATPO2	<i>Atriplex powellii</i>	5.6	50.0
		ERGO	<i>Eriogonum gordonii</i>	1.0	8.9
	Annual Forb Subtotal			6.6	58.9
		ATGA	<i>Atriplex gardneri</i>	14.0	124.9
		ATOB	<i>Atriplex obovata</i>	115.0	1026.0
Shrub Subtotal			129.0	1150.9	
			135.6	1209.8	
BA-089 Total		NONE	<i>NONE</i>	0.0	0.0
	NONE Subtotal			0.0	0.0
				0.0	0.0

Attachment F-3a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)	
BA-090 Total		HAGL	<i>Halogeton glomeratus</i>	14.3	127.6	
	Annual Forb Subtotal			14.3	127.6	
BA-091 Total		ERGO	<i>Eriogonum gordonii</i>	2.6	23.2	
		PHCR	<i>Phacelia crenulata</i>	1.1	9.8	
		SATR12	<i>Salsola tragus</i>	1.1	9.8	
	Annual Forb Subtotal			4.8	42.8	
				4.8	42.8	
BA-091* Total		DEPI	<i>Descurainia pinnata</i>	0.3	2.2	
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2	
		SATR12	<i>Salsola tragus</i>	4.0	35.7	
	Annual Forb Subtotal			4.5	40.1	
	Perennial Forb Subtotal		LYGR	<i>Lygodesmia grandiflora</i>	0.8	7.1
BA-092 Total	Perennial Grasses Subtotal			0.8	7.1	
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2	
				0.3	2.2	
BA-092 Total	Shrub Subtotal		ATGA	<i>Atriplex gardneri</i>	2.9	25.9
				2.9	25.9	
BA-093 Total	Annual Forb Subtotal			3.2	28.1	
		ATPO2	<i>Atriplex powellii</i>	1.5	13.4	
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2	
BA-094 Total	Annual Forb Subtotal			1.8	15.6	
				1.8	15.6	
BA-094 Total	Annual Forb Subtotal		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
				0.3	2.2	
BA-095 Total	Annual Forb Subtotal		DEPI	<i>Descurainia pinnata</i>	2.7	24.1
				2.7	24.1	
	Shrub Subtotal		ATCA2	<i>Atriplex canescens</i>	16.0	142.7
			ATOB	<i>Atriplex obovata</i>	7.2	64.2
BA-096 Total	NONE Subtotal			23.2	207.0	
				25.9	231.1	
BA-096 Total	NONE Subtotal		NONE	<i>NONE</i>	0.0	0.0
				0.0	0.0	
BA-096 Total	NONE Subtotal		NONE	<i>NONE</i>	0.0	0.0
				0.0	0.0	

Attachment F-3a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
BA-097 Total				0.0	0.0
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
BA-098 Total				0.5	4.5
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
	Annual Forb Subtotal			0.3	2.2
		ATGA	<i>Atriplex gardneri</i>	0.3	2.2
	Shrub Subtotal			0.3	2.2
BA-098* Total				0.5	4.5
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	1.0	8.9
	Annual Forb Subtotal			1.3	11.2
		SPAI	<i>Sporobolus airoides</i>	1.2	10.7
	Perennial Grasses Subtotal			1.2	10.7
BA-099 Total				2.5	21.9
		ATPO2	<i>Atriplex powellii</i>	1.0	8.9
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			2.0	17.8
BA-100 Total				2.0	17.8
		ATPO2	<i>Atriplex powellii</i>	3.5	31.2
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
	Annual Forb Subtotal			3.8	33.5
BA-101 Total				3.8	33.5
		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	1.0	8.9
	Annual Forb Subtotal			1.3	11.2
BA-101* Total				1.3	11.2
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			1.0	8.9
		ATOB	<i>Atriplex obovata</i>	6.9	61.6
	Shrub Subtotal			6.9	61.6
BA-102 Total				7.9	70.5

Attachment F-3a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
BA-103 Total		ERDI5	<i>Eriogonum divaricatum</i>	0.3	2.2
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		HOPU	<i>Hordeum pusillum</i>	0.3	2.2
	Annual Grasses Subtotal			0.3	2.2
BA-103 Total				0.8	6.7
BA-104 Total		NONE	NONE	0.0	0.0
	NONE Subtotal			0.0	0.0
BA-104 Total				0.0	0.0
BA-105 Total		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	2.0	17.8
	Annual Forb Subtotal			2.3	20.1
		ATOB	<i>Atriplex obovata</i>	7.0	62.5
BA-105 Total	Shrub Subtotal			7.0	62.5
				9.3	82.5
BA-106 Total		ATPO2	<i>Atriplex powellii</i>	1.0	8.9
	Annual Forb Subtotal			1.0	8.9
BA-106 Total				1.0	8.9
BA-107 Total		ATPO2	<i>Atriplex powellii</i>	8.0	71.4
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	5.0	44.6
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			13.8	122.7
BA-107 Total				13.8	122.7
BA-108 Total		ERGO	<i>Eriogonum gordonii</i>	3.0	26.8
	Annual Forb Subtotal			3.0	26.8
		ATOB	<i>Atriplex obovata</i>	5.1	45.5
		ATSA	<i>Atriplex saccaria</i>	5.5	49.1
BA-108 Total	Shrub Subtotal			10.6	94.6
				13.6	121.3
BA-109 Total		ATOB	<i>Atriplex obovata</i>	7.3	65.1
	Shrub Subtotal			7.3	65.1
BA-109 Total				7.3	65.1
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		BRTE	<i>Bromus tectorum</i>	0.3	2.2
	Annual Grasses Subtotal			0.3	2.2
		ATOB	<i>Atriplex obovata</i>	2.0	17.8

Attachment F-3a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
BA-110 Total		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		BRTE	<i>Bromus tectorum</i>	0.3	2.2
	Annual Grasses Subtotal			0.3	2.2
	Shrub Subtotal	ATOB	<i>Atriplex obovata</i>	2.0	17.8
BA-110 Total				2.8	24.5
BA-111 Total		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
	Annual Forb Subtotal			1.0	8.9
BA-111 Total				1.0	8.9
BA-112 Total		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			1.3	11.2
	ATOB	<i>Atriplex obovata</i>	15.0	133.8	
Shrub Subtotal			15.0	133.8	
BA-112 Total				16.3	145.0
BA-113 Total		ATPO2	<i>Atriplex powellii</i>	3.7	33.0
	Annual Forb Subtotal			3.7	33.0
		SUMO	<i>Suaeda moquinii</i>	2.3	20.5
	Perennial Forb Subtotal			2.3	20.5
BA-113 Total				6.0	53.5
BA-114 Total		NONE	<i>NONE</i>	0.0	0.0
	NONE Subtotal			0.0	0.0
BA-114 Total				0.0	0.0
BA-115 Total		ATPO2	<i>Atriplex powellii</i>	3.1	27.7
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	6.7	59.8
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			10.6	94.1
	PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2	
Perennial Grasses Subtotal			0.3	2.2	
BA-115 Total				10.8	96.4

Attachment F-3a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		NONE	<i>NONE</i>	0.0	0.0
	NONE Subtotal			0.0	0.0
BA-116 Total				0.0	0.0
		ATPO2	<i>Atriplex powellii</i>	3.4	30.3
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			4.2	37.0
BA-117 Total				4.2	37.0
		SUMO	<i>Suaeda moquinii</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
BA-118 Total				0.3	2.2
		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
	Annual Forb Subtotal			1.3	11.2
		SPAI	<i>Sporobolus airoides</i>	2.7	24.1
	Perennial Grasses Subtotal			2.7	24.1
		ATOB	<i>Atriplex obovata</i>	38.0	339.0
	Shrub Subtotal			38.0	339.0
BA-119 Total				42.0	374.3
		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		ATOB	<i>Atriplex obovata</i>	14.8	132.0
	Shrub Subtotal			14.8	132.0
BA-120 Total				15.3	136.5

Attachment F-4. Dunes Production Summary

Life Form	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	<i>Bromus tectorum</i>	0.3	2.2
	<i>Vulpia octoflora</i>	0.3	2.2
Annual Grass Subtotal		0.5	4.5
	<i>Ambrosia acanthicarpa</i>	0.8	7.4
	<i>Cordylanthus wrightii</i>	15.2	135.6
	<i>Cryptantha crassisepala</i>	3.6	31.8
	<i>Descurainia pinnata</i>	1.5	13.2
	<i>Dimorphocarpa wislizenii</i>	4.0	35.4
	<i>Ipomopsis pumila</i>	0.3	2.2
	<i>Lappula occidentalis</i>	0.3	2.2
	<i>Linum puberulum</i>	2.0	17.8
	<i>Machaeranthera canescens</i>	6.3	56.1
	<i>Mentzelia albicaulis</i>	0.7	6.3
	<i>Phacelia crenulata</i>	0.7	6.4
	<i>Salsola tragus</i>	6.4	57.1
	<i>Streptanthella longirostris</i>	1.5	13.0
	<i>Townsendia annua</i>	0.3	2.2
Annual Forb Subtotal		43.4	386.8
	<i>Astragalus spp.</i>	0.3	2.2
Forb Subtotal		0.3	2.2
	<i>Abronia fragrans</i>	2.4	21.4
	<i>Chaetopappa ericoides</i>	0.3	2.2
	<i>Lygodesmia grandiflora</i>	0.3	2.2
	<i>Mentzelia pumila</i>	0.9	7.8
	<i>Oenothera pallida</i>	3.3	29.7
	<i>Penstemon angustifolius</i>	1.5	13.4
	<i>Sphaeralcea coccinea</i>	1.6	14.3
	<i>Sphaeralcea parvifolia</i>	1.4	12.4
	<i>Stephanomeria exigua</i>	0.7	6.4
Perennial Forb Subtotal		12.3	109.9
	<i>Achnatherum hymenoides</i>	1.7	15.0
	<i>Aristida purpurea</i>	0.9	7.6
	<i>Muhlenbergia pungens</i>	2.4	21.8
	<i>Pleuraphis jamesii</i>	2.7	24.4
	<i>Sporobolus airoides</i>	2.1	18.5
	<i>Sporobolus contractus</i>	1.3	11.2
	<i>Sporobolus cryptandrus</i>	0.9	7.7
Perennial Grass Subtotal		11.9	106.1
	<i>Atriplex canescens</i>	4.8	43.1

Attachment F-4a. Dunes Production by Transect.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)	
DU-121		CRCR3	<i>Cryptantha crassisepala</i>	7.9	70.5	
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2	
		DIWI2	<i>Dimorphocarpa wislizenii</i>	4.8	42.8	
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2	
		LIPU4	<i>Linum puberulum</i>	1.0	8.9	
		MACA2	<i>Machaeranthera canescens</i>	3.8	34.1	
		SATR12	<i>Salsola tragus</i>	1.7	15.2	
		Annual Forb Subtotal			19.7	176.0
			OEPA	<i>Oenothera pallida</i>	2.6	22.9
		Perennial Forb Subtotal			2.6	22.9
			ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
			MUPU2	<i>Muhlenbergia pungens</i>	0.3	2.2
			PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
	Perennial Grass Subtotal			0.8	6.7	
		CHVI8	<i>Chrysothamnus viscidiflorus</i>	3.5	31.3	
	Shrub Subtotal			3.5	31.3	
DU-121 Total				26.6	236.9	
DU-122		SPCOC	<i>Sphaeralcea coccinea</i>	1.6	14.3	
		Perennial Forb Subtotal		1.6	14.3	
			SPAI	<i>Sporobolus airoides</i>	4.3	38.1
	Perennial Grass Subtotal			4.3	38.1	
DU-122 Total				5.9	52.4	
DU-123		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2	
		DEPI	<i>Descurainia pinnata</i>	2.5	22.3	
		SATR12	<i>Salsola tragus</i>	0.3	2.2	
		Annual Forb Subtotal			3.0	26.8
			STEX	<i>Stephanomeria exigua</i>	0.3	2.2
		Perennial Forb Subtotal			0.3	2.2
			PLJA	<i>Pleuraphis jamesii</i>	6.9	61.6
	Perennial Grass Subtotal			6.9	61.6	
		LYPA	<i>Lycium pallidum</i>	0.3	2.2	
	Shrub Subtotal			0.3	2.2	
DU-123 Total				10.4	92.8	
DU-124		AMAC2	<i>Ambrosia acanthicarpa</i>	0.3	2.2	
		MACA2	<i>Machaeranthera canescens</i>	0.3	2.2	
		SATR12	<i>Salsola tragus</i>	2.7	24.1	
		Annual Forb Subtotal			3.2	28.5
			ACHY	<i>Achnatherum hymenoides</i>	1.6	14.5
			ARPU9	<i>Aristida purpurea</i>	0.9	8.0
	Perennial Grass Subtotal			2.5	22.5	
DU-124 Total				5.7	51.0	

Attachment F-4a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		AMAC2	<i>Ambrosia acanthicarpa</i>	0.3	2.2
	Annual Forb Subtotal			0.3	2.2
		ASTRA	<i>Astragalus spp.</i>	0.3	2.2
	Forb Subtotal			0.3	2.2
		ACHY	<i>Achnatherum hymenoides</i>	2.3	20.9
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grass Subtotal			2.6	23.1
		EPHED	<i>Ephedra sp.</i>	5.1	45.8
	Shrub Subtotal			5.1	45.8
DU-125 Total				8.2	73.3
		CRCR3	<i>Cryptantha crassisejala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		STLO4	<i>Streptanthella longirostris</i>	2.1	18.7
	Annual Forb Subtotal			2.6	23.2
		SPAI	<i>Sporobolus airoides</i>	0.9	7.6
	Perennial Grass Subtotal			0.9	7.6
		ATGA	<i>Atriplex gardneri</i>	3.6	32.1
		SAVE4	<i>Sarcobatus vermiculatus</i>	17.0	151.7
	Shrub Subtotal			20.6	183.8
DU-126 Total				24.1	214.6
		CRCR3	<i>Cryptantha crassisejala</i>	0.3	2.2
	Annual Forb Subtotal			0.3	2.2
		SPPA2	<i>Sphaeralcea parvifolia</i>	1.2	10.7
	Perennial Forb Subtotal			1.2	10.7
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	6.9	61.6
		SPAI	<i>Sporobolus airoides</i>	3.9	34.8
	Perennial Grass Subtotal			11.1	98.6
DU-127 Total				12.5	111.5
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	2.1	18.7
		SATR12	<i>Salsola tragus</i>	2.6	23.2
	Annual Forb Subtotal			5.0	44.2
		SPAI	<i>Sporobolus airoides</i>	1.6	14.3
	Perennial Grass Subtotal			1.6	14.3
		EPHED	<i>Ephedra sp.</i>	14.4	128.5
	Shrub Subtotal			14.4	128.5
DU-128 Total				21.0	186.9
		CRCR3	<i>Cryptantha crassisejala</i>	1.5	13.4
		DEPI	<i>Descurainia pinnata</i>	1.3	11.6
	Annual Forb Subtotal			2.8	25.0
		MEPU3	<i>Mentzelia pumila</i>	1.5	13.4

Attachment F-4a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Perennial Forb Subtotal			1.5	13.4
		ACHY	<i>Achnatherum hymenoides</i>	0.8	7.4
	Perennial Grass Subtotal			0.8	7.4
		GUSA2	<i>Gutierrezia sarothrae</i>	34.6	308.7
	Shrub Subtotal			34.6	308.7
DU-129 Total				39.7	354.4
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		MEAL6	<i>Mentzelia albicaulis</i>	0.3	2.7
		SATR12	<i>Salsola tragus</i>	3.9	34.8
	Annual Forb Subtotal			4.5	39.7
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	1.4	12.1
	Perennial Grass Subtotal			1.4	12.1
DU-130 Total				6.1	54.1
		CRCR3	<i>Cryptantha crassisepala</i>	1.6	14.3
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		DIW12	<i>Dimorphocarpa wislizenii</i>	3.0	26.8
		SATR12	<i>Salsola tragus</i>	15.2	135.6
	Annual Forb Subtotal			20.1	178.9
		SPPA2	<i>Sphaeralcea parvifolia</i>	2.4	21.4
	Perennial Forb Subtotal			2.4	21.4
		ACHY	<i>Achnatherum hymenoides</i>	1.2	10.7
		MUPU2	<i>Muhlenbergia pungens</i>	4.7	41.9
	Perennial Grass Subtotal			5.9	52.6
DU-131 Total				28.4	252.9
		CRCR3	<i>Cryptantha crassisepala</i>	38.0	339.0
		MACA2	<i>Machaeranthera canescens</i>	17.7	158.2
		MEAL6	<i>Mentzelia albicaulis</i>	1.0	8.9
	Annual Forb Subtotal			56.7	506.1
		ABFR2	<i>Abronia fragrans</i>	1.8	16.1
		OEPA	<i>Oenothera pallida</i>	8.3	74.1
		SPPA2	<i>Sphaeralcea parvifolia</i>	1.9	16.9
	Perennial Forb Subtotal			12.0	107.0
		PLJA	<i>Pleuraphis jamesii</i>	2.0	17.7
	Perennial Grass Subtotal			2.0	17.7
DU-132 Total				70.7	630.8
		PLJA	<i>Pleuraphis jamesii</i>	3.0	26.9
		SPAI	<i>Sporobolus airoides</i>	0.9	8.0
	Perennial Grass Subtotal			3.9	34.9
		EPHED	<i>Ephedra sp.</i>	2.8	25.0
		GUSA2	<i>Gutierrezia sarothrae</i>	8.9	79.4
	Shrub Subtotal			11.7	104.4

Attachment F-4a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
DU-133 Total				15.6	139.3
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DIW12	<i>Dimorphocarpa wislizenii</i>	2.0	17.8
		SATR12	<i>Salsola tragus</i>	1.3	11.6
	Annual Forb Subtotal			3.6	31.7
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	0.5	4.0
	Perennial Grass Subtotal			0.7	6.2
		EPHED	<i>Ephedra sp.</i>	0.7	6.2
		GUSA2	<i>Gutierrezia sarothrae</i>	10.8	96.4
	Shrub Subtotal			11.5	102.6
		Unk 1		0.3	2.2
	Unknown Subtotal			0.3	2.2
DU-134 Total				16.0	142.7
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
	Annual Forb Subtotal			0.3	2.2
		ACHY	<i>Achnatherum hymenoides</i>	2.4	21.4
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grass Subtotal			2.7	23.6
		EPHED	<i>Ephedra sp.</i>	8.9	79.5
		ERNA10	<i>Ericameria [Chrysothamnus] nauseosus</i>	50.9	454.1
	Shrub Subtotal			59.8	533.6
DU-135 Total				62.7	559.5
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	1.4	12.5
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			2.7	23.6
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	3.2	28.8
	Perennial Grass Subtotal			3.2	28.8
		GUSA2	<i>Gutierrezia sarothrae</i>	2.6	23.2
	Shrub Subtotal			2.6	23.2
DU-136 Total				8.7	77.9
		COWR2	<i>Cordylanthus wrightii</i>	15.2	135.6
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
	Annual Forb Subtotal			15.5	137.8
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2

Attachment F-4a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		SPAI	<i>Sporobolus airoides</i>	2.3	20.5
	Perennial Grass Subtotal			2.3	20.5
		ERNA10	<i>Ericameria [Chrysothamnus] nauseosus</i>	11.6	103.5
		SAVE4	<i>Sarcobatus vermiculatus</i>	3.6	32.1
	Shrub Subtotal			15.2	135.6
DU-137 Total				33.2	296.2
		SPAI	<i>Sporobolus airoides</i>	1.4	12.5
	Perennial Grass Subtotal			1.4	12.5
		GUSA2	<i>Gutierrezia sarothrae</i>	14.6	130.3
	Shrub Subtotal			14.6	130.3
DU-138 Total				16.0	142.7
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	7.7	68.7
		MACA2	<i>Machaeranthera canescens</i>	1.9	17.0
		MEAL6	<i>Mentzelia albicaulis</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	13.0	116.0
		STLO4	<i>Streptanthella longirostris</i>	2.5	22.3
	Annual Forb Subtotal			25.6	228.4
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
	Perennial Grass Subtotal			0.3	2.2
DU-139 Total				25.9	230.6
		AMAC2	<i>Ambrosia acanthicarpa</i>	0.3	2.2
		DIWI2	<i>Dimorphocarpa wislizenii</i>	9.6	85.6
		MACA2	<i>Machaeranthera canescens</i>	5.8	51.4
		SATR12	<i>Salsola tragus</i>	12.0	107.1
	Annual Forb Subtotal			27.6	246.3
		MEPU3	<i>Mentzelia pumila</i>	0.3	2.2
		OEPA	<i>Oenothera pallida</i>	7.8	69.9
	Perennial Forb Subtotal			8.1	72.1
		ACHY	<i>Achnatherum hymenoides</i>	7.0	62.6
	Perennial Grass Subtotal			7.0	62.6
DU-140 Total				42.7	381.0
		CRCR3	<i>Cryptantha crassisepala</i>	9.0	80.3
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		MACA2	<i>Machaeranthera canescens</i>	9.5	84.9
		SATR12	<i>Salsola tragus</i>	2.3	20.5
	Annual Forb Subtotal			21.1	188.0
		OEPA	<i>Oenothera pallida</i>	5.9	53.0
		SPPA2	<i>Sphaeralcea parvifolia</i>	0.3	2.2
	Perennial Forb Subtotal			6.2	55.2
		ACHY	<i>Achnatherum hymenoides</i>	0.7	6.4
		MUPU2	<i>Muhlenbergia pungens</i>	0.3	2.2

Attachment F-4a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
DU-141		PLJA	<i>Pleuraphis jamesii</i>	0.5	4.0
		SPCO4	<i>Sporobolus contractus</i>	0.3	2.2
		Perennial Grass Subtotal		1.7	14.9
		DU-141 Total		28.9	258.1
DU-142		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.6	5.4
		DIWI2	<i>Dimorphocarpa wislizenii</i>	1.2	10.5
		LIPU4	<i>Linum puberulum</i>	1.4	12.5
		MACA2	<i>Machaeranthera canescens</i>	8.6	76.3
		STLO4	<i>Streptanthella longirostris</i>	1.0	8.7
		Annual Forb Subtotal		13.0	115.6
		ASTRA	<i>Astragalus spp.</i>	0.3	2.2
		Forb Subtotal		0.3	2.2
		OEPA	<i>Oenothera pallida</i>	2.9	25.7
		SPPA2	<i>Sphaeralcea parvifolia</i>	0.4	3.2
		STEX	<i>Stephanomeria exigua</i>	1.4	12.2
		Perennial Forb Subtotal		4.6	41.1
		ACHY	<i>Achnatherum hymenoides</i>	2.3	20.1
MUPU2	<i>Muhlenbergia pungens</i>	0.3	2.2		
PLJA	<i>Pleuraphis jamesii</i>	6.9	61.6		
Perennial Grass Subtotal		9.4	83.9		
DU-142 Total		27.2	242.8		
DU-143		CRCR3	<i>Cryptantha crassisepala</i>	3.3	29.4
		DEPI	<i>Descurainia pinnata</i>	5.3	47.3
		MACA2	<i>Machaeranthera canescens</i>	17.1	152.6
		SATR12	<i>Salsola tragus</i>	3.3	29.4
		Annual Forb Subtotal		29.0	258.7
		OEPA	<i>Oenothera pallida</i>	2.7	24.1
		SPPA2	<i>Sphaeralcea parvifolia</i>	0.3	2.7
		Perennial Forb Subtotal		3.0	26.8
		ACHY	<i>Achnatherum hymenoides</i>	0.5	4.6
		PLJA	<i>Pleuraphis jamesii</i>	0.5	4.0
SPCO4	<i>Sporobolus contractus</i>	2.3	20.1		
Perennial Grass Subtotal		3.2	28.6		
DU-143 Total		35.2	314.1		
		SPPA2	<i>Sphaeralcea parvifolia</i>	0.3	2.2
		Perennial Forb Subtotal		0.3	2.2
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		MUPU2	<i>Muhlenbergia pungens</i>	0.7	6.2
		Perennial Grass Subtotal		1.0	8.5
		CHVI8	<i>Chrysothamnus viscidiflorus</i>	0.3	2.2
		Shrub Subtotal		0.3	2.2
		Unk 1		2.0	17.8
		Unknown Subtotal		2.0	17.8

Attachment F-4a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
DU-144 Total				3.5	30.8
		DIWI2	<i>Dimorphocarpa wislizenii</i>	1.7	15.2
		MEAL6	<i>Mentzelia albicaulis</i>	0.3	2.2
	Annual Forb Subtotal			2.0	17.4
		SPPA2	<i>Sphaeralcea parvifolia</i>	3.0	26.8
	Perennial Forb Subtotal			3.0	26.8
		ATCA2	<i>Atriplex canescens</i>	7.0	62.5
		ERLE9	<i>Eriogonum leptocladon</i>	10.0	89.2
		Unk 1		14.0	124.9
	Shrub Subtotal			31.0	276.6
DU-145 Total				36.0	320.7
		AMAC2	<i>Ambrosia acanthicarpa</i>	2.4	21.4
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
	Annual Forb Subtotal			2.7	23.6
		ACHY	<i>Achnatherum hymenoides</i>	2.3	20.9
		PLJA	<i>Pleuraphis jamesii</i>	1.2	10.7
		SPAI	<i>Sporobolus airoides</i>	1.8	16.1
	Perennial Grass Subtotal			5.3	47.6
		EPHED	<i>Ephedra sp.</i>	9.0	80.4
		ERNA10	<i>Ericameria [Chrysothamnus] nauseosus</i>	46.0	410.4
	Shrub Subtotal			55.0	490.8
DU-146 Total				63.0	562.1
		MACA2	<i>Machaeranthera canescens</i>	0.3	2.2
		MEAL6	<i>Mentzelia albicaulis</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		PLJA	<i>Pleuraphis jamesii</i>	5.5	49.1
		SPAI	<i>Sporobolus airoides</i>	6.8	60.2
	Perennial Grass Subtotal			12.3	109.3
DU-147 Total				12.8	113.8
		AMAC2	<i>Ambrosia acanthicarpa</i>	0.4	3.6
		CRCR3	<i>Cryptantha crassisepala</i>	3.0	26.8
		DIWI2	<i>Dimorphocarpa wislizenii</i>	2.4	21.4
		MACA2	<i>Machaeranthera canescens</i>	3.6	32.2
	Annual Forb Subtotal			9.4	84.0
		ABFR2	<i>Abronia fragrans</i>	3.0	26.8
		OEPA	<i>Oenothera pallida</i>	0.4	3.6
	Perennial Forb Subtotal			3.4	30.3
		ACHY	<i>Achnatherum hymenoides</i>	2.4	21.7
		PLJA	<i>Pleuraphis jamesii</i>	1.4	12.8
	Perennial Grass Subtotal			3.9	34.5
		CHVI8	<i>Chrysothamnus viscidiflorus</i>	1.0	8.5
	Shrub Subtotal			1.0	8.5

Attachment F-4a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
DU-148 Total				17.6	157.3
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		LIPU4	<i>Linum puberulum</i>	3.6	32.1
		MACA2	<i>Machaeranthera canescens</i>	7.7	69.1
		SATR12	<i>Salsola tragus</i>	2.8	25.0
	Annual Forb Subtotal			14.4	128.4
		LYGR	<i>Lygodesmia grandiflora</i>	0.3	2.2
		OEPA	<i>Oenothera pallida</i>	1.5	13.7
		STEX	<i>Stephanomeria exigua</i>	1.0	8.9
	Perennial Forb Subtotal			2.8	24.8
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	1.0	8.5
		SPCR	<i>Sporobolus cryptandrus</i>	1.1	10.2
	Perennial Grass Subtotal			2.3	20.9
		ATCA2	<i>Atriplex canescens</i>	2.8	24.9
		EPHED	<i>Ephedra sp.</i>	31.4	279.7
		ERLE9	<i>Eriogonum leptocladon</i>	0.5	4.0
		GUSA2	<i>Gutierrezia sarothrae</i>	0.3	2.2
	Shrub Subtotal			34.8	310.8
DU-149 Total				54.4	484.9
		SATR12	<i>Salsola tragus</i>	14.6	130.3
	Annual Forb Subtotal			14.6	130.3
		ACHY	<i>Achnatherum hymenoides</i>	1.7	15.3
		PLJA	<i>Pleuraphis jamesii</i>	6.7	59.4
	Perennial Grass Subtotal			8.4	74.7
		EPHED	<i>Ephedra sp.</i>	4.3	38.4
	Shrub Subtotal			4.3	38.4
DU-150 Total				27.3	243.3
		AMAC2	<i>Ambrosia acanthicarpa</i>	2.5	22.3
	Annual Forb Subtotal			2.5	22.3
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		MUPU2	<i>Muhlenbergia pungens</i>	2.1	18.7
	Perennial Grass Subtotal			2.4	21.0
		ATCA2	<i>Atriplex canescens</i>	4.7	41.9
	Shrub Subtotal			4.7	41.9
DU-151 Total				9.6	85.2
		AMAC2	<i>Ambrosia acanthicarpa</i>	0.9	8.0
		SATR12	<i>Salsola tragus</i>	32.0	285.5
	Annual Forb Subtotal			32.9	293.5
		OEPA	<i>Oenothera pallida</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
DU-152 Total				33.2	295.8

Attachment F-4a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		MEAL6	<i>Mentzelia albicaulis</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.3	2.2
		STLO4	<i>Streptanthella longirostris</i>	0.3	2.2
	Annual Forb Subtotal			1.0	8.9
		PEAN4	<i>Penstemon angustifolius</i>	1.5	13.4
	Perennial Forb Subtotal			1.5	13.4
		SPCR	<i>Sporobolus cryptandrus</i>	0.6	5.4
	Perennial Grass Subtotal			0.6	5.4
		Unk 1		1.0	8.9
	Unknown Subtotal			1.0	8.9
DU-153 Total				4.1	36.6
		AMAC2	<i>Ambrosia acanthicarpa</i>	0.3	2.7
		CRCR3	<i>Cryptantha crassisepala</i>	1.8	16.1
		DIWI2	<i>Dimorphocarpa wislizenii</i>	0.8	7.1
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2
		MEAL6	<i>Mentzelia albicaulis</i>	1.5	13.4
	Annual Forb Subtotal			4.7	41.5
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grass Subtotal			0.5	4.5
		ERLE9	<i>Eriogonum leptocladon</i>	4.7	41.9
	Shrub Subtotal			4.7	41.9
DU-154 Total				9.9	87.9
		AMAC2	<i>Ambrosia acanthicarpa</i>	0.3	2.2
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		ARPU9	<i>Aristida purpurea</i>	0.8	7.1
		SPAI	<i>Sporobolus airoides</i>	2.0	17.8
	Perennial Grass Subtotal			2.8	25.0
		EPHED	<i>Ephedra sp.</i>	3.0	26.4
	Shrub Subtotal			3.0	26.4
DU-155 Total				6.3	55.9
		CRCR3	<i>Cryptantha crassisepala</i>	9.0	80.3
		DIWI2	<i>Dimorphocarpa wislizenii</i>	4.8	42.8
		MACA2	<i>Machaeranthera canescens</i>	2.5	22.5
	Annual Forb Subtotal			16.3	145.6
		ACHY	<i>Achnatherum hymenoides</i>	6.8	60.7
		PLJA	<i>Pleuraphis jamesii</i>	4.7	41.7
		SPCR	<i>Sporobolus cryptandrus</i>	0.9	7.6
	Perennial Grass Subtotal			12.3	110.0
DU-156 Total				28.7	255.6
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2

Attachment F-4a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		DEPI	<i>Descurainia pinnata</i>	1.3	11.6
		MACA2	<i>Machaeranthera canescens</i>	3.0	26.8
		SATR12	<i>Salsola tragus</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			5.1	45.1
		BRTE	<i>Bromus tectorum</i>	0.3	2.2
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.5	4.5
		SPPA2	<i>Sphaeralcea parvifolia</i>	2.7	24.1
	Perennial Forb Subtotal			2.7	24.1
		ATGA	<i>Atriplex gardneri</i>	6.3	56.2
	Shrub Subtotal			6.3	56.2
DU-157 Total				14.6	129.8
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DIW12	<i>Dimorphocarpa wislizenii</i>	10.7	95.5
		MEAL6	<i>Mentzelia albicaulis</i>	1.9	16.6
	Annual Forb Subtotal			12.8	114.3
		OEPA	<i>Oenothera pallida</i>	1.0	8.5
		SPPA2	<i>Sphaeralcea parvifolia</i>	0.3	2.2
		STEX	<i>Stephanomeria exigua</i>	0.3	2.2
	Perennial Forb Subtotal			1.5	12.9
		ACHY	<i>Achnatherum hymenoides</i>	4.3	38.5
		PLJA	<i>Pleuraphis jamesii</i>	1.5	13.4
	Perennial Grass Subtotal			5.8	51.9
		CHVI8	<i>Chrysothamnus viscidiflorus</i>	2.4	21.4
	Shrub Subtotal			2.4	21.4
DU-158 Total				22.5	200.6
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DIW12	<i>Dimorphocarpa wislizenii</i>	2.7	24.1
		SATR12	<i>Salsola tragus</i>	5.6	50.0
	Annual Forb Subtotal			8.6	76.3
		CHER2	<i>Chaetopappa ericoides</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	2.0	17.7
	Perennial Grass Subtotal			2.2	19.9
		EPHED	<i>Ephedra sp.</i>	2.2	19.6
	Shrub Subtotal			2.2	19.6
		Unk 1		0.3	2.2
	Unknown Subtotal			0.3	2.2
DU-159 Total				13.5	120.3
		SPPA2	<i>Sphaeralcea parvifolia</i>	2.7	24.3
	Perennial Forb Subtotal			2.7	24.3
		ACHY	<i>Achnatherum hymenoides</i>	0.1	0.5

Attachment F-4a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m²)	Air Dry Weight (lbs/acre)
		MUPU2	<i>Muhlenbergia pungens</i>	8.8	78.8
		PLJA	<i>Pleuraphis jamesii</i>	0.5	4.8
	Perennial Grass Subtotal			9.4	84.2
DU-160 Total				12.2	108.4

Attachment F-5. Reference Arroyo Shrub Production Summary

Life Form	Scientific Name	Air Dry Weight (g/m²)	Air Dry Weight (lbs/acre)
	<i>Aegilops cylindrica</i>	1.6	14.5
	<i>Bouteloua barbata</i>	0.3	2.2
	<i>Bromus tectorum</i>	1.1	9.5
	<i>Hordeum pusillum</i>	5.0	44.6
	<i>Monroa squarrosa</i>	0.3	2.2
	<i>Vulpia octoflora</i>	0.3	2.2
Annual Grass	Subtotal	8.4	75.3
	<i>Atriplex powellii</i>	2.8	25.0
	<i>Cryptantha crassisepala</i>	0.3	2.2
	<i>Descurainia pinnata</i>	0.3	2.6
	<i>Erigeron bellidiastrum</i>	0.7	6.3
	<i>Eriogonum gordonii</i>	0.3	2.2
	<i>Halogeton glomeratus</i>	10.1	90.3
	<i>Ipomopsis pumila</i>	0.3	2.2
	<i>Lappula occidentalis</i>	0.3	2.2
	<i>Machaeranthera canescens</i>	0.3	2.2
	<i>Malacothrix sonchoides</i>	0.3	2.2
	<i>Pectis cylindrica</i>	0.3	2.2
	<i>Plantago patagonica</i>	3.6	32.4
	<i>Salsola tragus</i>	4.4	39.0
	<i>Townsendia annua</i>	0.3	2.6
Annual Forb	Subtotal	24.0	213.9
	<i>Aster sp.</i>	1.2	10.3
	<i>Portulaca oleracea</i>	0.3	2.2
Forb	Subtotal	1.4	12.5
	<i>Chamaesyce fendleri</i>	0.3	2.2
	<i>Grindelia squarrosa</i>	11.2	100.1
	<i>Linum aristatum</i>	0.3	2.2
	<i>Senecio flaccidus</i>	0.3	2.2
	<i>Sphaeralcea parvifolia</i>	0.3	2.2
Perennial Forb	Subtotal	12.2	109.0
	<i>Bouteloua gracilis</i>	0.3	2.2
	<i>Pleuraphis jamesii</i>	2.2	19.7
	<i>Sporobolus airoides</i>	9.4	84.3
	<i>Sporobolus contractus</i>	1.5	13.4
Perennial Grass	Subtotal	13.4	119.6
	<i>Atriplex canescens</i>	2.6	22.9
	<i>Atriplex gardneri</i>	1.4	12.5
	<i>Atriplex obovata</i>	11.6	103.9

Attachment F-5 Cont'd.

Life Form	Scientific Name	Air Dry Weight (g/m²)	Air Dry Weight (lbs/acre)	
	<i>Gutierrezia sarothrae</i>	24.0	214.1	
	<i>Sarcobatus vermiculatus</i>	48.0	428.2	
Shrub Subtotal		87.6	781.7	
		Air Dry Weight (g/m²)	Air Dry Weight (lbs/acre)	Standard Deviation of lbs/acre
Reference Arroyo Shrub Total		147.1	1312.0	91.6

Attachment F-5a. Reference Arroyo Shrub Production by Transect.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
	Annual Forb Subtotal			0.3	2.2
		BRTE	<i>Bromus tectorum</i>	0.3	2.2
		HOPU	<i>Hordeum pusillum</i>	0.3	2.2
	Annual Grass Subtotal			0.5	4.5
		OTHER	<i>Aster sp.</i>	0.3	2.2
		POOL	<i>Portulaca oleracea</i>	0.3	2.2
	Forb Subtotal			0.5	4.5
	Perennial Forb Subtotal	CHFE3	<i>Chamaesyce fendleri</i>	0.3	2.2
				0.3	2.2
	Perennial Grass Subtotal	SPAI	<i>Sporobolus airoides</i>	2.7	24.1
				2.7	24.1
RAS-041 Total				4.2	37.5
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERBE	<i>Erigeron bellidiastrum</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		HOPU	<i>Hordeum pusillum</i>	0.3	2.2
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.5	4.5
	Perennial Forb Subtotal	GRSQ	<i>Grindelia squarrosa</i>	84.0	749.4
				84.0	749.4
		PLJA	<i>Pleuraphis jamesii</i>	6.5	58.0
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	24.8	220.8
	Perennial Grass Subtotal			31.5	281.0
	Shrub Subtotal	ATCA2	<i>Atriplex canescens</i>	2.6	22.9
				2.6	22.9
RAS-042 Total				119.1	1062.3
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.9	8.0
	Annual Forb Subtotal			1.4	12.5
	Annual Grass Subtotal	HOPU	<i>Hordeum pusillum</i>	0.3	2.2
				0.3	2.2
	Shrub Subtotal	ATOB	<i>Atriplex obovata</i>	2.8	25.0
				2.8	25.0
RAS-043 Total				4.5	39.7
	Annual Grass Subtotal	HOPU	<i>Hordeum pusillum</i>	13.0	116.0
				13.0	116.0
	Perennial Grass Subtotal	SPAI	<i>Sporobolus airoides</i>	4.3	38.4
				4.3	38.4

Attachment F-5a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
RAS-044 Total		ATOB	<i>Atriplex obovata</i>	11.3	100.8
	Shrub Subtotal			11.3	100.8
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		PECY	<i>Pectis cylindrica</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.4	3.6
		TOAN	<i>Townsendia annua</i>	0.5	4.5
	Annual Forb Subtotal			1.4	12.5
		BOBA2	<i>Bouteloua barbata</i>	0.3	2.2
		HOPU	<i>Hordeum pusillum</i>	3.2	28.9
	Annual Grass Subtotal			3.5	31.1
		OTHER	<i>Aster sp.</i>	0.3	2.2
	Forb Subtotal			0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	5.0	44.6
	Perennial Grass Subtotal			5.0	44.6
RAS-045 Total				10.1	90.5
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERBE	<i>Erigeron bellidiastrum</i>	3.0	26.8
		PLPA2	<i>Plantago patagonica</i>	4.0	35.7
	Annual Forb Subtotal			7.3	64.7
		HOPU	<i>Hordeum pusillum</i>	0.8	7.1
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			1.1	9.4
		OTHER	<i>Aster sp.</i>	7.5	66.9
	Forb Subtotal			7.5	66.9
		GRSQ	<i>Grindelia squarrosa</i>	0.9	8.0
	Perennial Forb Subtotal			0.9	8.0
		PLJA	<i>Pleuraphis jamesii</i>	4.0	35.7
		SPAI	<i>Sporobolus airoides</i>	23.0	205.2
	Perennial Grass Subtotal			27.0	240.9
RAS-046 Total				43.7	389.9
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
	Annual Forb Subtotal			0.3	2.2
		HOPU	<i>Hordeum pusillum</i>	13.0	116.0
	Annual Grass Subtotal			13.0	116.0
		OTHER	<i>Aster sp.</i>	0.3	2.2
	Forb Subtotal			0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	6.0	53.5
	Perennial Grass Subtotal			6.0	53.5
RAS-047 Total				19.5	174.0
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	2.0	17.8
		SATR12	<i>Salsola tragus</i>	2.0	17.8

Attachment F-5a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m2)	Air Dry Weight (lbs/acre)
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			4.5	40.1
		HOPU	<i>Hordeum pusillum</i>	0.9	8.0
	Annual Grass Subtotal			0.9	8.0
		GRSQ	<i>Grindelia squarrosa</i>	1.0	8.9
	Perennial Forb Subtotal			1.0	8.9
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	0.2	1.8
	Perennial Grass Subtotal			0.5	4.0
RAS-049 Total				6.9	61.1
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	17.0	151.7
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			17.5	156.1
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		SEFL3	<i>Senecio flaccidus</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	5.1	45.5
		SPAI	<i>Sporobolus airoides</i>	9.9	88.3
	Perennial Grass Subtotal			15.0	133.8
		ATOB	<i>Atriplex obovata</i>	3.0	26.8
	Shrub Subtotal			3.0	26.8
RAS-050 Total				36.0	321.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	3.8	33.9
		SATR12	<i>Salsola tragus</i>	3.0	26.8
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			7.3	65.1
		BOBA2	<i>Bouteloua barbata</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
RAS-051 Total				7.6	67.4
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		MACA2	<i>Machaeranthera canescens</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.5	4.5
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			1.8	15.6
		HOPU	<i>Hordeum pusillum</i>	2.8	24.6
	Annual Grass Subtotal			2.8	24.6
		SPAI	<i>Sporobolus airoides</i>	2.6	22.8
	Perennial Grass Subtotal			2.6	22.8

Attachment F-5a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
RAS-052 Total				7.1	62.9
		ERBE	<i>Erigeron bellidiastrum</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	8.8	78.5
	Annual Forb Subtotal			9.1	80.7
		BRTE	<i>Bromus tectorum</i>	0.3	2.2
		HOPU	<i>Hordeum pusillum</i>	0.3	2.2
	Annual Grass Subtotal			0.5	4.5
		OTHER	<i>Aster sp.</i>	0.3	2.2
	Forb Subtotal			0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	8.3	74.1
		SPAI	<i>Sporobolus airoides</i>	6.8	60.2
	Perennial Grass Subtotal			15.1	134.3
		GUSA2	<i>Gutierrezia sarothrae</i>	24.0	214.1
	Shrub Subtotal			24.0	214.1
RAS-053 Total				48.9	435.8
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		MASO	<i>Malacothrix sonchoides</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		HOPU	<i>Hordeum pusillum</i>	3.5	31.2
	Annual Grass Subtotal			3.5	31.2
		SPAI	<i>Sporobolus airoides</i>	16.2	144.5
	Perennial Grass Subtotal			16.2	144.5
		ATOB	<i>Atriplex obovata</i>	9.8	87.4
	Shrub Subtotal			9.8	87.4
RAS-054 Total				30.0	267.7
		SATR12	<i>Salsola tragus</i>	9.0	80.3
	Annual Forb Subtotal			9.0	80.3
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grass Subtotal			0.3	2.2
RAS-055 Total				9.3	82.5
		SATR12	<i>Salsola tragus</i>	31.0	276.6
	Annual Forb Subtotal			31.0	276.6
		HOPU	<i>Hordeum pusillum</i>	5.2	46.6
	Annual Grass Subtotal			5.2	46.6
		SPAI	<i>Sporobolus airoides</i>	5.0	45.0
	Perennial Grass Subtotal			5.0	45.0
RAS-056 Total				41.3	368.1
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	2.4	21.4
	Annual Forb Subtotal			2.7	23.6
		HOPU	<i>Hordeum pusillum</i>	3.0	26.8

Attachment F-5a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Annual Grass Subtotal			3.0	26.8
		LIAR3	<i>Linum aristatum</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		ATOB	<i>Atriplex obovata</i>	22.0	196.3
	Shrub Subtotal			22.0	196.3
RAS-057 Total				27.9	248.9
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	4.8	42.8
		SATR12	<i>Salsola tragus</i>	4.0	35.7
	Annual Forb Subtotal			9.1	80.7
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	2.4	21.4
	Perennial Grass Subtotal			2.4	21.4
RAS-058 Total				11.7	104.4
		HOPU	<i>Hordeum pusillum</i>	2.6	23.2
	Annual Grass Subtotal			2.6	23.2
		GRSQ	<i>Grindelia squarrosa</i>	10.0	89.2
	Perennial Forb Subtotal			10.0	89.2
		SPAI	<i>Sporobolus airoides</i>	7.8	69.6
	Perennial Grass Subtotal			7.8	69.6
RAS-059 Total				20.4	182.0
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	3.0	26.8
	Annual Forb Subtotal			3.3	29.0
		BOGR2	<i>Bouteloua gracilis</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	16.0	142.7
	Perennial Grass Subtotal			16.3	145.0
RAS-060 Total				19.5	174.0
		ERBE	<i>Erigeron bellidiastrum</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	8.8	78.5
	Annual Forb Subtotal			9.1	80.7
		AECY	<i>Aegilops cylindrica</i>	0.3	2.2
		HOPU	<i>Hordeum pusillum</i>	6.2	55.3
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			6.7	59.8
		OTHER	<i>Aster sp.</i>	0.3	2.2
	Forb Subtotal			0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	1.6	14.3
		SPAI	<i>Sporobolus airoides</i>	21.0	187.4
	Perennial Grass Subtotal			22.6	201.6
RAS-061 Total				38.6	344.4

Attachment F-5a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
	Annual Forb Subtotal			0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	5.9	52.3
		SPCO4	<i>Sporobolus contractus</i>	1.5	13.4
	Perennial Grass Subtotal			7.4	65.7
		ATOB	<i>Atriplex obovata</i>	9.9	88.3
	Shrub Subtotal			9.9	88.3
RAS-062 Total				17.5	156.3
		HOPU	<i>Hordeum pusillum</i>	1.4	12.5
	Annual Grass Subtotal			1.4	12.5
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grass Subtotal			0.5	4.5
		ATOB	<i>Atriplex obovata</i>	7.0	62.5
		SAVE4	<i>Sarcobatus vermiculatus</i>	72.0	642.4
	Shrub Subtotal			79.0	704.8
RAS-063 Total				80.9	721.8
		ERBE	<i>Erigeron bellidiastrum</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		AECY	<i>Aegilops cylindrica</i>	3.0	26.8
		BRTE	<i>Bromus tectorum</i>	3.5	31.2
		HOPU	<i>Hordeum pusillum</i>	6.2	55.3
	Annual Grass Subtotal			12.7	113.3
		GRSQ	<i>Grindelia squarrosa</i>	6.9	61.6
	Perennial Forb Subtotal			6.9	61.6
		PLJA	<i>Pleuraphis jamesii</i>	1.7	15.2
		SPAI	<i>Sporobolus airoides</i>	27.0	240.9
	Perennial Grass Subtotal			28.7	256.1
RAS-064 Total				48.8	435.4
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
	Annual Forb Subtotal			0.3	2.2
		HOPU	<i>Hordeum pusillum</i>	4.9	43.7
	Annual Grass Subtotal			4.9	43.7
		SPAI	<i>Sporobolus airoides</i>	3.4	30.3
	Perennial Grass Subtotal			3.4	30.3
RAS-065 Total				8.6	76.3
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			1.0	8.9
		HOPU	<i>Hordeum pusillum</i>	3.7	33.0

Attachment F-5a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Annual Grass Subtotal			3.7	33.0
		GRSQ	<i>Grindelia squarrosa</i>	2.5	22.3
	Perennial Forb Subtotal			2.5	22.3
		SPAI	<i>Sporobolus airoides</i>	3.0	26.8
	Perennial Grass Subtotal			3.0	26.8
RAS-066 Total				10.2	91.0
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
	Annual Forb Subtotal			0.3	2.2
		HOPU	<i>Hordeum pusillum</i>	14.0	124.9
	Annual Grass Subtotal			14.0	124.9
		GRSQ	<i>Grindelia squarrosa</i>	2.0	17.8
	Perennial Forb Subtotal			2.0	17.8
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	13.7	122.2
	Perennial Grass Subtotal			14.0	124.5
RAS-067 Total				30.2	269.4
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
	Annual Forb Subtotal			0.3	2.2
		HOPU	<i>Hordeum pusillum</i>	14.0	124.9
		MOSQ	<i>Monroa squarrosa</i>	0.3	2.2
	Annual Grass Subtotal			14.3	127.1
		SPPA2	<i>Sphaeralcea parvifolia</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	0.7	6.2
	Perennial Grass Subtotal			0.7	6.2
RAS-068 Total				15.5	137.8
		ATPO2	<i>Atriplex powellii</i>	2.8	25.0
		SATR12	<i>Salsola tragus</i>	2.7	24.1
	Annual Forb Subtotal			5.5	49.1
		ATOB	<i>Atriplex obovata</i>	58.0	517.5
	Shrub Subtotal			58.0	517.5
RAS-069 Total				63.5	566.5
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	31.0	276.6
	Annual Forb Subtotal			31.3	278.8
		ATOB	<i>Atriplex obovata</i>	1.3	11.6
	Shrub Subtotal			1.3	11.6
RAS-070 Total				32.6	290.4
		HOPU	<i>Hordeum pusillum</i>	2.3	20.5
	Annual Grass Subtotal			2.3	20.5
		GRSQ	<i>Grindelia squarrosa</i>	2.3	20.5

Attachment F-5a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Perennial Forb Subtotal			2.3	20.5
		SPAI	<i>Sporobolus airoides</i>	16.0	142.7
	Perennial Grass Subtotal			16.0	142.7
RAS-071 Total				20.6	183.8
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	5.0	44.6
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
	Annual Forb Subtotal			5.8	51.3
RAS-072 Total				5.8	51.3
		DEPI	<i>Descurainia pinnata</i>	0.9	8.0
		PLPA2	<i>Plantago patagonica</i>	2.0	17.8
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			3.2	28.1
		HOPU	<i>Hordeum pusillum</i>	0.9	8.0
	Annual Grass Subtotal			0.9	8.0
		GRSQ	<i>Grindelia squarrosa</i>	11.0	98.1
	Perennial Forb Subtotal			11.0	98.1
		PLJA	<i>Pleuraphis jamesii</i>	2.0	17.8
	Perennial Grass Subtotal			2.0	17.8
		ATGA	<i>Atriplex gardneri</i>	1.4	12.5
		SAVE4	<i>Sarcobatus vermiculatus</i>	24.0	214.1
	Shrub Subtotal			25.4	226.6
RAS-073 Total				42.5	378.7
		HOPU	<i>Hordeum pusillum</i>	6.0	53.5
	Annual Grass Subtotal			6.0	53.5
		GRSQ	<i>Grindelia squarrosa</i>	8.0	71.4
	Perennial Forb Subtotal			8.0	71.4
		PLJA	<i>Pleuraphis jamesii</i>	1.7	14.7
		SPAI	<i>Sporobolus airoides</i>	6.0	53.5
	Perennial Grass Subtotal			7.7	68.3
		ATOB	<i>Atriplex obovata</i>	6.0	53.5
	Shrub Subtotal			6.0	53.5
RAS-074 Total				27.7	246.7
		ERBE	<i>Erigeron bellidiastrum</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	5.0	44.6
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			5.5	49.1
		HOPU	<i>Hordeum pusillum</i>	0.3	2.2
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.5	4.5
		SPAI	<i>Sporobolus airoides</i>	24.0	214.1
	Perennial Grass Subtotal			24.0	214.1

Attachment F-5a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
RAS-075 Total		ATOB	<i>Atriplex obovata</i>	21.0	187.4
	Shrub Subtotal			21.0	187.4
RAS-076 Total		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	2.5	22.3
		SATR12	<i>Salsola tragus</i>	2.0	17.8
	Annual Forb Subtotal			4.8	42.4
		HOPU	<i>Hordeum pusillum</i>	20.0	178.4
	Annual Grass Subtotal			20.0	178.4
		OTHER	<i>Aster sp.</i>	0.3	2.2
	Forb Subtotal			0.3	2.2
		GRSQ	<i>Grindelia squarrosa</i>	3.0	26.8
	Perennial Forb Subtotal			3.0	26.8
		PLJA	<i>Pleuraphis jamesii</i>	0.8	7.2
		SPAI	<i>Sporobolus airoides</i>	3.9	35.0
Perennial Grass Subtotal			4.7	42.2	
	ATOB	<i>Atriplex obovata</i>	1.0	8.9	
Shrub Subtotal			1.0	8.9	
RAS-076 Total			33.7	300.9	
RAS-077 Total		BRTE	<i>Bromus tectorum</i>	0.3	2.2
		HOPU	<i>Hordeum pusillum</i>	11.0	98.1
	Annual Grass Subtotal			11.3	100.4
		SPAI	<i>Sporobolus airoides</i>	2.1	18.3
Perennial Grass Subtotal			2.1	18.3	
RAS-077 Total			13.3	118.7	
RAS-078 Total		HOPU	<i>Hordeum pusillum</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	1.0	8.9
	Perennial Grass Subtotal			1.3	11.2
	ATOB	<i>Atriplex obovata</i>	9.7	86.5	
Shrub Subtotal			9.7	86.5	
RAS-078 Total			11.2	99.9	
RAS-079 Total		HOPU	<i>Hordeum pusillum</i>	8.0	71.4
	Annual Grass Subtotal			8.0	71.4
		GRSQ	<i>Grindelia squarrosa</i>	3.0	26.8
	Perennial Forb Subtotal			3.0	26.8
		SPAI	<i>Sporobolus airoides</i>	22.0	196.3
	Perennial Grass Subtotal			22.0	196.3
	ATOB	<i>Atriplex obovata</i>	0.3	2.2	
Shrub Subtotal			0.3	2.2	
RAS-079 Total			33.3	296.6	

Attachment F-5a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	8.8	78.5
	Annual Forb Subtotal			9.1	80.7
		HOPU	<i>Hordeum pusillum</i>	2.0	17.8
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			2.3	20.1
		OTHER	<i>Aster sp.</i>	0.3	2.2
	Forb Subtotal			0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	19.5	174.0
	Perennial Grass Subtotal			19.8	176.2
RAS-080 Total				31.3	279.3

Attachment F-6. Reference Alkali Wash Production Summary

LifeForm	Scientific Name	Air Dry Weight (g/m2)	Air Dry Weight (lbs/acre)
	<i>Bouteloua barbata</i>	1.2	10.4
	<i>Bromus tectorum</i>	0.3	2.2
	<i>Hordeum pusillum</i>	0.7	6.3
	<i>Monroa squarrosa</i>	1.7	14.7
	<i>Vulpia octoflora</i>	0.3	2.2
Annual Grass	Subtotal	4.0	35.9
	<i>Atriplex powellii</i>	11.8	105.6
	<i>Cryptantha crassisejala</i>	0.4	3.5
	<i>Descurainia pinnata</i>	0.3	2.8
	<i>Dimorphocarpa wislizenii</i>	0.3	2.2
	<i>Eriogonum gordonii</i>	0.8	7.3
	<i>Halogeton glomeratus</i>	8.5	75.4
	<i>Ipomopsis pumila</i>	0.3	2.6
	<i>Lappula occidentalis</i>	0.3	2.3
	<i>Machaeranthera canescens</i>	1.0	8.7
	<i>Phacelia crenulata</i>	0.3	2.2
	<i>Plantago patagonica</i>	2.6	23.2
	<i>Salsola tragus</i>	2.8	25.1
	<i>Stenogonum salsuginosum</i>	5.0	44.6
	<i>Townsendia annua</i>	0.4	3.6
Annual Forb	Subtotal	34.6	309.1
	<i>Chenopodium sp.</i>	0.3	2.7
Forb	Subtotal	0.3	2.7
	<i>Chamaesaracha coronopus</i>	0.5	4.5
	<i>Chamaesyce fendleri</i>	0.3	2.2
	<i>Grindelia squarrosa</i>	8.3	74.1
	<i>Sphaeralcea coccinea</i>	1.1	10.1
	<i>Sphaeralcea parvifolia</i>	1.4	12.8
Perennial Forb	Subtotal	11.6	103.7
	<i>Achnatherum hymenoides</i>	0.3	2.2
	<i>Hordeum jubatum</i>	0.3	2.2
	<i>Pascopyrum smithii</i>	0.3	2.2
	<i>Pleuraphis jamesii</i>	1.0	8.7
	<i>Sporobolus airoides</i>	1.6	13.9
	<i>Sporobolus contractus</i>	0.5	4.0
	<i>Sporobolus cryptandrus</i>	1.1	9.4
Perennial Grass	Subtotal	4.8	42.8
	<i>Atriplex canescens</i>	1.8	16.1
	<i>Atriplex confertifolia</i>	0.3	2.2

Attachment F-6 Cont'd.

LifeForm	Scientific Name	Air Dry Weight (g/m2)	Air Dry Weight (lbs/acre)
	<i>Atriplex gardneri</i>	6.7	59.9
	<i>Atriplex obovata</i>	9.1	81.3
	<i>Gutierrezia sarothrae</i>	5.0	44.6
Shrub Subtotal		22.9	204.1
	Unknown	0.2	2.1
Unknown Subtotal		0.2	2.1

	Air Dry Weight (g/m2)	Air Dry Weight (lbs/acre)	Standard Deviation of lbs/acre
Reference Alkali Wash Total	78.5	700.4	51.3

Attachment F-6a. Reference Alkali Wash Production by Transect.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)	
RAW-001		DEPI	<i>Descurainia pinnata</i>	0.3	2.2	
		HAGL	<i>Halogeton glomeratus</i>	3.1	27.7	
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2	
		PLPA2	<i>Plantago patagonica</i>	11.6	103.5	
		SATR12	<i>Salsola tragus</i>	3.0	26.8	
		TOAN	<i>Townsendia annua</i>	0.3	2.2	
		Annual Forb Subtotal			18.5	164.6
		Perennial Grass Subtotal	SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	RAW-001 Total				18.7	166.8
	RAW-002		ATPO2	<i>Atriplex powellii</i>	45.0	401.5
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2	
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2	
		Annual Forb Subtotal			45.5	405.9
		Shrub Subtotal	ATOB	<i>Atriplex obovata</i>	39.0	347.9
RAW-002 Total					84.5	753.9
RAW-003		PLPA2	<i>Plantago patagonica</i>	0.3	2.2	
		TOAN	<i>Townsendia annua</i>	0.3	2.2	
		Annual Forb Subtotal			0.5	4.5
		Perennial Grass Subtotal	SPCR	<i>Sporobolus cryptandrus</i>	0.7	6.2
		Shrub Subtotal	ATOB	<i>Atriplex obovata</i>	0.5	4.5
	RAW-003 Total				1.7	15.2
RAW-004		HOPU	<i>Hordeum pusillum</i>	0.3	2.2	
		Annual Grass Subtotal			0.3	2.2
		Perennial Forb Subtotal	GRSQ	<i>Grindelia squarrosa</i>	14.0	124.9
					14.0	124.9
		Perennial Grass Subtotal	PASM	<i>Pascopyrum smithii</i>	0.3	2.2
			PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
			SPAI	<i>Sporobolus airoides</i>	0.5	4.5
	RAW-004 Total				15.3	136.1
RAW-005		BRTE	<i>Bromus tectorum</i>	0.3	2.2	
		MOSQ	<i>Monroa squarrosa</i>	0.8	7.1	
		Annual Grass Subtotal			1.1	9.4
		Perennial Forb Subtotal	DEPI	<i>Descurainia pinnata</i>	0.5	4.5
			LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
			PLPA2	<i>Plantago patagonica</i>	0.7	6.2
			SATR12	<i>Salsola tragus</i>	1.4	12.5
	RAW-005 Total				3.8	34.1

Attachment F-6a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			3.1	27.7
		SPAI	<i>Sporobolus airoides</i>	2.2	19.3
	Perennial Grass Subtotal			2.2	19.3
		Unk 4		0.2	2.1
	Unknown Subtotal			0.2	2.1
RAW-005 Total				6.6	58.4
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			1.0	8.9
		ATOB	<i>Atriplex obovata</i>	4.3	38.4
	Shrub Subtotal			4.3	38.4
RAW-006 Total				5.3	47.3
		ATPO2	<i>Atriplex powellii</i>	2.0	17.8
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	0.9	8.0
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.9	8.0
	Annual Forb Subtotal			4.6	40.6
		ATOB	<i>Atriplex obovata</i>	3.0	26.8
	Shrub Subtotal			3.0	26.8
RAW-007 Total				7.6	67.4
		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	1.9	17.0
	Annual Forb Subtotal			2.9	25.9
		ATGA	<i>Atriplex gardneri</i>	0.2	1.8
	Shrub Subtotal			0.2	1.8
RAW-008 Total				3.1	27.7
		ERGO	<i>Eriogonum gordonii</i>	1.0	8.9
		HAGL	<i>Halogeton glomeratus</i>	0.2	1.8
		IPPU4	<i>Ipomopsis pumila</i>	0.5	4.5
		SATR12	<i>Salsola tragus</i>	1.9	17.0
	Annual Forb Subtotal			3.6	32.1
RAW-009 Total				3.6	32.1
		PLPA2	<i>Plantago patagonica</i>	6.0	53.5
		TOAN	<i>Townsendia annua</i>	0.3	2.2

Attachment F-6a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Annual Forb Subtotal			6.3	55.8
		SPCR	<i>Sporobolus cryptandrus</i>	1.4	12.7
	Perennial Grass Subtotal			1.4	12.7
RAW-010 Total				7.7	68.5
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	2.0	17.8
	Annual Forb Subtotal			2.3	20.1
RAW-011 Total				2.3	20.1
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	2.0	17.8
	Annual Forb Subtotal			2.5	22.3
RAW-012 Total				2.5	22.3
		HAGL	<i>Halogeton glomeratus</i>	0.7	6.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			1.0	8.5
	Shrub Subtotal	ATOB	<i>Atriplex obovata</i>	0.6	5.4
RAW-013 Total				0.6	5.4
				1.6	13.8
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	7.0	62.5
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2
	Annual Forb Subtotal			7.8	69.1
RAW-014 Total				7.8	69.1
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
	Shrub Subtotal	ATOB	<i>Atriplex obovata</i>	14.7	131.2
RAW-015 Total				14.7	131.2
				15.2	135.6
		NONE	<i>NONE</i>	0.0	0.0
	NONE Subtotal			0.0	0.0
RAW-016 Total				0.0	0.0
		HOPU	<i>Hordeum pusillum</i>	1.0	8.5
	Annual Grass Subtotal			1.0	8.5
		DEPI	<i>Descurainia pinnata</i>	0.2	1.8
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	6.6	58.9
		TOAN	<i>Townsendia annua</i>	0.3	2.2

Attachment F-6a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Annual Forb Subtotal			7.3	65.1
		SPCOC	<i>Sphaeralcea coccinea</i>	0.3	2.7
	Perennial Forb Subtotal			0.3	2.7
		PLJA	<i>Pleuraphis jamesii</i>	1.1	9.4
		SPAI	<i>Sporobolus airoides</i>	1.7	14.7
	Perennial Grass Subtotal			2.7	24.1
		ATGA	<i>Atriplex gardneri</i>	19.7	175.8
	Shrub Subtotal			19.7	175.8
RAW-017 Total				31.0	276.1
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	3.0	26.8
		SATR12	<i>Salsola tragus</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			3.8	33.5
		HOJU	<i>Hordeum jubatum</i>	0.3	2.2
	Perennial Grass Subtotal			0.3	2.2
RAW-018 Total				4.0	35.7
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.8	7.1
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			1.8	16.1
		ATOB	<i>Atriplex obovata</i>	12.0	107.1
	Shrub Subtotal			12.0	107.1
RAW-019 Total				13.8	123.1
		BOBA2	<i>Bouteloua barbata</i>	0.3	2.2
		MOSQ	<i>Monroa squarrosa</i>	3.9	34.8
	Annual Grass Subtotal			4.2	37.0
		CRCR3	<i>Cryptantha crassisepala</i>	0.8	7.1
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	1.7	15.2
		SATR12	<i>Salsola tragus</i>	7.4	66.0
		TOAN	<i>Townsendia annua</i>	1.0	8.9
	Annual Forb Subtotal			11.2	99.5
		PLJA	<i>Pleuraphis jamesii</i>	0.6	5.4
		SPAI	<i>Sporobolus airoides</i>	1.2	10.4
	Perennial Grass Subtotal			1.8	15.8
		ATOB	<i>Atriplex obovata</i>	11.8	105.3
	Shrub Subtotal			11.8	105.3
RAW-020 Total				28.9	257.6
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	4.0	35.7

Attachment F-6a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)	
RAW-021		SATR12	<i>Salsola tragus</i>	2.0	17.8	
			<i>Stenogonum</i>			
		STSA3	<i>salsuginosum</i>	5.0	44.6	
			TOAN	<i>Townsendia annua</i>	0.3	2.2
		Annual Forb Subtotal			11.5	102.6
			SPCOC	<i>Sphaeralcea coccinea</i>	0.9	8.0
			SPPA2	<i>Sphaeralcea parvifolia</i>	1.4	12.8
		Perennial Forb Subtotal			2.3	20.9
	RAW-021 Total				13.8	123.5
	RAW-022		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
ERGO			<i>Eriogonum gordonii</i>	0.3	2.2	
HAGL			<i>Halogeton glomeratus</i>	33.0	294.4	
IPPU4			<i>Ipomopsis pumila</i>	0.3	2.2	
LAOC3			<i>Lappula occidentalis</i>	0.3	2.2	
			<i>Machaeranthera</i>			
MACA2			<i>canescens</i>	0.3	2.2	
SATR12			<i>Salsola tragus</i>	0.8	7.1	
TOAN			<i>Townsendia annua</i>	0.3	2.2	
			Annual Forb Subtotal			35.3
			ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
			PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
			SPAI	<i>Sporobolus airoides</i>	0.3	2.2
		Perennial Grass Subtotal			0.8	6.7
RAW-022 Total				36.1	321.6	
RAW-023		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2	
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2	
		LAOC3	<i>Lappula occidentalis</i>	0.4	3.6	
			<i>Machaeranthera</i>			
		MACA2	<i>canescens</i>	2.3	20.5	
		PLPA2	<i>Plantago patagonica</i>	2.4	21.4	
		SATR12	<i>Salsola tragus</i>	6.5	58.0	
	TOAN	<i>Townsendia annua</i>	0.3	2.2		
		Annual Forb Subtotal			12.3	110.1
			SPCOC	<i>Sphaeralcea coccinea</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2	
RAW-023 Total				12.6	112.4	
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2	
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2	
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2	
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2	
		TOAN	<i>Townsendia annua</i>	1.0	8.9	
		Annual Forb Subtotal			2.0	17.8
		Shrub Subtotal	ATOB	<i>Atriplex obovata</i>	4.3	38.4
				4.3	38.4	

Attachment F-6a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
RAW-024 Total				6.3	56.2
		HOPU	<i>Hordeum pusillum</i>	1.4	12.3
	Annual Grass Subtotal			1.4	12.3
		GRSQ	<i>Grindelia squarrosa</i>	2.6	23.2
	Perennial Forb Subtotal			2.6	23.2
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.4
		SPAI	<i>Sporobolus airoides</i>	0.6	5.7
	Perennial Grass Subtotal			0.9	8.1
RAW-025 Total				4.9	43.6
		SATR12	<i>Salsola tragus</i>	7.0	62.5
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			7.3	64.7
		ATOB	<i>Atriplex obovata</i>	8.0	71.4
	Shrub Subtotal			8.0	71.4
RAW-026 Total				15.3	136.1
		DEPI	<i>Descurainia pinnata</i>	0.0	0.0
		HAGL	<i>Halogeton glomeratus</i>	9.0	80.3
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	2.0	17.8
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			11.5	102.6
		CHENO	<i>Chenopodium sp.</i>	0.3	2.7
	forb Subtotal			0.3	2.7
RAW-027 Total				11.8	105.3
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	1.0	8.9
	Annual Forb Subtotal			1.8	15.6
		SPAI	<i>Sporobolus airoides</i>	0.5	4.5
	Perennial Grass Subtotal			0.5	4.5
		ATCA2	<i>Atriplex canescens</i>	1.8	16.1
	Shrub Subtotal			1.8	16.1
RAW-028 Total				4.1	36.1
		HOPU	<i>Hordeum pusillum</i>	0.3	2.2
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.5	4.5
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		PLJA	<i>Pleuraphis jamesii</i>	0.6	5.7
		SPAI	<i>Sporobolus airoides</i>	6.6	58.9

Attachment F-6a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Perennial Grass Subtotal			7.2	64.6
RAW-029 Total				8.2	73.5
		HAGL	<i>Halogeton glomeratus</i>	3.0	26.8
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			3.8	33.5
RAW-030 Total				3.8	33.5
		BRTE	<i>Bromus tectorum</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	32.0	285.5
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	13.0	116.0
	Annual Forb Subtotal			46.0	410.4
		PLJA	<i>Pleuraphis jamesii</i>	3.8	33.5
	Perennial Grass Subtotal			3.8	33.5
RAW-031 Total				50.0	446.1
		MOSQ	<i>Monroa squarrosa</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	1.0	8.9
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
			<i>Machaeranthera</i>		
		MACA2	<i>canescens</i>	0.4	3.4
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	1.3	11.6
		SATR12	<i>Salsola tragus</i>	2.8	25.0
	Annual Forb Subtotal			6.2	55.6
		CHENO	<i>Chenopodium sp.</i>	0.3	2.7
	forb Subtotal			0.3	2.7
		SPAI	<i>Sporobolus airoides</i>	0.2	1.6
		SPCR	<i>Sporobolus cryptandrus</i>	1.0	9.3
	Perennial Grass Subtotal			1.2	10.9
RAW-032 Total				8.0	71.4
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	8.0	71.4
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
	Annual Forb Subtotal			8.5	75.8
		CHFE3	<i>Chamaesyce fendleri</i>	0.3	2.2
		SPCOC	<i>Sphaeralcea coccinea</i>	0.8	7.2

Attachment F-6a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Perennial Forb Subtotal			1.1	9.5
		SPCO4	<i>Sporobolus contractus</i>	0.5	4.0
	Perennial Grass Subtotal			0.5	4.0
RAW-033 Total				10.0	89.3
		ATPO2	<i>Atriplex powellii</i>	10.5	93.7
		DEPI	<i>Descurainia pinnata</i>	1.0	8.9
		ERGO	<i>Eriogonum gordonii</i>	3.5	31.2
	Annual Forb Subtotal			15.0	133.8
RAW-034 Total				15.0	133.8
		DIWI2	<i>Dimorphocarpa wislizenii</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			0.8	6.7
		ATCO	<i>Atriplex confertifolia</i>	0.3	2.2
		GUSA2	<i>Gutierrezia sarothrae</i>	5.0	44.6
	Shrub Subtotal			5.3	46.8
RAW-035 Total				6.0	53.5
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			1.3	11.2
RAW-036 Total				1.3	11.2
		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	6.0	53.5
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			6.8	60.2
RAW-037 Total				6.8	60.2
		ATPO2	<i>Atriplex powellii</i>	13.0	116.0
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	5.0	44.6
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			18.5	165.1
	Perennial Grass Subtotal	SPAI	<i>Sporobolus airoides</i>	3.4	30.5
				3.4	30.5
	Shrub Subtotal	ATGA	<i>Atriplex gardneri</i>	0.3	2.2
				0.3	2.2
RAW-038 Total				22.2	197.8

Attachment F-6a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
RAW-039		ATOB	<i>Atriplex obovata</i>	2.0	17.8
	Shrub Subtotal			2.0	17.8
RAW-039 Total				2.0	17.8
RAW-040		BOBA2	<i>Bouteloua barbata</i>	2.1	18.6
	Annual Grass Subtotal			2.1	18.6
		PLPA2	<i>Plantago patagonica</i>	7.5	66.9
	Annual Forb Subtotal			7.5	66.9
		CHCO2	<i>Chamaesaracha coronopus</i>	0.5	4.5
		SPCOC	<i>Sphaeralcea coccinea</i>	3.4	30.5
Perennial Forb Subtotal			3.9	35.0	
	SPAI	<i>Sporobolus airoides</i>	1.4	12.8	
Perennial Grass Subtotal			1.4	12.8	
RAW-040 Total				15.0	133.4

Attachment F-7. Reference Sands Production Summary

Life Form	Scientific Name	Air Dry Weight (g/m²)	Air Dry Weight (lbs/acre)
Annual Grass	<i>Bromus tectorum</i>	0.3	2.2
	<i>Monroa squarrosa</i>	0.2	1.8
	<i>Vulpia octoflora</i>	0.3	2.2
Annual Grass Subtotal		0.7	6.2
Annual Forb	<i>Ambrosia acanthicarpa</i>	0.3	2.5
	<i>Chaenactis stevioides</i>	0.1	0.6
	<i>Cryptantha crassisejala</i>	0.3	2.9
	<i>Descurainia pinnata</i>	0.5	4.0
	<i>Dimorphocarpa wislizenii</i>	1.4	12.9
	<i>Halogeton glomeratus</i>	7.5	66.9
	<i>Ipomopsis polycladon</i>	0.3	2.2
	<i>Lappula occidentalis</i>	0.3	2.2
	<i>Machaeranthera canescens</i>	0.3	2.2
	<i>Malacothrix sonchoides</i>	0.3	2.2
	<i>Mentzelia albicaulis</i>	0.9	7.7
	<i>Phacelia crenulata</i>	0.8	7.3
	<i>Plantago patagonica</i>	2.6	22.9
	<i>Salsola tragus</i>	7.4	66.0
	<i>Stenogonum salsuginosum</i>	0.3	2.2
<i>Townsendia annua</i>	0.4	3.9	
Annual Forb Subtotal		23.4	208.6
Perennial Forb	<i>Abronia fragrans</i>	1.0	8.5
	<i>Chamaesyce fendleri</i>	0.3	2.2
	<i>Linum aristatum</i>	0.3	2.2
	<i>Lygodesmia grandiflora</i>	0.3	2.2
	<i>Mentzelia pumila</i>	0.3	2.2
	<i>Sphaeralcea coccinea</i>	0.5	4.5
	<i>Sphaeralcea parvifolia</i>	0.3	2.2
	<i>Stephanomeria exigua</i>	0.5	4.5
Perennial Forb Subtotal		3.2	28.7
Perennial Grass	<i>Achnatherum hymenoides</i>	0.6	5.6
	<i>Pleuraphis jamesii</i>	2.9	26.2
	<i>Sporobolus airoides</i>	4.9	44.1
	<i>Sporobolus cryptandrus</i>	0.5	4.2
Perennial Grass Subtotal		9.0	80.0
Shrub	<i>Atriplex confertifolia</i>	13.9	123.7
	<i>Atriplex gardneri</i>	5.6	49.8
	<i>Atriplex obovata</i>	4.1	36.7
	<i>Gutierrezia sarothrae</i>	12.5	111.9
Shrub Subtotal		36.1	322.1

Attachment F-7 Cont'd.

	Air Dry Weight (g/m²)	Air Dry Weight (lbs/acre)	Standard Deviation of lbs/acre
Reference Sands Total	72.4	645.6	52.6

Attachment F-7a. Reference Sands Production by Transect.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
RSA-081		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	13.0	116.0
	Annual Forb Subtotal			13.8	122.7
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
	Perennial Grass Subtotal			0.3	2.2
RSA-081 Total				14.0	124.9
RSA-082		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	3.0	26.8
	Annual Forb Subtotal			3.8	33.5
		PLJA	<i>Pleuraphis jamesii</i>	6.4	57.4
	Perennial Grass Subtotal			6.4	57.4
		ATCO	<i>Atriplex confertifolia</i>	15.0	133.8
		GUSA2	<i>Gutierrezia sarothrae</i>	25.0	223.0
	Shrub Subtotal			40.0	356.9
RSA-082 Total				50.2	447.7
RSA-083		AMAC2	<i>Ambrosia acanthicarpa</i>	0.3	2.2
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	2.0	17.8
	Annual Forb Subtotal			2.5	22.3
		MEPU3	<i>Mentzelia pumila</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
	ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2	
	Perennial Grass Subtotal			0.3	2.2
		GUSA2	<i>Gutierrezia sarothrae</i>	33.0	294.4
	Shrub Subtotal			33.0	294.4
RSA-083 Total				36.0	321.2
RSA-084		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	4.3	38.4
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			5.1	45.1
		SPCOC	<i>Sphaeralcea coccinea</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	11.2	99.9
	Perennial Grass Subtotal			11.2	99.9
RSA-084 Total				16.5	147.2

Attachment F-7a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		DIWI2	<i>Dimorphocarpa wislizenii</i>	2.4	21.4
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
	Annual Forb Subtotal			2.7	23.6
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		ABFR2	<i>Abronia fragrans</i>	2.0	17.5
		CHFE3	<i>Chamaesyce fendleri</i>	0.3	2.2
	Perennial Forb Subtotal			2.2	19.7
		PLJA	<i>Pleuraphis jamesii</i>	1.4	12.1
		SPAI	<i>Sporobolus airoides</i>	7.3	65.1
		SPCR	<i>Sporobolus cryptandrus</i>	1.7	15.3
	Perennial Grass Subtotal			10.4	92.5
		GUSA2	<i>Gutierrezia sarothrae</i>	0.3	2.2
	Shrub Subtotal			0.3	2.2
RSA-085 Total				15.7	140.3
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		MASO	<i>Malacothrix sonchoides</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	4.0	35.7
	Annual Forb Subtotal			4.8	42.4
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	4.2	37.2
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grass Subtotal			4.7	41.6
		GUSA2	<i>Gutierrezia sarothrae</i>	0.3	2.2
	Shrub Subtotal			0.3	2.2
RSA-086 Total				9.7	86.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		IPPO2	<i>Ipomopsis polycladon</i>	0.3	2.2
		MACA2	<i>Machaeranthera canescens</i>	0.3	2.2
		MEAL6	<i>Mentzelia albicaulis</i>	2.5	22.7
		SATR12	<i>Salsola tragus</i>	35.0	312.3
	Annual Forb Subtotal			38.3	341.7
		ATGA	<i>Atriplex gardneri</i>	5.6	49.8
	Shrub Subtotal			5.6	49.8
RSA-087 Total				43.9	391.5
		SATR12	<i>Salsola tragus</i>	9.0	80.3
	Annual Forb Subtotal			9.0	80.3
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		SPCOC	<i>Sphaeralcea coccinea</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	4.0	35.3

Attachment F-7a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m2)	Air Dry Weight (lbs/acre)
		SPAI	<i>Sporobolus airoides</i>	2.0	17.8
	Perennial Grass Subtotal			6.2	55.4
		GUSA2	<i>Gutierrezia sarothrae</i>	0.3	2.2
	Shrub Subtotal			0.3	2.2
RSA-088 Total				16.0	142.4
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		MEAL6	<i>Mentzelia albicaulis</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	6.8	60.7
		SATR12	<i>Salsola tragus</i>	4.3	37.9
		STSA3	<i>Stenogonum salsuginosum</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	0.2	1.8
	Annual Forb Subtotal			12.5	111.5
		LYGR	<i>Lygodesmia grandiflora</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	1.0	8.9
	Perennial Grass Subtotal			1.0	8.9
		ATOB	<i>Atriplex obovata</i>	7.0	62.5
	Shrub Subtotal			7.0	62.5
RSA-089 Total				20.8	185.1
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	6.0	53.5
		SATR12	<i>Salsola tragus</i>	7.0	62.5
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			13.5	120.4
		ATOB	<i>Atriplex obovata</i>	6.4	57.1
	Shrub Subtotal			6.4	57.1
RSA-090 Total				19.9	177.5
	Annual Forb Subtotal			#REF!	#REF!
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	25.0	223.0
	Perennial Grass Subtotal			25.3	225.3
		GUSA2	<i>Gutierrezia sarothrae</i>	7.2	64.2
	Shrub Subtotal			7.2	64.2
RSA-091 Total				32.5	289.5
		DIWI2	<i>Dimorphocarpa wislizenii</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		GUSA2	<i>Gutierrezia sarothrae</i>	40.6	362.2
	Shrub Subtotal			40.6	362.2
RSA-092 Total				41.1	366.7
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2

Attachment F-7a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		PLPA2	<i>Plantago patagonica</i>	8.0	71.4
		SATR12	<i>Salsola tragus</i>	3.7	33.0
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			12.2	108.8
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grass Subtotal			0.3	2.2
RSA-093	Total			12.7	113.3
		DEPI	<i>Descurainia pinnata</i>	1.7	15.2
		PHCR	<i>Phacelia crenulata</i>	0.7	6.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	5.0	44.6
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			7.9	70.5
		SPCOC	<i>Sphaeralcea coccinea</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	1.0	8.7
	Perennial Grass Subtotal			1.2	11.0
		ATCO	<i>Atriplex confertifolia</i>	22.0	196.3
	Shrub Subtotal			22.0	196.3
RSA-095	Total			31.4	280.0
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DIWI2	<i>Dimorphocarpa wislizenii</i>	2.5	22.3
		PHCR	<i>Phacelia crenulata</i>	1.0	8.9
	Annual Forb Subtotal			3.8	33.5
		PLJA	<i>Pleuraphis jamesii</i>	0.9	7.9
		SPAI	<i>Sporobolus airoides</i>	4.9	43.7
	Perennial Grass Subtotal			5.8	51.7
		ATCO	<i>Atriplex confertifolia</i>	7.0	62.5
		GUSA2	<i>Gutierrezia sarothrae</i>	11.6	103.5
	Shrub Subtotal			18.6	165.9
RSA-096	Total			28.1	251.1
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	12.0	107.1
	Annual Forb Subtotal			12.8	113.8
		SPCOC	<i>Sphaeralcea coccinea</i>	1.3	11.6
	Perennial Forb Subtotal			1.3	11.6
		SPAI	<i>Sporobolus airoides</i>	10.0	89.2
	Perennial Grass Subtotal			10.0	89.2
RSA-097	Total			24.1	214.6

Attachment F-7a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	3.0	26.8
		SATR12	<i>Salsola tragus</i>	7.4	66.0
	Annual Forb Subtotal			10.7	95.0
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
RSA-098 Total				10.9	97.2
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	1.0	8.9
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			1.5	13.4
		SPCOC	<i>Sphaeralcea coccinea</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
		SPCR	<i>Sporobolus cryptandrus</i>	0.3	2.2
	Perennial Grass Subtotal			0.5	4.5
		ATOB	<i>Atriplex obovata</i>	5.1	45.5
		GUSA2	<i>Gutierrezia sarothrae</i>	1.3	11.6
	Shrub Subtotal			6.4	57.1
RSA-099 Total				8.7	77.2
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	1.0	8.9
		PLPA2	<i>Plantago patagonica</i>	6.9	61.6
		SATR12	<i>Salsola tragus</i>	5.8	51.7
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			14.5	128.9
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		STEX	<i>Stephanomeria exigua</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	2.1	18.7
		SPAI	<i>Sporobolus airoides</i>	1.7	15.3
	Perennial Grass Subtotal			3.8	34.0
		ATCO	<i>Atriplex confertifolia</i>	2.5	22.3
	Shrub Subtotal			2.5	22.3
RSA-100 Total				21.3	189.7
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	1.0	8.9
		SATR12	<i>Salsola tragus</i>	4.0	35.7
		TOAN	<i>Townsendia annua</i>	0.3	2.2

Attachment F-7a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Annual Forb Subtotal			6.0	53.5
		SPAI	<i>Sporobolus airoides</i>	8.0	71.4
	Perennial Grass Subtotal			8.0	71.4
RSA-101 Total				14.0	124.9
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	4.7	41.9
	Annual Forb Subtotal			5.5	48.6
		BRTE	<i>Bromus tectorum</i>	0.3	2.2
		MOSQ	<i>Monroa squarrosa</i>	0.2	1.8
	Annual Grass Subtotal			0.5	4.0
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	2.1	18.5
		SPCR	<i>Sporobolus cryptandrus</i>	0.3	2.2
	Perennial Grass Subtotal			2.6	22.9
RSA-102 Total				8.5	75.6
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.6	5.4
	Annual Forb Subtotal			0.9	7.6
		ACHY	<i>Achnatherum hymenoides</i>	1.7	15.2
		PLJA	<i>Pleuraphis jamesii</i>	1.0	9.3
		SPCR	<i>Sporobolus cryptandrus</i>	0.5	4.5
	Perennial Grass Subtotal			3.2	28.9
		GUSA2	<i>Gutierrezia sarothrae</i>	14.0	124.9
	Shrub Subtotal			14.0	124.9
RSA-103 Total				18.1	161.4
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	7.0	62.5
		SATR12	<i>Salsola tragus</i>	3.7	33.0
	Annual Forb Subtotal			11.2	99.9
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	3.0	26.8
	Perennial Grass Subtotal			3.3	29.0
RSA-104 Total				14.7	131.2
		AMAC2	<i>Ambrosia acanthicarpa</i>	0.3	2.7
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
	Annual Forb Subtotal			0.8	7.1
		LYGR	<i>Lygodesmia grandiflora</i>	0.3	2.2

Attachment F-7a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Perennial Forb Subtotal			0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	3.5	31.3
		SPAI	<i>Sporobolus airoides</i>	4.1	36.9
	Perennial Grass Subtotal			7.7	68.3
		GUSA2	<i>Gutierrezia sarothrae</i>	17.0	151.7
	Shrub Subtotal			17.0	151.7
RSA-105 Total				25.7	229.3
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	3.0	26.8
	Annual Forb Subtotal			3.5	31.2
		SPAI	<i>Sporobolus airoides</i>	6.5	58.1
		SPCR	<i>Sporobolus cryptandrus</i>	0.3	2.2
	Perennial Grass Subtotal			6.8	60.3
RSA-106 Total				10.3	91.5
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	10.0	89.2
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			10.5	93.7
		SPAI	<i>Sporobolus airoides</i>	1.3	11.6
	Perennial Grass Subtotal			1.3	11.6
RSA-107 Total				11.8	105.3
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
	Annual Forb Subtotal			0.3	2.2
		ABFR2	<i>Abronia fragrans</i>	0.6	5.4
	Perennial Forb Subtotal			0.6	5.4
		PLJA	<i>Pleuraphis jamesii</i>	3.7	33.0
		SPAI	<i>Sporobolus airoides</i>	4.3	38.4
		SPCR	<i>Sporobolus cryptandrus</i>	0.3	2.2
	Perennial Grass Subtotal			8.3	73.6
		ATCO	<i>Atriplex confertifolia</i>	0.7	6.2
		GUSA2	<i>Gutierrezia sarothrae</i>	3.0	26.8
	Shrub Subtotal			3.7	33.0
RSA-108 Total				12.8	114.2
		CRCR3	<i>Cryptantha crassisepala</i>	2.0	17.8
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	1.6	14.0
		PLPA2	<i>Plantago patagonica</i>	2.6	23.2
	Annual Forb Subtotal			6.4	57.3
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		ABFR2	<i>Abronia fragrans</i>	1.9	17.0
		SPPA2	<i>Sphaeralcea parvifolia</i>	0.3	2.2

Attachment F-7a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m2)	Air Dry Weight (lbs/acre)
		STEX	<i>Stephanomeria exigua</i>	0.3	2.2
	Perennial Forb Subtotal			2.4	21.4
		ACHY	<i>Achnatherum hymenoides</i>	2.2	19.3
		PLJA	<i>Pleuraphis jamesii</i>	2.3	20.7
		SPAI	<i>Sporobolus airoides</i>	8.0	70.9
	Perennial Grass Subtotal			12.4	110.9
		GUSA2	<i>Gutierrezia sarothrae</i>	0.7	6.2
	Shrub Subtotal			0.7	6.2
RSA-109 Total				22.2	198.1
		PHCR	<i>Phacelia crenulata</i>	1.0	8.9
		SATR12	<i>Salsola tragus</i>	6.0	53.5
	Annual Forb Subtotal			7.0	62.5
		ABFR2	<i>Abronia fragrans</i>	0.3	2.2
		LIAR3	<i>Linum aristatum</i>	0.3	2.2
		MEPU3	<i>Mentzelia pumila</i>	0.3	2.2
		SPCOC	<i>Sphaeralcea coccinea</i>	0.3	2.2
	Perennial Forb Subtotal			1.0	8.9
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grass Subtotal			0.3	2.2
		GUSA2	<i>Gutierrezia sarothrae</i>	11.0	98.1
	Shrub Subtotal			11.0	98.1
RSA-110 Total				19.3	171.7
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	1.0	8.9
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
	Annual Forb Subtotal			1.5	13.4
		SPCOC	<i>Sphaeralcea coccinea</i>	1.0	8.9
	Perennial Forb Subtotal			1.0	8.9
		PLJA	<i>Pleuraphis jamesii</i>	7.0	62.5
	Perennial Grass Subtotal			7.0	62.5
		GUSA2	<i>Gutierrezia sarothrae</i>	11.0	98.1
	Shrub Subtotal			11.0	98.1
RSA-111 Total				20.5	182.9
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		MASO	<i>Malacothrix sonchoides</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	17.0	151.7
	Annual Forb Subtotal			18.3	162.8
		SPAI	<i>Sporobolus airoides</i>	2.3	20.5
	Perennial Grass Subtotal			2.3	20.5
		ATOB	<i>Atriplex obovata</i>	3.3	29.4
	Shrub Subtotal			3.3	29.4

Attachment F-7a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
RSA-112 Total				23.9	212.8
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
	Annual Forb Subtotal			0.8	6.7
		MEPU3	<i>Mentzelia pumila</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	0.4	3.1
	Perennial Grass Subtotal			0.4	3.1
		ATCO	<i>Atriplex confertifolia</i>	36.0	321.2
		GUSA2	<i>Gutierrezia sarothrae</i>	19.0	169.5
	Shrub Subtotal			55.0	490.7
RSA-113 Total				56.4	502.7
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	5.0	44.6
		MEAL6	<i>Mentzelia albicaulis</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	9.1	81.2
	Annual Forb Subtotal			14.6	130.3
		ATOB	<i>Atriplex obovata</i>	2.6	23.2
	Shrub Subtotal			2.6	23.2
RSA-114 Total				17.2	153.5
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		MEAL6	<i>Mentzelia albicaulis</i>	1.0	8.9
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	8.0	71.4
	Annual Forb Subtotal			9.5	84.8
		SPAI	<i>Sporobolus airoides</i>	11.3	100.8
	Perennial Grass Subtotal			11.3	100.8
RSA-115 Total				20.8	185.6
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.8	7.1
		PLPA2	<i>Plantago patagonica</i>	2.7	24.1
		SATR12	<i>Salsola tragus</i>	7.5	66.9
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			11.8	104.8
		PLJA	<i>Pleuraphis jamesii</i>	0.2	1.8
		SPAI	<i>Sporobolus airoides</i>	2.5	22.0
	Perennial Grass Subtotal			2.7	23.8
RSA-116 Total				14.4	128.7
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2

Attachment F-7a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		SATR12	<i>Salsola tragus</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	2.0	17.8
	Annual Forb Subtotal			2.8	24.5
	Perennial Grass Subtotal	SPAI	<i>Sporobolus airoides</i>	2.1	18.7
		ATOB	<i>Atriplex obovata</i>	0.3	2.2
	Shrub Subtotal			0.3	2.2
RSA-117 Total				5.1	45.5
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	2.0	17.8
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	4.5	40.1
		SATR12	<i>Salsola tragus</i>	7.3	65.1
	Annual Forb Subtotal			14.3	127.6
	Perennial Grass Subtotal	PLJA	<i>Pleuraphis jamesii</i>	5.5	49.1
				5.5	49.1
RSA-118 Total				19.8	176.7
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		PLJA	<i>Pleuraphis jamesii</i>	7.5	66.9
		SPAI	<i>Sporobolus airoides</i>	2.0	17.8
	Perennial Grass Subtotal			9.5	84.8
RSA-119 Total				10.0	89.2
		CHST	<i>Chaenactis stevioides</i>	0.1	0.6
		DIWI2	<i>Dimorphocarpa wislizenii</i>	0.1	0.6
		DIWI2	<i>Dimorphocarpa wislizenii</i>	2.0	17.8
		MEAL6	<i>Mentzelia albicaulis</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	1.4	12.5
	Annual Forb Subtotal			3.8	33.7
		ABFR2	<i>Abronia fragrans</i>	0.1	0.6
		STEX	<i>Stephanomeria exigua</i>	1.0	8.9
	Perennial Forb Subtotal			1.1	9.5
		PLJA	<i>Pleuraphis jamesii</i>	1.6	14.5
		SPCR	<i>Sporobolus cryptandrus</i>	0.1	0.6
	Perennial Grass Subtotal			1.7	15.0
	Shrub Subtotal	GUSA2	<i>Gutierrezia sarothrae</i>	18.0	160.6
				18.0	160.6
RSA-120 Total				24.5	218.8

Attachment F-8. Sands Production Summary

Life Form	Scientific Name	Air Dry Weight (g/m²)	Air Dry Weight (lbs/acre)
	<i>Bromus tectorum</i>	0.3	2.2
	<i>Vulpia octoflora</i>	0.3	2.2
Annual Grass Subtotal		0.5	4.5
	<i>Ambrosia acanthicarpa</i>	1.3	11.5
	<i>Atriplex powellii</i>	1.2	10.9
	<i>Chaenactis stevioides</i>	0.3	2.2
	<i>Cryptantha crassisejala</i>	2.0	18.3
	<i>Descurainia pinnata</i>	0.9	7.7
	<i>Dimorphocarpa wislizenii</i>	1.5	13.4
	<i>Halogeton glomeratus</i>	1.0	8.9
	<i>Lappula occidentalis</i>	0.3	2.2
	<i>Machaeranthera canescens</i>	2.7	24.2
	<i>Malacothrix sonchoides</i>	0.3	2.2
	<i>Mentzelia albicaulis</i>	1.0	8.6
	<i>Phacelia crenulata</i>	0.9	7.7
	<i>Plantago patagonica</i>	3.6	31.7
	<i>Salsola tragus</i>	9.7	86.7
	<i>Streptanthella longirostris</i>	1.1	10.0
	<i>Townsendia annua</i>	0.5	4.8
Annual Forb Subtotal		28.2	251.3
	<i>Abronia fragrans</i>	1.0	8.7
	<i>Chaetopappa ericoides</i>	2.0	17.8
	<i>Linum aristatum</i>	0.7	5.8
	<i>Sphaeralcea coccinea</i>	0.5	4.7
	<i>Sphaeralcea parvifolia</i>	1.0	8.8
	<i>Stephanomeria exigua</i>	1.0	8.9
Perennial Forb Subtotal		6.1	54.8
	<i>Achnatherum hymenoides</i>	0.8	7.3
	<i>Aristida purpurea</i>	1.7	15.3
	<i>Pleuraphis jamesii</i>	2.6	23.6
	<i>Sporobolus airoides</i>	4.5	40.4
	<i>Sporobolus cryptandrus</i>	0.8	6.8
Perennial Grass Subtotal		10.5	93.4
	<i>Atriplex canescens</i>	0.3	2.2
	<i>Atriplex confertifolia</i>	13.4	119.5
	<i>Atriplex obovata</i>	21.7	193.2
	<i>Gutierrezia sarothrae</i>	4.3	38.5
Shrub Subtotal		39.6	353.3

Attachment F-8 Cont'd.

	Air Dry Weight (g/m²)	Air Dry Weight (lbs/acre)	Standard Deviation of lbs/acre
Sands Total	84.9	757.2	62.5

Attachment F-8a. Sands Production by Transect.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
SA-161		CRCR3	<i>Cryptantha crassisejala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	1.2	10.7
		MACA2	<i>Machaeranthera canescens</i>	3.5	31.2
		SATR12	<i>Salsola tragus</i>	32.0	285.5
		TOAN	<i>Townsendia annua</i>	0.3	2.2
		Annual Forb Subtotal			37.2
SA-161		SPCR	<i>Sporobolus cryptandrus</i>	1.8	16.1
		Perennial Grass Subtotal		1.8	16.1
SA-161 Total				39.0	347.9
SA-162		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.3	2.2
		Annual Forb Subtotal		0.5	4.5
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	6.8	60.7
		SPAI	<i>Sporobolus airoides</i>	2.4	21.4
SA-162		Perennial Grass Subtotal		9.5	84.3
		ATCO	<i>Atriplex confertifolia</i>	1.8	16.1
SA-162		Shrub Subtotal		1.8	16.1
	SA-162 Total				11.8
SA-163		CRCR3	<i>Cryptantha crassisejala</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	1.0	8.9
		Annual Forb Subtotal		1.3	11.2
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
		Perennial Grass Subtotal		0.3	2.2
		ATCO	<i>Atriplex confertifolia</i>	8.0	71.4
SA-163		Shrub Subtotal		8.0	71.4
	SA-163 Total				9.5
SA-164		DEPI	<i>Descurainia pinnata</i>	5.0	44.6
		SATR12	<i>Salsola tragus</i>	3.0	26.8
		Annual Forb Subtotal		8.0	71.4
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	6.3	56.2
		SPAI	<i>Sporobolus airoides</i>	1.7	15.2
SA-164		Perennial Grass Subtotal		8.3	73.6
		ATCO	<i>Atriplex confertifolia</i>	6.5	58.0
SA-164		Shrub Subtotal		6.5	58.0
	SA-164 Total				22.8
SA-164		CRCR3	<i>Cryptantha crassisejala</i>	5.0	44.6
		MACA2	<i>Machaeranthera canescens</i>	0.9	8.0
		SATR12	<i>Salsola tragus</i>	6.8	60.7

Attachment F-8a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Annual Forb Subtotal			12.7	113.3
		PLJA	<i>Pleuraphis jamesii</i>	2.9	25.7
		SPAI	<i>Sporobolus airoides</i>	6.3	56.2
	Perennial Grass Subtotal			9.2	81.9
		ATCO	<i>Atriplex confertifolia</i>	15.0	133.8
	Shrub Subtotal			15.0	133.8
SA-165 Total				36.9	329.0
		AMAC2	<i>Ambrosia acanthicarpa</i>	2.2	19.6
		CRCR3	<i>Cryptantha crassisejala</i>	2.6	23.2
		MACA2	<i>Machaeranthera canescens</i>	2.7	24.3
		SATR12	<i>Salsola tragus</i>	3.9	34.8
	Annual Forb Subtotal			11.4	101.9
		ABFR2	<i>Abronia fragrans</i>	1.7	15.3
		SPPA2	<i>Sphaeralcea parvifolia</i>	0.4	3.2
	Perennial Forb Subtotal			2.1	18.5
		ACHY	<i>Achnatherum hymenoides</i>	2.4	21.2
		ARPU9	<i>Aristida purpurea</i>	1.7	15.3
		PLJA	<i>Pleuraphis jamesii</i>	1.8	15.7
	Perennial Grass Subtotal			5.9	52.2
SA-166 Total				19.3	172.5
		DEPI	<i>Descurainia pinnata</i>	0.5	4.5
		PHCR	<i>Phacelia crenulata</i>	1.4	12.5
		SATR12	<i>Salsola tragus</i>	2.5	22.3
	Annual Forb Subtotal			4.4	39.3
		SPAI	<i>Sporobolus airoides</i>	5.8	51.4
	Perennial Grass Subtotal			5.8	51.4
		ATCO	<i>Atriplex confertifolia</i>	20.7	184.7
	Shrub Subtotal			20.7	184.7
SA-167 Total				30.9	275.3
		SATR12	<i>Salsola tragus</i>	0.1	0.9
	Annual Forb Subtotal			0.1	0.9
		SPAI	<i>Sporobolus airoides</i>	1.8	16.1
	Perennial Grass Subtotal			1.8	16.1
		GUSA2	<i>Gutierrezia sarothrae</i>	2.0	17.8
	Shrub Subtotal			2.0	17.8
SA-168 Total				3.9	34.8
		CRCR3	<i>Cryptantha crassisejala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	1.6	14.3
		SATR12	<i>Salsola tragus</i>	11.0	98.1
	Annual Forb Subtotal			12.9	114.6
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grass Subtotal			0.3	2.2
		GUSA2	<i>Gutierrezia sarothrae</i>	6.8	60.7

Attachment F-8a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Shrub Subtotal			6.8	60.7
SA-169 Total				19.9	177.5
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	10.0	89.2
	Perennial Grass Subtotal			10.5	93.7
SA-170 Total				10.5	93.7
		CRCR3	<i>Cryptantha crassisejala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.4	3.6
		SATR12	<i>Salsola tragus</i>	12.0	107.1
	Annual Forb Subtotal			12.7	112.9
		ABFR2	<i>Abronia fragrans</i>	0.3	2.2
		LIAR3	<i>Linum aristatum</i>	0.3	2.7
	Perennial Forb Subtotal			0.6	4.9
		ACHY	<i>Achnatherum hymenoides</i>	0.5	4.8
		PLJA	<i>Pleuraphis jamesii</i>	1.5	13.7
		SPCR	<i>Sporobolus cryptandrus</i>	0.3	2.2
	Perennial Grass Subtotal			2.3	20.7
		ATCA2	<i>Atriplex canescens</i>	0.3	2.2
		GUSA2	<i>Gutierrezia sarothrae</i>	1.3	11.6
	Shrub Subtotal			1.6	13.8
SA-171 Total				17.1	152.3
		CRCR3	<i>Cryptantha crassisejala</i>	7.0	62.5
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			7.8	69.1
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	12.0	107.1
	Perennial Grass Subtotal			12.3	109.3
SA-172 Total				20.0	178.4
		CRCR3	<i>Cryptantha crassisejala</i>	0.6	5.4
		MACA2	<i>Machaeranthera canescens</i>	4.5	40.1
		PHCR	<i>Phacelia crenulata</i>	1.0	8.9
		SATR12	<i>Salsola tragus</i>	6.5	58.0
	Annual Forb Subtotal			12.6	112.4
		PLJA	<i>Pleuraphis jamesii</i>	4.5	40.2
		SPAI	<i>Sporobolus airoides</i>	6.0	53.1
	Perennial Grass Subtotal			10.5	93.3
SA-173 Total				23.1	205.7
		PLPA2	<i>Plantago patagonica</i>	4.7	41.9
		SATR12	<i>Salsola tragus</i>	5.3	47.3

Attachment F-8a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Annual Forb Subtotal			10.0	89.2
		SPAI	<i>Sporobolus airoides</i>	5.0	44.6
	Perennial Grass Subtotal			5.0	44.6
		GUSA2	<i>Gutierrezia sarothrae</i>	0.3	2.2
	Shrub Subtotal			0.3	2.2
SA-174 Total				15.3	136.1
		AMAC2	<i>Ambrosia acanthicarpa</i>	0.4	3.4
		CRCR3	<i>Cryptantha crassisepala</i>	18.0	160.6
		MACA2	<i>Machaeranthera canescens</i>	5.4	48.3
		MEAL6	<i>Mentzelia albicaulis</i>	0.9	7.6
		SATR12	<i>Salsola tragus</i>	1.6	14.5
	Annual Forb Subtotal			26.3	234.4
	Perennial Forb Subtotal	SPPA2	<i>Sphaeralcea parvifolia</i>	2.3	20.9
		ACHY	<i>Achnatherum hymenoides</i>	1.4	12.8
		PLJA	<i>Pleuraphis jamesii</i>	2.9	25.7
	Perennial Grass Subtotal			4.3	38.5
SA-175 Total				32.9	293.8
		CRCR3	<i>Cryptantha crassisepala</i>	4.6	41.0
		SATR12	<i>Salsola tragus</i>	5.0	44.6
	Annual Forb Subtotal			9.6	85.6
	Perennial Grass Subtotal	SPAI	<i>Sporobolus airoides</i>	15.3	136.5
SA-176 Total				24.9	222.2
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.9	8.0
		SATR12	<i>Salsola tragus</i>	1.0	8.9
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			2.4	21.4
	Perennial Grass Subtotal	SPAI	<i>Sporobolus airoides</i>	2.7	24.1
		GUSA2	<i>Gutierrezia sarothrae</i>	2.6	23.2
	Shrub Subtotal			2.6	23.2
SA-177 Total				7.7	68.7
	Annual Forb Subtotal	SATR12	<i>Salsola tragus</i>	13.0	116.0
	Perennial Forb Subtotal	SPCOC	<i>Sphaeralcea coccinea</i>	0.3	2.2
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	0.8	7.1
	Perennial Grass Subtotal			1.1	9.4
	Shrub Subtotal	ATOB	<i>Atriplex obovata</i>	40.0	356.9
				40.0	356.9

Attachment F-8a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
SA-178 Total				54.3	484.5
		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	8.6	76.7
	Annual Forb Subtotal			8.9	79.0
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grass Subtotal			0.5	4.5
		GUSA2	<i>Gutierrezia sarothrae</i>	6.0	53.5
	Shrub Subtotal			6.0	53.5
SA-179 Total				15.4	136.9
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	1.0	8.9
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
	Annual Forb Subtotal			1.5	13.4
		ATCO	<i>Atriplex confertifolia</i>	15.0	133.8
	Shrub Subtotal			15.0	133.8
SA-180 Total				16.5	147.2
		CRCR3	<i>Cryptantha crassisepala</i>	1.4	12.5
		MACA2	<i>Machaeranthera canescens</i>	2.6	23.3
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	2.0	17.8
		SATR12	<i>Salsola tragus</i>	6.3	56.2
		TOAN	<i>Townsendia annua</i>	1.7	15.2
	Annual Forb Subtotal			14.3	127.2
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		ACHY	<i>Achnatherum hymenoides</i>	0.9	7.6
		PLJA	<i>Pleuraphis jamesii</i>	10.8	96.4
	Perennial Grass Subtotal			11.7	103.9
SA-181 Total				26.2	233.4
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		MACA2	<i>Machaeranthera canescens</i>	0.5	4.7
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			1.0	9.1
		PLJA	<i>Pleuraphis jamesii</i>	1.0	8.9
	Perennial Grass Subtotal			1.0	8.9
		ATCO	<i>Atriplex confertifolia</i>	19.0	169.5
	Shrub Subtotal			19.0	169.5
SA-182 Total				21.0	187.6
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2

Attachment F-8a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Annual Forb Subtotal			0.8	6.7
		PLJA	<i>Pleuraphis jamesii</i>	4.5	40.1
		SPAI	<i>Sporobolus airoides</i>	9.9	88.3
	Perennial Grass Subtotal			14.4	128.5
SA-183 Total				15.2	135.2
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		MASO	<i>Malacothrix sonchoides</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	33.0	294.4
	Annual Forb Subtotal			33.8	301.1
		SPCOC	<i>Sphaeralcea coccinea</i>	0.8	7.1
	Perennial Forb Subtotal			0.8	7.1
		SPAI	<i>Sporobolus airoides</i>	2.1	18.7
		SPCR	<i>Sporobolus cryptandrus</i>	0.3	2.2
	Perennial Grass Subtotal			2.4	21.0
		GUSA2	<i>Gutierrezia sarothrae</i>	1.0	8.9
	Shrub Subtotal			1.0	8.9
SA-184 Total				37.9	338.1
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	1.8	16.1
		SATR12	<i>Salsola tragus</i>	10.0	89.2
		STLO4	<i>Streptanthella longirostris</i>	2.0	17.8
	Annual Forb Subtotal			14.3	127.6
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	5.3	47.4
	Perennial Grass Subtotal			5.3	47.4
		ATCO	<i>Atriplex confertifolia</i>	6.5	58.0
		GUSA2	<i>Gutierrezia sarothrae</i>	19.2	171.3
	Shrub Subtotal			25.7	229.3
SA-185 Total				45.6	406.5
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		CHER2	<i>Chaetopappa ericoides</i>	2.0	17.8
		LIAR3	<i>Linum aristatum</i>	1.0	8.9
	Perennial Forb Subtotal			3.0	26.8
		ACHY	<i>Achnatherum hymenoides</i>	0.9	8.0
		PLJA	<i>Pleuraphis jamesii</i>	2.6	22.8
		SPAI	<i>Sporobolus airoides</i>	4.8	42.8
	Perennial Grass Subtotal			8.3	73.6
SA-186 Total				11.8	104.8

Attachment F-8a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		CRCR3	<i>Cryptantha crassisepala</i>	5.0	44.6
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		MACA2	<i>Machaeranthera canescens</i>	4.0	35.7
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	12.0	107.1
		STLO4	<i>Streptanthella longirostris</i>	0.3	2.2
	Annual Forb Subtotal			21.8	194.0
		BRTE	<i>Bromus tectorum</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		SPPA2	<i>Sphaeralcea parvifolia</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
	Perennial Grass Subtotal			0.3	2.2
		GUSA2	<i>Gutierrezia sarothrae</i>	0.3	2.2
	Shrub Subtotal			0.3	2.2
SA-187 Total				22.8	203.0
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		MASO	<i>Malacothrix sonchoides</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	12.0	107.1
	Annual Forb Subtotal			12.5	111.5
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	8.1	72.3
	Perennial Grass Subtotal			8.4	74.5
SA-188 Total				20.9	186.0
		MEAL6	<i>Mentzelia albicaulis</i>	1.8	16.1
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			2.3	20.5
		ATCO	<i>Atriplex confertifolia</i>	30.0	267.7
		GUSA2	<i>Gutierrezia sarothrae</i>	0.3	2.2
	Shrub Subtotal			30.3	269.9
SA-189 Total				32.6	290.4
		HAGL	<i>Halogeton glomeratus</i>	1.0	8.9
		SATR12	<i>Salsola tragus</i>	9.8	87.4
	Annual Forb Subtotal			10.8	96.4
SA-190 Total				10.8	96.4
		DIWI2	<i>Dimorphocarpa wislizenii</i>	1.5	13.4
		MEAL6	<i>Mentzelia albicaulis</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	4.4	39.3
	Annual Forb Subtotal			6.4	57.1
		PLJA	<i>Pleuraphis jamesii</i>	2.2	19.3
		SPAI	<i>Sporobolus airoides</i>	0.9	8.0

Attachment F-8a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	Perennial Grass Subtotal			3.1	27.3
		ATCO	<i>Atriplex confertifolia</i>	16.8	149.9
		GUSA2	<i>Gutierrezia sarothrae</i>	4.2	37.7
	Shrub Subtotal			21.0	187.6
SA-191 Total				30.5	272.0
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.9	8.0
	Annual Forb Subtotal			1.4	12.5
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	3.0	27.1
	Perennial Grass Subtotal			3.3	29.4
		GUSA2	<i>Gutierrezia sarothrae</i>	0.2	1.8
	Shrub Subtotal			0.2	1.8
SA-192 Total				4.9	43.6
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	32.0	285.5
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			32.5	290.0
		VUOC	<i>Vulpia octoflora</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		ACHY	<i>Achnatherum hymenoides</i>	1.2	10.4
		SPAI	<i>Sporobolus airoides</i>	5.4	48.2
	Perennial Grass Subtotal			6.6	58.6
SA-193 Total				39.3	350.8
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	38.0	339.0
	Annual Forb Subtotal			38.3	341.3
		ATCO	<i>Atriplex confertifolia</i>	8.0	71.4
		GUSA2	<i>Gutierrezia sarothrae</i>	16.0	142.7
	Shrub Subtotal			24.0	214.1
SA-194 Total				62.3	555.4
		CHST	<i>Chaenactis stevioides</i>	0.3	2.2
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	5.4	48.2
	Annual Forb Subtotal			5.9	52.6
		PLJA	<i>Pleuraphis jamesii</i>	3.8	33.9
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grass Subtotal			4.1	36.1
		GUSA2	<i>Gutierrezia sarothrae</i>	2.0	17.8
	Shrub Subtotal			2.0	17.8
SA-195 Total				12.0	106.6

Attachment F-8a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		MASO	<i>Malacothrix sonchoides</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	2.5	22.3
	Annual Forb Subtotal			3.0	26.8
		SPAI	<i>Sporobolus airoides</i>	3.8	33.9
	Perennial Grass Subtotal			3.8	33.9
SA-196 Total				6.8	60.7
		PHCR	<i>Phacelia crenulata</i>	1.9	17.0
		SATR12	<i>Salsola tragus</i>	0.3	2.7
	Annual Forb Subtotal			2.2	19.6
		SPAI	<i>Sporobolus airoides</i>	1.8	16.1
	Perennial Grass Subtotal			1.8	16.1
SA-197 Total				4.0	35.7
		CRCR3	<i>Cryptantha crassisejala</i>	0.3	2.2
		MACA2	<i>Machaeranthera canescens</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		STEX	<i>Stephanomeria exigua</i>	1.0	8.9
	Perennial Forb Subtotal			1.0	8.9
		ACHY	<i>Achnatherum hymenoides</i>	0.3	2.2
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
	SPAI	<i>Sporobolus airoides</i>	8.5	75.5	
	Perennial Grass Subtotal			9.0	79.9
SA-198 Total				10.5	93.3
		CRCR3	<i>Cryptantha crassisejala</i>	3.0	26.8
		DEPI	<i>Descurainia pinnata</i>	0.7	6.2
		PLPA2	<i>Plantago patagonica</i>	14.4	128.5
		SATR12	<i>Salsola tragus</i>	4.5	40.1
	Annual Forb Subtotal			22.6	201.6
		ACHY	<i>Achnatherum hymenoides</i>	1.9	16.9
		PLJA	<i>Pleuraphis jamesii</i>	1.8	16.1
		SPAI	<i>Sporobolus airoides</i>	2.6	23.2
	Perennial Grass Subtotal			6.3	56.1
		GUSA2	<i>Gutierrezia sarothrae</i>	2.6	23.2
	Shrub Subtotal			2.6	23.2
SA-199 Total				31.5	280.9
		ATPO2	<i>Atriplex powellii</i>	2.2	19.6
		CRCR3	<i>Cryptantha crassisejala</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	2.4	21.4
		PLPA2	<i>Plantago patagonica</i>	2.4	21.4
		SATR12	<i>Salsola tragus</i>	46.0	410.4
	Annual Forb Subtotal			53.3	475.1
		PLJA	<i>Pleuraphis jamesii</i>	0.5	4.2
		SPAI	<i>Sporobolus airoides</i>	0.8	6.8

Attachment F-8a Cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m²)	Air Dry Weight (lbs/acre)
	Perennial Grass Subtotal			1.2	11.0
		ATOB	<i>Atriplex obovata</i>	3.3	29.4
	Shrub Subtotal			3.3	29.4
SA-200 Total				57.8	515.5

Attachment F-9. Thin Breaks Production Summary

LifeForm	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
	<i>Eremopyrum triticeum</i>	0.3	2.2
Annual Grass	Subtotal	0.3	2.2
	<i>Atriplex powellii</i>	6.8	60.4
	<i>Cryptantha crassisejala</i>	0.5	4.5
	<i>Cycloloma atriplicifolium</i>	0.3	2.2
	<i>Descurainia pinnata</i>	0.5	4.3
	<i>Eriogonum gordonii</i>	0.6	4.9
	<i>Halogeton glomeratus</i>	5.7	50.7
	<i>Ipomopsis pumila</i>	0.3	2.2
	<i>Lappula occidentalis</i>	0.4	3.9
	<i>Machaeranthera canescens</i>	1.4	12.8
	<i>Malacothrix sonchoides</i>	0.3	2.5
	<i>Mentzelia albicaulis</i>	0.7	6.5
	<i>Phacelia crenulata</i>	1.6	14.2
	<i>Plantago patagonica</i>	2.8	25.1
	<i>Salsola tragus</i>	7.6	67.7
	<i>Stenogonum salsuginosum</i>	0.7	6.2
	<i>Townsendia annua</i>	0.3	2.2
Annual Forb	Subtotal	30.3	270.5
	<i>Astragalus spp.</i>	0.3	2.2
Forb	Subtotal	0.3	2.2
	<i>Lygodesmia grandiflora</i>	0.3	2.2
	<i>Sphaeralcea coccinea</i>	0.9	7.8
	<i>Sphaeralcea parvifolia</i>	0.3	2.9
	<i>Stephanomeria exigua</i>	0.7	6.2
Perennial Forb	Subtotal	2.2	19.2
	<i>Achnatherum hymenoides</i>	1.3	11.9
	<i>Pleuraphis jamesii</i>	1.3	11.3
	<i>Sporobolus airoides</i>	4.2	37.4
Perennial Grass	Subtotal	6.8	60.6
	<i>Gaillardia pinnatifida</i>	5.2	46.4
Perennial Forb	Subtotal	5.2	46.4
	<i>Artemisia bigelovii</i>	10.2	91.0
	<i>Atriplex canescens</i>	14.0	124.9
	<i>Atriplex confertifolia</i>	8.6	76.3
	<i>Atriplex gardneri</i>	3.0	26.3
	<i>Atriplex obovata</i>	8.6	76.3
	<i>Gutierrezia sarothrae</i>	0.4	3.6
Shrub	Subtotal	44.7	398.4

Attachment F-9 Cont'd.

	Air Dry Weight (g/m²)	Air Dry Weight (lbs/acre)	Standard Deviation of lbs/acre
Thin Breaks Total	89.6	799.5	52.8

Attachment F-9a. Thin Breaks Production by Transect.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		SATR12	<i>Salsola tragus</i>	4.0	35.7
	Annual Forb Subtotal			4.0	35.7
		ATCO	<i>Atriplex confertifolia</i>	8.0	71.4
	Shrub Subtotal			8.0	71.4
TB-201 Total				12.0	107.1
		ACHY	<i>Achnatherum hymenoides</i>	1.0	8.9
	Perennial Grass Subtotal			1.0	8.9
		ARBI3	<i>Artemisia bigelovii</i>	10.2	91.0
	Shrub Subtotal			10.2	91.0
TB-201* Total				11.2	99.9
		NONE	<i>NONE</i>	0.0	0.0
	NONE Subtotal			0.0	0.0
TB-202 Total				0.0	0.0
		SATR12	<i>Salsola tragus</i>	10.0	89.2
	Annual Forb Subtotal			10.0	89.2
		PLJA	<i>Pleuraphis jamesii</i>	1.6	14.3
	Perennial Grass Subtotal			1.6	14.3
		ATOB	<i>Atriplex obovata</i>	2.2	19.6
	Shrub Subtotal			2.2	19.6
TB-203 Total				13.8	123.1
		ATGA	<i>Atriplex gardneri</i>	6.0	53.5
		ATOB	<i>Atriplex obovata</i>	3.0	26.8
	Shrub Subtotal			9.0	80.3
TB-204 Total				9.0	80.3
		NONE	<i>NONE</i>	0.0	0.0
	NONE Subtotal			0.0	0.0
TB-205 Total				0.0	0.0
		ATPO2	<i>Atriplex powellii</i>	9.0	80.3
		HAGL	<i>Halogeton glomeratus</i>	12.0	107.1
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			21.3	189.6
TB-206 Total				21.3	189.6
		CRCR3	<i>Cryptantha crassisejala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	4.4	39.3
		MACA2	<i>Machaeranthera canescens</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2

Attachment F-9a cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		SATR12	<i>Salsola tragus</i>	16.0	142.7
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			21.7	193.2
		SPPA2	<i>Sphaeralcea parvifolia</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grass Subtotal			0.3	2.2
TB-207 Total				22.2	197.6
		HAGL	<i>Halogeton glomeratus</i>	3.5	31.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	3.5	31.2
	Annual Forb Subtotal			7.3	64.7
		LYGR	<i>Lygodesmia grandiflora</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	1.2	10.7
	Perennial Grass Subtotal			1.2	10.7
		ATCO	<i>Atriplex confertifolia</i>	2.9	25.9
	Shrub Subtotal			2.9	25.9
TB-208 Total				11.6	103.5
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		MACA2	<i>Machaeranthera canescens</i>	4.0	35.7
		MEAL6	<i>Mentzelia albicaulis</i>	1.2	10.7
		SATR12	<i>Salsola tragus</i>	0.3	2.2
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			6.2	55.3
TB-209 Total				6.2	55.3
		ATPO2	<i>Atriplex powellii</i>	4.9	43.7
	Annual Forb Subtotal			4.9	43.7
TB-210 Total				4.9	43.7
		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	5.0	44.6
	Annual Forb Subtotal			5.8	51.3
		ERTR13	<i>Eremopyrum triticeum</i>	0.3	2.2
	Annual Grass Subtotal			0.3	2.2
		ATCA2	<i>Atriplex canescens</i>	14.0	124.9
	Shrub Subtotal			14.0	124.9
TB-211 Total				20.0	178.4
		HAGL	<i>Halogeton glomeratus</i>	3.0	26.8
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2

Attachment F-9a cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
TB-212 Total		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
	Annual Forb Subtotal			3.5	31.2
TB-213 Total		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	33.0	294.4
	Annual Forb Subtotal			33.3	296.6
	TB-213 Total			33.3	296.6
TB-214 Total		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	12.0	107.1
	Annual Forb Subtotal			12.3	109.3
		LYGR	<i>Lygodesmia grandiflora</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
		ATOB	<i>Atriplex obovata</i>	34.7	309.6
Shrub Subtotal			34.7	309.6	
TB-214 Total			47.2	421.1	
TB-215 Total		DEPI	<i>Descurainia pinnata</i>	1.1	9.8
		ERGO	<i>Eriogonum gordonii</i>	1.6	14.3
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	1.9	17.0
	Annual Forb Subtotal			4.9	43.3
		GUSA2	<i>Gutierrezia sarothrae</i>	0.3	2.2
Shrub Subtotal			0.3	2.2	
TB-215 Total			5.1	45.5	
TB-216 Total		HAGL	<i>Halogeton glomeratus</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	2.0	17.8
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			2.5	22.3
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
Perennial Grass Subtotal			0.3	2.2	
TB-216 Total			2.8	24.5	
TB-217 Total		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		MASO	<i>Malacothrix sonchoides</i>	0.3	2.7
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			1.3	11.6
	PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2	
Perennial Grass Subtotal			0.3	2.2	
TB-217 Total			1.6	13.8	
		ATPO2	<i>Atriplex powellii</i>	26.0	232.0
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2

Attachment F-9a cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m2)	Air Dry Weight (lbs/acre)
		SATR12	<i>Salsola tragus</i>	0.3	2.2
	Annual Forb Subtotal			26.5	236.4
		SPCOC	<i>Sphaeralcea coccinea</i>	0.3	2.2
	Perennial Forb Subtotal			0.3	2.2
TB-218 Total				26.8	238.7
		NONE	NONE	0.0	0.0
	NONE Subtotal			0.0	0.0
TB-219 Total				0.0	0.0
		NONE	NONE	0.0	0.0
	NONE Subtotal			0.0	0.0
TB-220 Total				0.0	0.0
		ERGO	<i>Eriogonum gordonii</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	11.5	102.6
		SATR12	<i>Salsola tragus</i>	6.3	56.2
	Annual Forb Subtotal			18.1	161.0
TB-221 Total				18.1	161.0
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		MACA2	<i>Machaeranthera canescens</i>	0.3	2.2
		MASO	<i>Malacothrix sonchoides</i>	0.3	2.2
		PLPA2	<i>Plantago patagonica</i>	2.0	17.8
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			3.3	29.0
	Forb Subtotal	ASTRA	<i>Astragalus spp.</i>	0.3	2.2
				0.3	2.2
	Perennial Forb Subtotal	STEX	<i>Stephanomeria exigua</i>	0.7	6.2
				0.7	6.2
		ACHY	<i>Achnatherum hymenoides</i>	1.0	8.9
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
		SPAI	<i>Sporobolus airoides</i>	6.0	53.5
	Perennial Grass Subtotal			7.3	64.7
TB-222 Total				11.5	102.2
		SATR12	<i>Salsola tragus</i>	8.1	72.3
	Annual Forb Subtotal			8.1	72.3
TB-223 Total				8.1	72.3
		DEPI	<i>Descurainia pinnata</i>	0.9	8.0
		HAGL	<i>Halogeton glomeratus</i>	1.7	15.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
	Annual Forb Subtotal			2.9	25.4
TB-224 Total				2.9	25.4

Attachment F-9a cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)	
TB-225		CRCR3	<i>Cryptantha crassisejala</i>	0.3	2.2	
		CYAT	<i>Cycloloma atriplicifolium</i>	0.3	2.2	
		HAGL	<i>Halogeton glomeratus</i>	0.8	7.1	
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2	
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2	
		SATR12	<i>Salsola tragus</i>	3.0	26.8	
		Annual Forb Subtotal		4.8	42.8	
			ATGA	<i>Atriplex gardneri</i>	2.6	23.2
			ATOB	<i>Atriplex obovata</i>	3.9	34.8
		Shrub Subtotal		6.5	58.0	
TB-225 Total				11.3	100.8	
TB-226		DEPI	<i>Descurainia pinnata</i>	0.3	2.2	
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2	
		LAOC3	<i>Lappula occidentalis</i>	1.4	12.5	
		SATR12	<i>Salsola tragus</i>	6.0	53.5	
		Annual Forb Subtotal		7.9	70.5	
			SPCOC	<i>Sphaeralcea coccinea</i>	1.5	13.4
		Perennial Forb Subtotal		1.5	13.4	
			PLJA	<i>Pleuraphis jamesii</i>	5.0	44.6
			SPAI	<i>Sporobolus airoides</i>	11.8	104.9
		Perennial Grass Subtotal		16.8	149.5	
TB-226			GAPI	<i>Gaillardia pinnatifida</i>	5.2	46.4
		Perennial Forb Subtotal		5.2	46.4	
	TB-226 Total				31.4	279.8
	TB-227		SATR12	<i>Salsola tragus</i>	3.8	33.9
		Annual Forb Subtotal		3.8	33.9	
			ATCO	<i>Atriplex confertifolia</i>	24.2	215.9
			ATOB	<i>Atriplex obovata</i>	4.4	39.3
	Shrub Subtotal		28.6	255.2		
TB-227 Total				32.4	289.1	
TB-228		ERGO	<i>Eriogonum gordonii</i>	1.0	8.9	
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2	
		SATR12	<i>Salsola tragus</i>	4.7	41.9	
		Annual Forb Subtotal		6.0	53.1	
			ATOB	<i>Atriplex obovata</i>	11.5	102.6
	Shrub Subtotal		11.5	102.6		
TB-228 Total				17.5	155.7	
TB-229		DEPI	<i>Descurainia pinnata</i>	0.3	2.2	
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2	
		SATR12	<i>Salsola tragus</i>	7.0	62.5	
		Annual Forb Subtotal		7.5	66.9	
TB-229 Total				7.5	66.9	

Attachment F-9a cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		PLPA2	<i>Plantago patagonica</i>	7.0	62.5
		SATR12	<i>Salsola tragus</i>	3.7	33.0
		TOAN	<i>Townsendia annua</i>	0.3	2.2
	Annual Forb Subtotal			11.0	97.7
		SPAI	<i>Sporobolus airoides</i>	0.3	2.2
	Perennial Grass Subtotal			0.3	2.2
		ATOB	<i>Atriplex obovata</i>	8.5	75.8
	Shrub Subtotal			8.5	75.8
TB-230 Total				19.7	175.8
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	15.0	133.8
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	7.0	62.5
		SATR12	<i>Salsola tragus</i>	25.0	223.0
	Annual Forb Subtotal			47.8	426.0
		ATGA	<i>Atriplex gardneri</i>	0.3	2.2
	Shrub Subtotal			0.3	2.2
TB-231 Total				48.0	428.2
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		MACA2	<i>Machaeranthera canescens</i>	0.7	6.2
		MEAL6	<i>Mentzelia albicaulis</i>	0.3	2.2
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	1.6	14.3
	Annual Forb Subtotal			3.1	27.2
		ACHY	<i>Achnatherum hymenoides</i>	2.0	17.8
	Perennial Grass Subtotal			2.0	17.8
		GUSA2	<i>Gutierrezia sarothrae</i>	0.3	2.2
	Shrub Subtotal			0.3	2.2
TB-232 Total				5.3	47.3
		NONE	<i>NONE</i>	0.0	0.0
	NONE Subtotal			0.0	0.0
TB-233 Total				0.0	0.0
		HAGL	<i>Halogeton glomeratus</i>	6.9	61.6
		SATR12	<i>Salsola tragus</i>	9.8	87.4
	Annual Forb Subtotal			16.7	149.0
TB-234 Total				16.7	149.0
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		IPPU4	<i>Ipomopsis pumila</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	1.2	10.7
		PHCR	<i>Phacelia crenulata</i>	0.3	2.2

Attachment F-9a cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m ²)	Air Dry Weight (lbs/acre)
		PLPA2	<i>Plantago patagonica</i>	0.3	2.2
		SATR12	<i>Salsola tragus</i>	26.0	232.0
	Annual Forb Subtotal			28.5	253.8
		SPAI	<i>Sporobolus airoides</i>	4.0	35.7
	Perennial Grass Subtotal			4.0	35.7
		ATCO	<i>Atriplex confertifolia</i>	0.3	2.2
	Shrub Subtotal			0.3	2.2
TB-235 Total				32.7	291.7
		CRCR3	<i>Cryptantha crassisepala</i>	2.3	20.5
		DEPI	<i>Descurainia pinnata</i>	1.7	15.2
		MACA2	<i>Machaeranthera canescens</i>	2.0	17.8
		PHCR	<i>Phacelia crenulata</i>	2.9	25.9
		PLPA2	<i>Plantago patagonica</i>	2.0	17.8
		SATR12	<i>Salsola tragus</i>	7.0	62.5
		STSA3	<i>Stenogonum salsuginosum</i>	0.7	6.2
	Annual Forb Subtotal			18.6	165.9
		SPPA2	<i>Sphaeralcea parvifolia</i>	0.4	3.6
	Perennial Forb Subtotal			0.4	3.6
		SPAI	<i>Sporobolus airoides</i>	5.9	52.2
	Perennial Grass Subtotal			5.9	52.2
		GUSA2	<i>Gutierrezia sarothrae</i>	0.7	6.2
	Shrub Subtotal			0.7	6.2
TB-236 Total				25.6	228.0
		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		CRCR3	<i>Cryptantha crassisepala</i>	0.3	2.2
		DEPI	<i>Descurainia pinnata</i>	0.3	2.2
		HAGL	<i>Halogeton glomeratus</i>	3.5	31.2
		SATR12	<i>Salsola tragus</i>	4.4	39.3
	Annual Forb Subtotal			8.7	77.2
		PLJA	<i>Pleuraphis jamesii</i>	0.3	2.2
	Perennial Grass Subtotal			0.3	2.2
		ATCO	<i>Atriplex confertifolia</i>	7.4	66.0
	Shrub Subtotal			7.4	66.0
TB-237 Total				16.3	145.4
		ATPO2	<i>Atriplex powellii</i>	0.3	2.2
		LAOC3	<i>Lappula occidentalis</i>	0.3	2.2
	Annual Forb Subtotal			0.5	4.5
		ATOB	<i>Atriplex obovata</i>	0.3	2.2
	Shrub Subtotal			0.3	2.2
TB-238 Total				0.8	6.7
		NONE	<i>NONE</i>	0.0	0.0
	NONE Subtotal			0.0	0.0
TB-239 Total				0.0	0.0

Attachment F-9a cont'd.

Transect	Life Form	Symbol	Scientific Name	Air Dry Weight (g/m2)	Air Dry Weight (lbs/acre)
		NONE	<i>NONE</i>	0.0	0.0
	NONE Subtotal			0.0	0.0
TB-240 Total				0.0	0.0

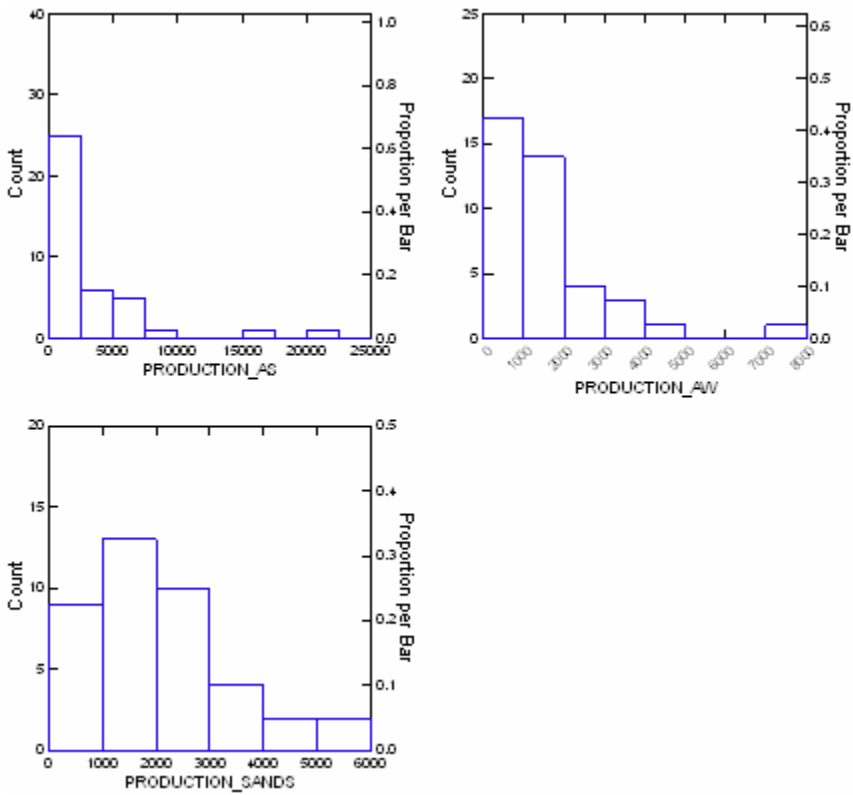
ATTACHMENT G
STATISTICAL ANALYSIS

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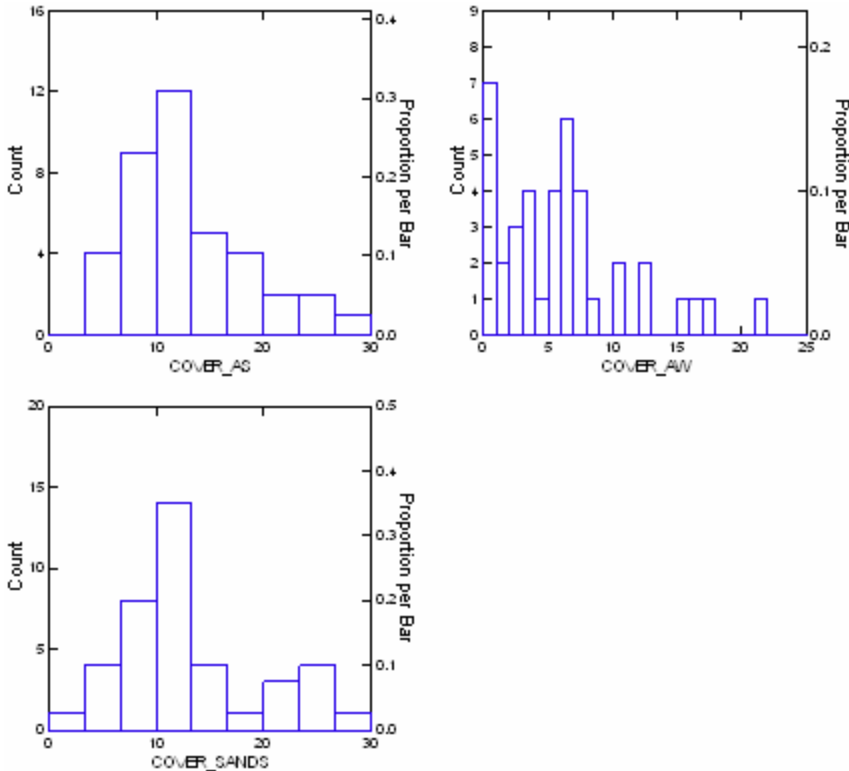
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Processed 9 Variables and 43 Cases.
Successfully saved file W:\JZ\BHP Veg Stats\BHP Veg.syz
Processed 9 Variables and 43 Cases.
Successfully saved file W:\JZ\BHP Veg Stats\BHP Veg.syz
Processed 9 Variables and 43 Cases.

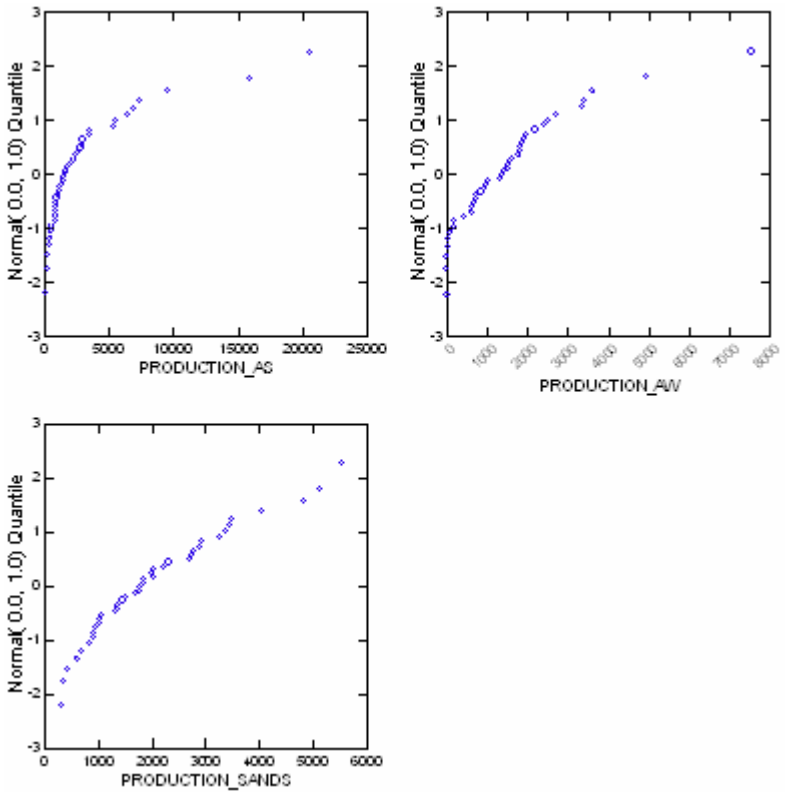
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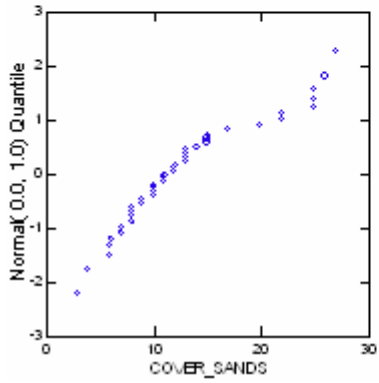
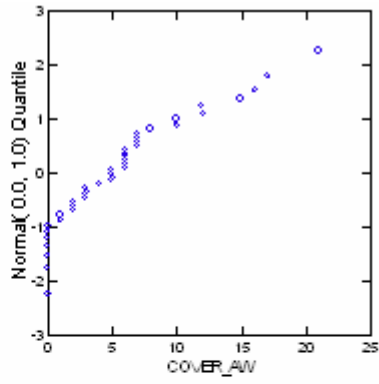
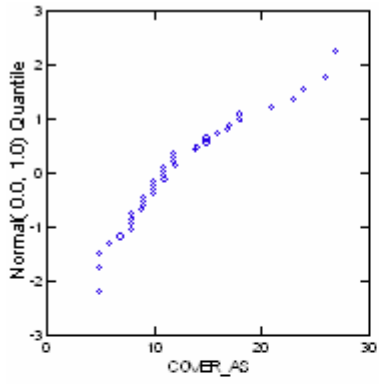
▼ Histogram



▼ Probability Plot



▼ Probability Plot



Production: Arroyo Shrub (AS) vs. Reference Arroyo Shrub (RefAS)

Cover: Arroyo Shrub (AS) vs. Reference Arroyo Shrub (RefAS)

▼ Nonparametric : Kruskal-Wallis test

Kruskal-Wallis One-way Analysis of Variance for 80 Cases

The categorical values encountered during processing are

Variables	Levels
GROUP_ (2 levels)	1.000;2.000

Dependent variable	PRODUCTION_AS
Grouping variable	GROUP_

Group	Count	Rank Sum
1=AS	39	1492.000
2=RefAS	39	1589.000

Mann-Whitney U Test Statistic : 712.000
p-value : 0.628
Chi-square Approximation : 0.235
df : 1

Dependent variable	COVER_AS
Grouping variable	GROUP_

Group	Count	Rank Sum
1=AS	39	1204.500
2=RefAS	39	1876.500

Mann-Whitney U Test Statistic : 424.500
p-value : 0.001
Chi-square Approximation : 11.306
df : 1

Production: Alkali Wash (AW) vs. Reference Alkali Wash (RefAW)

Cover: Alkali Wash (AW) vs. Reference Alkali Wash (RefAW)

▼ Nonparametric : Kruskal-Wallis test

Kruskal-Wallis One-way Analysis of Variance for 80 Cases

The categorical values encountered during processing are

Variables	Levels
GROUP (2 levels)	1.000;2.000

Dependent variable	PRODUCTION_AS
Grouping variable	GROUP

Group	Count	Rank Sum
1=AW	40	1808.000
2=RefAW	40	1432.000

Mann-Whitney U Test Statistic : 988.000
p-value : 0.070
Chi-square Approximation : 3.273
df : 1

Dependent variable	COVER_AS
Grouping variable	GROUP

Group	Count	Rank Sum
1=AW	40	1576.000
2=RefAW	40	1664.000

Mann-Whitney U Test Statistic : 756.000
p-value : 0.671
Chi-square Approximation : 0.181
df : 1

Production: Sands (SA) vs. Reference Sands (RefSA)
Cover: Sands (SA) vs. Reference Sands (RefSA)

► **Nonparametric : Kruskal-Wallis test**

Variables	Levels
GROUP (2 levels)	1.000;2.000
Dependent variable	PRODUCTION_AS
Grouping variable	GROUP

Group	Count	Rank Sum
1=SA	40	1652.000
2=RefSA	39	1508.000

Mann-Whitney U Test Statistic : 832.000
 p-value : **0.610**
 Chi-square Approximation : 0.260
 df : 1

Dependent variable	COVER_AS
Grouping variable	GROUP

Group	Count	Rank Sum
1=SA	40	1564.000
2=RefSA	39	1596.000

Mann-Whitney U Test Statistic : 744.000
 p-value : **0.723**
 Chi-square Approximation : 0.126
 df : 1

Appendix 15.C

2007 Baseline Vegetation Inventories

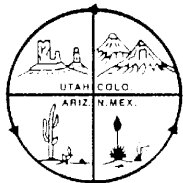
2007 Baseline Vegetation Inventories

Navajo Mine Extension Project

Prepared for:

**BHP Navajo Coal Company
Navajo Mine Extension Project
Fruitland, New Mexico**

Prepared by:



ECOSPHERE ENVIRONMENTAL SERVICES

August 2008 (Revised)

Table of Contents

1.0	INTRODUCTION	1
2.0	PROJECT AREA	1
3.0	VEGETATION TYPES	1
4.0	VEGETATION INFORMATION COLLECTION AND ANALYSIS	2
4.1	DATA COLLECTION	2
4.2	DATA ANALYSIS	4
5.0	DESCRIPTION OF VEGETATION TYPES	4
5.1	DUNES.....	4
5.2	SANDS	6
5.3	ARROYO SHRUB	8
5.4	ALKALI WASH	9
5.5	THIN BREAKS	11
5.6	BADLANDS	13
5.7	COVER COMPARISON BETWEEN VEGETATION TYPES	14
5.8	CONSTANCY	15
5.9	SHRUB DENSITY	16
5.10	PRODUCTION	17
6.0	REFERENCE AREA	18
6.1	REFERENCE ALKALI WASH	19
6.2	REFERENCE ARROYO SHRUB	20
6.3	REFERENCE SANDS	20
7.0	PROJECT AREA AND REFERENCE AREA COMPARISON	21
7.1	CONSTANCY	21
7.2	SHRUB DENSITY	22
7.3	PRODUCTION	23
7.4	COVER	26
7.5	CONCLUSION.....	30
8.0	REFERENCES	32

List of Tables

<u>Table 1</u>	<u>Vegetation Community Acreages</u>	<u>2</u>
<u>Table 2</u>	<u>Average Cover, Constancy, and Production in the Dunes Community Type</u>	<u>5</u>
<u>Table 3</u>	<u>Average Cover, Constancy, and Production in the Sands Community Type</u>	<u>7</u>
<u>Table 4</u>	<u>Average Cover, Constancy, and Production in the Arroyo Shrub Community Type</u>	<u>8</u>
<u>Table 5</u>	<u>Average Cover, Constancy, and Production in the Alkali Wash Community Type</u>	<u>10</u>
<u>Table 6</u>	<u>Average Cover, Constancy, and Production in the Thin Breaks Community Type</u>	<u>12</u>
<u>Table 7</u>	<u>Average Cover, Constancy, and Production in the Badlands Community Type</u>	<u>13</u>
<u>Table 8</u>	<u>Reference Area Vegetation Community Acreages</u>	<u>19</u>
<u>Table 9</u>	<u>Average Cover, Constancy, and Production in the Reference Alkali Wash Community Type</u>	<u>19</u>
<u>Table 10</u>	<u>Average Cover, Constancy, and Production in the Reference Arroyo Shrub Community Type</u> ..	<u>20</u>
<u>Table 11</u>	<u>Average Cover, Constancy, and Production in the Reference Sands Community Type</u>	<u>21</u>
<u>Table 12</u>	<u>Average Number of Species per Constancy Transect Comparison</u>	<u>22</u>
<u>Table 13</u>	<u>Shrub Density per Acre Comparison</u>	<u>23</u>
<u>Table 14</u>	<u>Average Production in Pounds Per Acre by Life Form Comparison Between the Project Area and Reference Area</u>	<u>24</u>
<u>Table 15</u>	<u>Mann-Whitney Results for Production Comparison of Community Types in the Project Area and Reference Area</u>	<u>25</u>
<u>Table 16</u>	<u>Mann-Whitney Results for Vegetative Cover Comparison of Community Types in the Project Area and Reference Area</u>	<u>28</u>

List of Figures

Figure 1: Average Total Cover from Spring and Fall Sampling in the Dunes Community.....	6
Figure 2: Average Total Cover from Spring and Fall Sampling in the Sands Community	7
Figure 3: Average Total Cover from spring and fall Sampling in the Arroyo Shrub Community	9
Figure 4: Average Total Cover from Spring and Fall Sampling in the Alkali Wash Community.....	11
Figure 5: Average Total Cover from Spring and Fall Sampling in the Thin Breaks Community	12
Figure 6: Average Total Cover from Spring and Fall Sampling in the Badlands Community	14
Figure 7: Spring Average Vegetative Cover in the Project Area.....	15
Figure 8: Fall Average Vegetative Cover in the Project Area	15
Figure 9: Average Number of Species Per Constancy Transect in the Project Area.....	16
Figure 10: Average Shrub Density in the Project Area	17
Figure 11: Fall Average Production in Pounds Per Acre in the Project Area.....	18
Figure 12: Fall Average Number of Species Per Constancy Transect in the Project Area and Reference Area.	22
Figure 13: Fall Average Shrub Density in the Project Area and Reference Area.....	23
Figure 14: Production in Average Pounds Per Acre Comparison Between the Project Area and Reference Area.	24
Figure 15: Box Plot Comparison for Production in the Project Area and Reference Area Arroyo Shrub Community Type.....	25
Figure 16: Box Plot Comparison for Production in the Project Area and Reference Area Alkali Wash Community Type.....	26
Figure 17: Box Plot Comparison for Production in the Project Area and Reference Area Sands Community Type.....	26
Figure 18: Vegetative Cover Comparison Between the Project Area and Reference Area.....	27
Figure 19: Ground Cover Comparison Between the Project Area and Reference Area.....	28
Figure 20: Box Plot Ground Cover Comparison Between the Project Area and Reference Area Arroyo Shrub.....	29
Figure 21: Box Plot Ground Cover Comparison Between the Project Area and Reference Area Alkali Wash.....	29
Figure 22: Box Plot Ground Cover Comparison Between the Project Area and Reference Area Sands.....	30

List of Attachments

Attachment A. Exhibits
Attachment B. Plant Species Recorded during Data Collection
Attachment C. Cover and Frequency Data
Attachment D. Shrub Density Data
Attachment E. Constancy Data
Attachment F. Production Data
Attachment G. Statistical Analysis

1.0 INTRODUCTION

This report has been prepared to present results from vegetation data collected in 2007 from BHP Navajo Coal Company's (BNCC) Navajo Mine Extension Project (NMEP). The NMEP comprises Area 4 South and Area 5 of BNCC's existing coal lease. Vegetation data was collected from the NMEP project area and a potential vegetation reference area. Selection of vegetation reference areas is based on quantitative and qualitative comparison with pre-mine vegetation communities. Once established, the reference areas are used to evaluate the success of mine reclamation efforts. Preliminary data results provide BNCC and regulatory agencies with necessary information to determine whether potential reference areas are representative of major vegetation communities within the mine lease and to ensure compliance with current federal regulations pertaining to the Surface Mining Control and Reclamation Act of 1977 (SMCRA) administered by the Office of Surface Mining (OSM)..

This report outlines the data collection and statistical analysis methodologies implemented for inventorying the project area and potential reference area vegetation. The methodologies used are consistent with OSM recommended guidelines and requirements and the study plan approved by OSM on May 29, 2007.

2.0 Project Area

The NMEP is located about 20 miles (linear distance) southwest of Farmington, New Mexico and is found on the Hogback S, Newcomb NE, and The Pillar NW, New Mexico 7.5-minute U.S. Geological Survey (USGS) quadrangles (refer to Exhibits 1 and 2 in Attachment A). The NMEP permit area comprises 13,006 acres in BNCC lease Areas 4 South and 5.

3.0 Vegetation Types

The same vegetation types delineated in 1987 by Drs M. K. Wood and K. W. Allred for Navajo Mine Area 4 North have been used in this report to represent the baseline vegetation types within the Area 4 South and Area 5 project area, with one exception. Based on discussions with OSM and to remain consistent with Navajo Mine vegetation reporting, it was decided to combine the three sand vegetation types identified in 1987 into one sands vegetation type. The results of the 1987 survey are provided and discussed in BNCC's Navajo Mine Permit Application Package (OSM Permit No. NM-0003F).

Reconnaissance of vegetation community types in Areas 4 South and 5 began with examination of previous studies and existing resources including aerial photographs, Natural Resource Conservation Service (NRCS) soil maps, USGS topographical maps, and past resource site analysis, including detailed soil (Buchanan Consultants, Ltd, 1998) and vegetation surveys (TRC Mariah, 1999). We reviewed these sources to preliminarily determine the extent and proportion of vegetation community types within the project area. Vegetation community names and descriptions were evaluated for consistency with those found within the adjacent Navajo Mine and with previous surveys. Vegetation communities were

categorized into the following six categories: Arroyo Shrub, Alkali Wash, Badlands, Dunes, Thin Breaks, and Sands (combined alkaline sands, sands, and saline sands). Based on this information, we created a vegetation community map in a GIS (Geographic Information System) database (Exhibit 3). We ground truthed the preliminary vegetation community characterization using vehicular and pedestrian surveys. We also conducted ground truthing surveys concurrently with spring and fall vegetation inventories to further refine vegetation community delineations. The total project area acreage is 13,006 acres (Table 1).

Table 1 Vegetation Community Acreages

<u>Vegetation Community Type</u>	<u>Acreage</u>	<u>Percent of Total</u>
Alkali Wash	4719.0	36.3
Sands	4438.7	34.1
Dunes	1204.2	9.3
Thin Breaks	1110.6	8.5
Arroyo Shrub	637.1	4.9
Badlands	896.8	6.9
Total	13,006.4	100%

4.0 Vegetation Information Collection and Analysis

4.1 Data Collection

Ecosphere biologists collected data during both spring and fall of 2007, in order to capture as much species diversity as possible. A list of plant species recorded during data collection is provided in Attachment B. Data collection methods were consistent with previous surveys. We chose a stratified random sampling method to locate sampling points throughout the project area. We generated forty-five (45) randomly located sampling points within each of the six community types based on GIS mapping of the project area. During spring data collection, we sampled 20 of the 45 points by choosing even or odd numbered points in each vegetation community. For the fall data collection, we generated 45 new randomly located sampling points. From these new sampling points, we sampled a minimum of 39 sample points within each community type. The final number of spring and fall transects in each vegetation type varied due to changes in the vegetation community mapping during the data collection process. These mapping changes primarily affected the number of spring transects in each vegetation community, since the most intensive ground truthing occurred during and after the spring sampling effort. Ground truthing of the community mapping also continued into the fall sampling effort. Occasionally the ground truthing revealed that sample points were located within a different vegetation community than intended. In these instances, the points were either sampled in place, and their associated vegetation community classification was changed; or they were not sampled and data was collected at an additional point to make up for the lost point in that vegetation community.

Vegetation data collection occurred between May 14 and June 1, 2007 (spring) and between October 1 and October 31, 2007 (fall). Percent cover, species frequency, constancy and composition were measured at

each location during spring sampling. The fall sampling effort included the additional parameters of production and shrub density. Spring sampling transects were located throughout the project area; fall sampling transects were located throughout the project area exclusive of the potential Reference Area. The selection of sampling points within the potential Reference Area is discussed in Section 6.0.

Linear transects at each sampling point were used to collect quantitative data within Areas 4 South and 5 of the BNCC Lease Area and reference area. Biologists navigated to transect locations using handheld GPS (Global Positioning System) units. Each linear transect was 50 m long and located completely within a single vegetation community type at a randomly chosen direction. The random direction was determined by tossing a screwdriver into the air and following a line extending from the handle along the working end of the screwdriver. The transect origin was located where the screwdriver landed. If the entire 50 m transect length did not fall within the intended vegetation community type, the screwdriver toss was repeated until a suitable direction was achieved.

Cover and frequency data were collected using a point intercept method along a 50 m tape stretched the length of the transect. This method is consistent with previous studies (TRC Mariah 1999). Starting at the beginning of the 50 m tape, a laser point sampler (Synergy Resource Solutions, Bozeman, Montana) was used to point perpendicular to the ground at every 0.5 m mark along the tape; therefore a total of 100 readings per transect were recorded. Cover data was recorded as the first “hit” of the laser beam in the following categories: bare ground, litter, gravel/stone, and vegetation. If the laser hit vegetation, the species was recorded as a measure of frequency.

Shrub density was measured within a 2 m wide belt transect for the length of the 50 m tape, 1 m wide along each side of the tape (100 m²). Every shrub rooted in the transect area was identified and counted. Densities are reported as the number of rooted stems per 100 m² converted to stems per acre. To remain consistent with previous reporting, shrub density is reported both with and without broom snakeweed (*Gutierrezia sarothrae*).

Species constancy was determined by identifying and recording a singular list of each species that occurred inside the 100 m² shrub density belt.

Production data was collected by the harvesting method using current years' growth. To allow for comparison with previous studies, production transects consisted of one 1 m² plot (10 cm x 10 m). The plot was located at the 10 m mark along the right hand side of the 50 m transect tape with the longer edge parallel to the tape. The placement of the production plot away from the starting point of the 50 m tape reduced bias and trampling resulting from transect establishment. All plants and parts of plants located within the vertical projection of the plot were included regardless of where they were rooted. Parts of plants overhanging outside the plot were excluded. All species within the plot were identified, recorded, clipped to ground level, weighed, and bagged by species. Clipped biomass was air dried for a minimum of ten days and weighed to produce an air dry weight as recommended in the National Range and Pasture Handbook (USDA 2003). Biomass lost to grazing was reconstructed using the ocular estimation method described by

Coulloudon et al. (1999a). Production was measured in grams per square meter and converted to pounds per acre.

All field time was documented including date, time, personnel, location, and data collected. Measurements were recorded on data forms or digitally recorded, and then transferred to a digital database for analysis. All flora species observed were recorded using the U. S. Department of Agriculture Plants Database standard symbols and taxonomic naming conventions.

4.2 Data Analysis

Collected tabular data were compiled and visually presented using Excel® software. Statistical analysis was conducted using SYSTAT 12 (SYSTAT Software, Inc., San Jose, CA). Production biomass was weighed using an ACCULAB™ EC-211 digital scale.

5.0 Description of Vegetation Types

5.1 Dunes

Dunes form gently rolling terrain (0-5 % slopes) located on the leeward side of ridges, bluffs, and plateaus. Dunes soils are deep and composed of well-drained sands. The deep sands of dunes allows for deep, but more consistent water availability. Since only deep-rooted perennial plants can exploit this water, Dunes have several unique plant species such as San Juan milkweed (*Asclepias sanjuanensis*=ASSA8). The Dunes community type accounts for approximately 9% of the project area vegetation (Table 1). Spring sampling resulted in 19 transects and 40 transects were completed during fall data collection (Attachment A, Exhibits 4 and 5).

The species that occurred on at least half of all Dunes transects during spring data collection included, in descending order; cryptantha (*Cryptantha crassisejala*=CRCR3), tansy mustard (*Descurania pinnata*=DEPI), twinpod (*Dimorphocarpa wislizenii*=DIWI), globemallow (*Sphaeralcea parvifolia*=SPPA2), Indian ricegrass (*Achnatherum hymenoides*=ACHY), galleta grass (*Pleuraphis jamesii*=PLJA), Russian thistle (*Salsola tragus*=SATR12), wire lettuce (*Stephanomeria exigua*=STEX), lupine (*Lupinus pusillus*=LUPU), evening primrose (*Oenothera pallida*=OEPA), four winged saltbush (*Atriplex canescens*=ATCA2), and alkali sacaton (*Sporobolus airoides*=SPAI). The species that occurred on at least half of all Dunes transects during fall data collection included, in descending order; Russian thistle, tansy mustard, Indian ricegrass, cryptantha, galleta grass, globemallow, purple aster (*Machaeranthera canescens*=MACA2), alkali sacaton, bur ragweed (*Ambrosia acanthicarpa*=AMAC2), and twinpod.

The Dunes sites averaged the highest number of different species across all life forms (Table 2). Dunes, Arroyo Shrub, and Sands sites had the highest amounts of vegetative cover. Dunes sites also had very high production, second to Arroyo Shrub sites. Shrub density for Dunes averaged 729.5 stems per acre (SD

654.8) including broom snakeweed (*Gutierrezia sarothrae*=GUSA2) and 486.6 stems per acre (SD 417.9) without broom snakeweed. The most frequent species on point intercept transects were cryptantha, tansy mustard, and twinpod during the spring, and Mormon tea (*Ephedra spp.*), alkali sacaton, and tansy mustard during the fall.

Table 2: Average Cover, Constancy, and Production in the Dunes Community Type

	Spring Average Total Cover	Spring Average Relative Cover	Fall Average Total Cover	Fall Average Relative Cover	Spring Average Number of Species from Constancy	Fall Average Number of Species from Constancy	Fall Average Production (lbs/acre)
Annual Forbs	10.3%	50.6%	5.6%	37.5%	7.9	6.8	85.6
Annual Grasses	0.0%	0.0%	0.2%	1.2%	0.1	0.3	0.3
Forbs ¹	0.3%	1.3%	0.1%	0.7%	0.8	0.2	0.1
Perennial Forbs	5.1%	24.9%	0.7%	4.7%	4.7	2.5	13.8
Perennial Grasses	2.3%	11.4%	4.3%	28.5%	2.9	3.4	32.5
Perennial Shrubs	2.3%	11.4%	4.1%	27.2%	1.7	3.0	0.0
Perennial Succulents	0.0%	0.0%	0.0%	0.2%	0.1	0.2	76.6
Unidentified	0.0%	0.0%	0.0%	0.2%	0.1	0.1	0.0
Total Perennial	9.7%	48.1%	9.1%	60.5%	9.4	9.1	122.8
Total	20.3%	100.0%	15.0%	100.0%	18.4	16.5	209.7
Standard Deviation	7.4%		4.9%		5.8	3.9	58.8

1. Forbs not specifically identified as either annual or perennial.

Total spring perennial cover was measured at 9.4% with a relative cover value of 48.1% (Table 2). The average fall perennial cover within the Dunes vegetation community was 9.1% and relative cover was 60.5% (Table 2). Annual forbs contributed 37.5% of relative cover in the fall. Total average vegetative cover in the Dunes community type varied from 20.3% (standard deviation (SD) 7.4%) in the spring to 15.0% (SD 4.9%) in the fall due to seasonal changes in species composition, primarily higher spring annual forb cover (Table 2 and Figure 1). Average number of species recorded in constancy transects was also higher in the spring at 18.4 species (SD 6.4) than in the fall at 16.5 species (SD 3.9) (Table 2). Biomass production, measured in the fall, averaged 209.7 pounds per acre (SD 58.8) (Table 2).

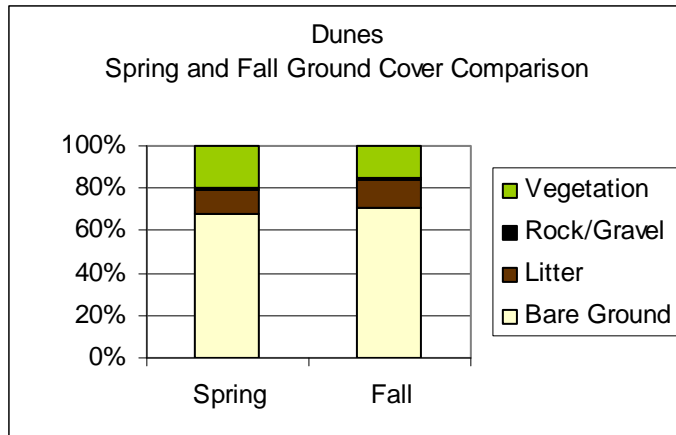


Figure 1: Average Total Cover from Spring and Fall Sampling in the Dunes Community

5.2 Sands

As with Dunes, the deeper penetration of rainwater into sandy soil allows for greater water availability and increases plant species diversity. The types of sand in this habitat can vary from saline to calcareous. This sand habitat often transitions to and can be mixed with Thin Breaks habitat. In years with high amounts of spring rainfall sandy soils display an abundance of annuals, especially scorpion weed (*Phacelia crenulata*=PHCR), annual Townsend daisy (*Townsendia annua*=TOAN), and cryptantha. Sands accounts for 34% of project area vegetation. Data collection included 25 spring transects and 40 fall transects (Attachment A, Exhibits 4 and 5).

The species that occurred on at least half of all Sands transects during spring data collection included, in descending order; cryptantha, scorpion weed, tansy mustard, Russian thistle, alkali sacaton, pincushion (*Chaenactis stevioides*=CHST), shadscale saltbush (*Atriplex confertifolia*=ATCO), annual Townsend daisy, Indian ricegrass, wire lettuce, purple aster, globe mallow, prickly pear (*Opuntia polyacantha*=OPPO), woolly plantain (*Plantago patagonica*=PLPA2), and sixweeks fescue (*Vulpia ocotiflora*=VUOC). The species that occurred on at least half of all Sands transects during fall data collection included, in descending order; Russian thistle, alkali sacaton, Indian ricegrass, cryptantha, galleta grass, shadscale saltbush, tansy mustard, purple aster, and broom snakeweed. Sands sites are higher than other communities in vegetation canopy, vegetation frequency, and production. Shrub density averaged 1,107.9 stems per acre (SD 1,183.0) with broom snakeweed and 485.6 stems per acre (SD 357.4) without broom snakeweed. The most frequent species on point intercept transects were cryptantha, Russian thistle, and alkali sacaton during the spring, and alkali sacaton, Russian thistle and galleta grass during the fall.

Table 3: Average Cover, Constancy, and Production in the Sands Community Type

	Spring Average Total Cover	Spring Average Relative Cover	Fall Average Total Cover	Fall Average Relative Cover	Spring Average Number of Species from Constancy	Fall Average Number of Species from Constancy	Fall Average Production (lbs/acre)
Annual Forbs	8.7%	58.8%	5.2%	39.7%	9.5	6.0	105.0
Annual Grasses	0.1%	0.8%	0.0%	0.2%	0.9	0.3	0.2
Forbs ¹	0.0%	0.0%	0.0%	0.2%	0.3	0.1	0.0
Perennial Forbs	1.3%	8.5%	0.4%	2.7%	3.4	1.3	2.3
Perennial Grasses	2.8%	18.9%	5.3%	40.5%	3.0	2.9	44.1
Perennial Shrubs	1.8%	11.9%	2.2%	16.6%	1.9	1.9	57.0
Perennial Succulents	0.2%	1.1%	0.0%	0.2%	0.6	0.5	0.0
Unidentified	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0
Total Perennial	6.0%	40.4%	7.9%	59.9%	8.9	6.5	103.4
Total	14.8%	100.0%	13.1%	100.0%	18.8	12.8	208.6
Standard Deviation	6.7%		6.4%		5.1	3.4	62.5

1. Forbs not specifically identified as either annual or perennial.

Total spring perennial average cover was measured at 6.0% for a relative cover value of 40.4% (Table 3). Total fall perennial cover within the Sands vegetation community was measured at an average of 7.9% with a relative cover value of 59.9% (Table 3). Perennial grass cover displayed a relative cover value of 40.5%. Total average vegetative cover in the Sands community type varied from 14.8% (SD 6.7%) in the spring to 13.1% (SD 6.4%) in the fall even though the composition of annual forbs and perennial grasses changed more appreciably between the seasons (Table 3 and Figure 2). More species were recorded during the spring than in the fall with an average of 18.8 species (SD 5.1) per transect in the spring, and 12.8 species (SD 3.4) per transect in the fall (Table 3). Biomass production, measured in the fall, averaged 208.6 pounds per acre (SD 62.5) (Table 3).

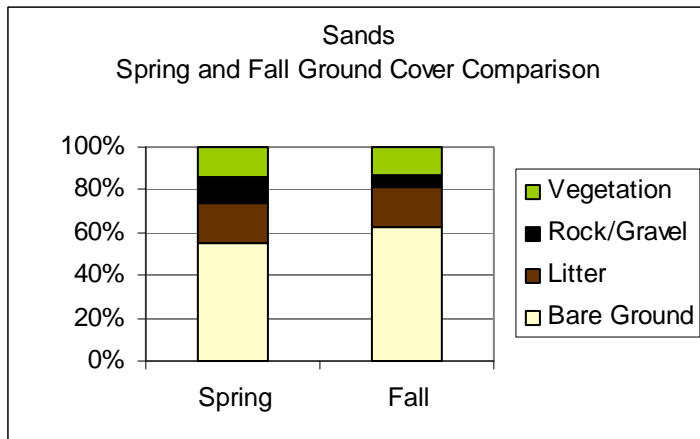


Figure 2: Average Total Cover from Spring and Fall Sampling in the Sands Community

5.3 Arroyo Shrub

Arroyo Shrub range sites are found on level or nearly level terrain (0-2% slopes) located next to stream beds in major drainages, such as No Name Arroyo and Pinabete Arroyo. Arroyo Shrub accounts for the smallest percentage of vegetation occurring within the project area at less than 5% (Table 1). Twenty-four (24) transects were completed in the spring and 40 during fall data collection (Attachment A, Exhibits 4 and 5).

The species that occurred on at least half of all Arroyo Shrub transects during spring data collection included, in descending order; tansy mustard, alkali sacaton, cryptantha, Russian thistle, four winged saltbush, annual Townsend daisy, cheatgrass (*Bromus tectorum*=BRTE), and galleta grass. The species that occurred on at least half of all Arroyo Shrub transects during fall data collection included, in descending order; Russian thistle, tansy mustard, alkali sacaton, four winged saltbush, cryptantha, greasewood (*Sarcobatus vermiculatus*=SAVE4), and broom snakeweed. Arroyo Shrub sites had a high proportion of bare ground. Shrub density in Arroyo Shrub sites was the highest of all sites in the project area. Shrub density averaged 1,100.8 stems per acre (SD 857.1) with broom snakeweed and 940.9 stems per acre (SD 881.2) without broom snakeweed. The most frequent species on point intercept transects were Russian thistle, tansy mustard, and four winged saltbush during the spring, and greasewood, Russian thistle, and tansy mustard during the fall.

Table 4: Average Cover, Constancy, and Production in the Arroyo Shrub Community Type

	Spring Average Total Cover	Spring Average Relative Cover	Fall Average Total Cover	Fall Average Relative Cover	Spring Average Number of Species from Constancy	Fall Average Number of Species from Constancy	Fall Average Production (lbs/acre)
Annual Forbs	7.9%	40.6%	4.4%	36.2%	9.6	5.0	105.1
Annual Grasses	2.2%	11.1%	0.3%	2.1%	1.3	0.9	2.5
Forbs ¹	0.1%	0.6%	0.2%	1.2%	0.2	0.2	8.7
Perennial Forbs	1.1%	5.6%	0.2%	1.4%	3.0	1.1	8.3
Perennial Grasses	4.2%	21.6%	1.9%	15.9%	2.7	2.1	19.2
Perennial Shrubs	4.0%	20.5%	5.2%	42.6%	2.8	2.9	175.8
Perennial Succulents	0.0%	0.0%	0.0%	0.0%	0.1	0.3	0.0
Unidentified	0.0%	0.0%	0.1%	0.6%	0.0	0.2	0.0
Total Perennial	9.3%	47.6%	7.3%	59.9%	8.5	6.4	203.3
Total	19.5%	100.0%	12.1%	100.0%	19.7	12.6	320.7
Standard Deviation	13.5%		6.2%		8.4	6.2	156.5

¹. Forbs not specifically identified as either annual or perennial.

Total spring perennial cover was measured at 9.3% for a relative cover value of 47.6% (Table 4). Total fall perennial cover within the Arroyo Shrub vegetation community was measured at an average of 7.3% with a relative cover value of 59.9% (Table 4). Perennial grass cover displayed a relative cover value of 15.9% of

the vegetative cover. Shrub cover in this community was measured at 42.6% of vegetative cover from fall data, while annual forbs contributed the highest amount of vegetative cover in the spring at 40.6% (Table 4). Total average vegetative cover in the Arroyo Shrub community type varied from 19.5% (SD 13.5%) in the spring to 12.1% (SD 6.2%) in the fall (Table 4 and Figure 3). Average number of species recorded in constancy transects was higher in the spring at 19.7 species (SD 8.4) than in the fall at 12.6 species (SD 6.2) (Table 4). Biomass production, measured in the fall, was higher in Arroyo Shrub sites than in any other vegetation community and averaged 320.7 pounds per acre (SD 156.5) (Table 4).

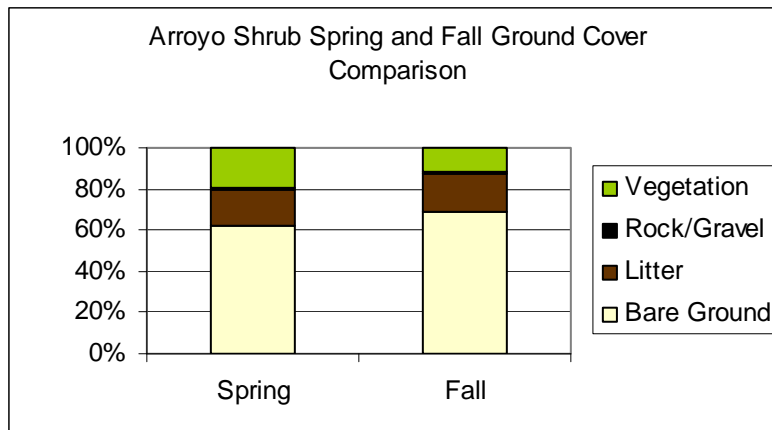


Figure 3: Average Total Cover from Spring and Fall Sampling in the Arroyo Shrub Community

5.4 Alkali Wash

Alkali Wash is vegetation habitat associated with minor waterways. These areas are typically broad and level with occasional small, dense patches of galleta grass and alkali sacaton. Alkali Wash range sites are typically located in washes and major drainages as well as at the base of Badlands. Terrain is nearly level to moderately sloping, ranging from 0-3%. In the project area, Alkali Wash accounts for the greatest percentage of vegetation in the project area at 36% (Table 1). In the spring 33 transects were sampled and 40 transects were completed during fall data collection (Attachment A, Exhibits 4 and 5).

The species that occurred on at least half of all Alkali Wash transects during spring data collection included, in descending order; tansy mustard, Russian thistle, mound saltbush (*Atriplex obovata*=ATOB), cryptantha, alkali sacaton, woolly plantain, annual Townsend daisy, stickseed (*Lappula occidentalis*=LAOC3), Gordon's buckwheat (*Eriogonum gordonii*=ERGO), halogeton (*Halogeton glomeratus*=HAGL), galleta grass, and dwarf gilia (*Ipomopsis pumila*=IPPU). Halogeton is listed as Class B noxious weed by the Bureau of Indian Affairs (BIA) Navajo Region. The species that occurred on at least half of all Alkali Wash transects during fall data collection included, in descending order; tansy mustard, Russian thistle, mound saltbush, alkali sacaton, halogeton, and annual Townsend daisy. Following Thin Breaks and Badlands, Alkali Wash sites had the least amount of vegetative cover. Shrub density averaged 540.3 stems per acre (SD 624.5) with broom snakeweed, and 510.9 stems per acre (SD 611.1) without broom snakeweed. The most frequent species on point intercept transects were Russian thistle, alkali

sacaton, and tansy mustard during the spring, and Russian thistle, alkali sacaton, and Gordon's buckwheat during the fall.

Table 5: Average Cover, Constancy, and Production in the Alkali Wash Community Type

	Spring Average Total Cover	Spring Average Relative Cover	Fall Average Total Cover	Fall Average Relative Cover	Spring Average Number of Species from Constancy	Fall Average Number of Species from Constancy	Fall Average Production (lbs/acre)
Annual Forbs	4.7%	57.8%	3.6%	62.6%	9.3	5.7	102.9
Annual Grasses	0.4%	4.8%	0.2%	3.5%	1.0	0.4	1.0
Forbs ¹	0.0%	0.0%	0.0%	0.0%	0.1	0.0	0.0
Perennial Forbs	0.3%	3.3%	0.0%	0.0%	2.2	0.6	2.2
Perennial Grasses	1.4%	16.7%	1.0%	17.4%	2.2	1.4	9.1
Perennial Shrubs	1.2%	14.8%	1.0%	16.5%	2.0	1.7	40.2
Perennial Succulents	0.0%	0.0%	0.0%	0.0%	0.3	0.2	0.0
Unidentified	0.2%	2.6%	0.0%	0.0%	0.0	0.0	0.0
Total Perennial	2.8%	34.8%	2.0%	33.9%	6.6	3.9	51.5
Total	8.2%	100.0%	5.8%	100.0%	17.1	10.0	156.9
Standard Deviation	6.4%		5.2%		6.1	4.6	75.4

¹. Forbs not specifically identified as either annual or perennial.

Total spring perennial cover was measured at 2.8% with a relative cover value of 34.8% (Table 5). Total fall perennial cover within the Alkali Wash vegetation community was measured at an average of 2.0% with a relative cover value of 33.9% (Table 5). The greatest contributor to total vegetative cover was annual forbs comprising 4.7% mean vegetative cover on spring transects and 3.6% mean vegetative cover on fall transects. Total average vegetative cover in the Alkali Wash community type varied from 8.2% (SD 6.4%) in the spring to 5.8% (SD 5.2%) in the fall (Table 5 and Figure 4). More species were recorded during the spring than in the fall with an average of 17.1 species (SD 6.1) per transect in the spring, and 10.0 species (SD 4.6) per transect in the fall (Table 5). Biomass production, measured in the fall, averaged 156.9 pounds per acre (SD 75.4) (Table 5).

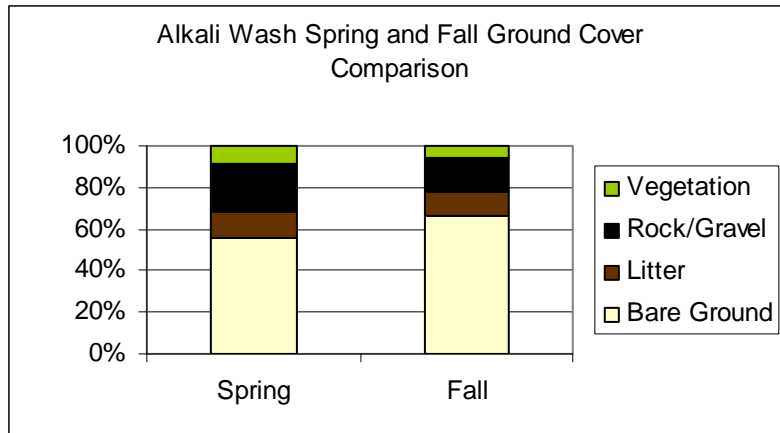


Figure 4: Average Total Cover from Spring and Fall Sampling in the Alkali Wash Community

5.5 Thin Breaks

Thin Breaks topography includes exposed shale, siltstone, and sandstone outcrops and associated thin soils of the immediate surrounding area. These sites usually occur along ridges and rock outcrops between plateaus and major drainages or plateaus and Badlands, as well as butte and mesa tops. Slopes vary from 2-9%. The soil surface is usually covered with thin, broken fragments of sandstone. There are rocky areas, sometimes with loose rock and sometimes with large pieces of rock, usually shale, firmly embedded in the ground. Thin Breaks are typically upland habitats, with surface rock as a unifying feature. Flat surface rocks allow for greater water runoff and for accumulation in crevices or fissures between rocks. Thin Breaks habitat can abruptly shift to another habitat type or gradually shift to Badlands or sandy soil habitats. Less than 9% of the project area consists of Thin Breaks (Table 1). Fifteen (15) transects were sampled during the spring and 41 during the fall (Attachment A, Exhibits 4 and 5).

The species that occurred on at least half of all Thin Breaks transects during spring data collection included, in descending order; Russian thistle, alkali sacaton, stickseed, shadscale saltbush, dwarf gilia, cryptantha, annual Townsend's daisy, mound saltbush, Powells' saltbush (*Atriplex powelli* var. *powelli*=ATPO2), and scorpion weed. The species that occurred on at least half of all Thin Breaks transects during fall data collection included, in descending order, Russian thistle, tansy mustard, alkali sacaton, mound saltbush, and stickseed. Thin Breaks sites averaged the least amount of bare ground, but the most rock or gravel ground cover, and very little vegetative cover. Shrub density averaged 511.3 stems per acre (SD 561.6) with broom snakeweed and 408.6 stems per acre (SD 338.3) without broom snakeweed. The most frequent species on point intercept transects were stickseed, four winged saltbush, and Russian thistle during the spring, and Russian thistle, alkali sacaton, and halogeton during the fall.

Table 6: Average Cover, Constancy, and Production in the Thin Breaks Community Type

	Spring Average Total Cover	Spring Average Relative Cover	Fall Average Total Cover	Fall Average Relative Cover	Spring Average Number of Species from Constancy	Fall Average Number of Species from Constancy	Fall Average Production (lbs/acre)
Annual Forbs	2.6%	57.7%	2.8%	58.5%	6.9	6.2	78.8
Annual Grasses	0.2%	4.2%	0.0%	0.0%	0.3	0.2	0.1
Forbs ¹	0.0%	0.0%	0.0%	0.5%	0.1	0.0	0.1
Perennial Forbs	0.1%	1.4%	0.0%	0.5%	1.1	0.8	1.9
Perennial Grasses	0.6%	14.1%	1.0%	20.0%	1.3	1.5	8.9
Perennial Shrubs	1.0%	22.5%	1.0%	20.0%	1.6	2.0	31.7
Perennial Succulents	0.0%	0.0%	0.0%	0.0%	0.3	0.3	0.0
Unidentified	0.0%	0.0%	0.0% ²	0.5%	0.0	0.1	0.0
Total Perennial	1.7%	38.0%	1.9%	40.5%	4.3	4.5	42.5
Total	4.4%	100.0%	4.8%	100.0%	10.3	11.1	121.3
Standard Deviation	3.7%		3.6%		5.4	5.3	52.8

1. Forbs not specifically identified as either annual or perennial.
2. 0.024390243902439%

With a low vegetative component in the Thin Breaks community, there was little difference between cover values in spring and fall data. Total spring perennial cover within the Thin Breaks vegetation community was measured at an average of 1.7% with a relative cover value of 38.0% (Table 6). Total fall perennial cover was measured at 1.9% with a relative cover value of 40.5% (Table 6). The greatest contributor to total cover was annual forbs comprising 2.6% mean spring total cover and 2.8% mean fall total cover. Total vegetative cover in the Thin Breaks community type ranged from an average of 4.4% (SD 3.7%) in the spring to 4.8% (SD 3.6%) in the fall (Table 6 and Figure 5). The average number of species recorded was similar in both seasons with an average of 10.3 species (SD 5.4) per transect in the spring, and 11.1 species (SD 5.3) per transect in the fall (Table 6). Biomass production, measured in the fall, averaged 121.3 pounds per acre (SD 52.8) (Table 6).

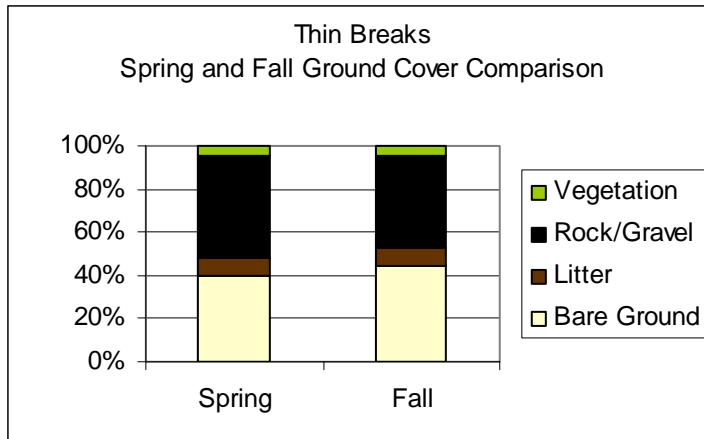


Figure 5: Average Total Cover from Spring and Fall Sampling in the Thin Breaks Community

5.6 Badlands

The Badlands vegetation community consists of exposed, weathered shales with steep to moderately undulating topography (10-60% slopes). These sites generally occur between plateau edges and major drainages. The badlands have the least vegetation of any of the six community types. Plants, where they occur, are often located along the small relief channels of these barren areas. This habitat can abruptly shift to another habitat type or gradually transition to Alkali Wash or Thin Breaks habitats. Seven percent (7%) of the project area is Badlands (Table 1). Data collection included 13 transects in the spring and 43 transects during the fall (Attachment A, Exhibits 4 and 5).

The species that occurred on at least half of all Badlands transects during spring data collection included, in descending order; Powell’s saltbush, mound saltbush, annual Townsend daisy, stickseed, and woolly plantain. The species that occurred on at least half of all Badlands transects during fall data collection included, in descending order; mound saltbush, Powell’s saltbush, Gordon’s buckwheat, Russian thistle, tansy mustard, and four winged saltbush. Badlands sites were the least productive and had the smallest proportion of vegetative cover of all the vegetation communities. Shrub density averaged 519.5 stems per acre (SD 445.2) with broom snakeweed and 513.9 stems per acre (SD 450.3) without broom snakeweed. The most frequent species on point intercept transects were stickseed, Russian thistle, and cryptantha during the spring, and Gordon’s buckwheat, mound saltbush, and Powell’s saltbush during the fall.

Table 7: Average Cover, Constancy, and Production in the Badlands Community Type

	Spring Average Total Cover	Spring Average Relative Cover	Fall Average Total Cover	Fall Average Relative Cover	Spring Average Number of Species from Constancy	Fall Average Number of Species from Constancy	Fall Average Production (lbs/acre)
Annual Forbs	2.5%	66.7%	2.0%	65.4%	8.0	4.3	19.0
Annual Grasses	0.0%	0.0%	0.0%	0.8%	0.5	0.3	0.1
Forbs ¹	0.0%	0.0%	0.0%	0.8%	0.0	0.0	0.0
Perennial Forbs	0.1%	2.1%	0.1%	2.3%	1.3	0.8	1.4
Perennial Grasses	0.3%	8.3%	0.2%	6.8%	1.2	0.6	0.9
Perennial Shrubs	0.5%	12.5%	0.7%	24.1%	1.8	1.6	64.5
Perennial Succulents	0.0%	0.0%	0.0%	0.0%	0.1	0.1	0.0
Unidentified	0.4%	10.4%	0.0%	0.0%	0.0	0.0	0.0
Total Perennial	0.8%	22.9%	1.0%	33.1%	4.5	3.1	66.8
Total	3.7%	100.0%	3.1%	100.0%	12.9	7.7	85.9
Standard Deviation	3.5%		2.6%		6.4	3.6	109.5

¹. Forbs not specifically identified as either annual or perennial.

Badlands sites are sparsely vegetated and cover data showed few seasonal differences. Total spring perennial cover within the Badlands vegetation community was measured at an average of 0.8% with a relative cover value of 22.9% (Table 7). Total fall perennial cover was measured at 1.0% with a relative cover value of 33.1% (Table 7). The greatest contributor to total cover was annual forbs comprising 2.5%

total cover on spring transects and 2.0% total cover on fall transects. Total vegetative cover in the Badlands community type ranged from an average of 3.7% (SD 3.5%) in the spring to 3.1% (SD 2.6%) in the fall (Table 7 and Figure 6). More species were recorded during the spring than in the fall with an average of 12.9 species (SD 6.4) per transect in the spring and 7.7 species (SD 3.6) per transect in the fall. Biomass production, measured in the fall, averaged 85.9 pounds per acre (SD 109.5) (Table 7).

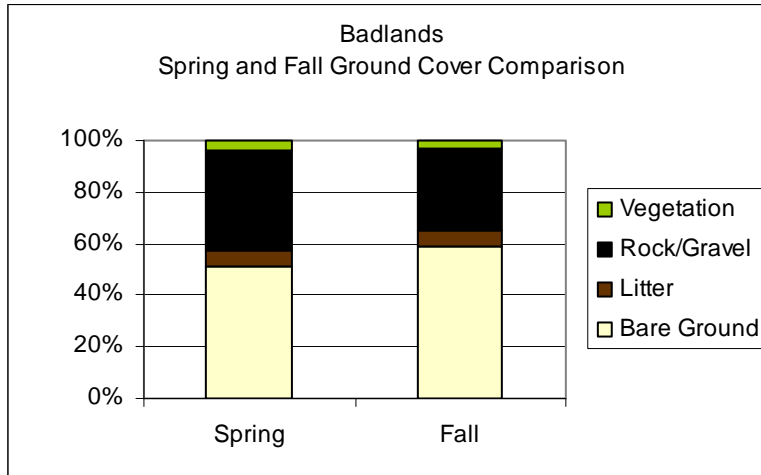


Figure 6: Average Total Cover from Spring and Fall Sampling in the Badlands Community

5.7 Cover Comparison Between Vegetation Types

The percentage of total vegetative cover in Dunes sites was 26.2% higher in spring than in fall, which is indicative of seasonal species variation (Figures 7 and 8). The Dunes sites had the most variation between spring and fall, while Badlands had the least with less than 1%. Dunes had the highest total vegetative cover in both spring and fall. Vegetative cover was lowest in the Badlands sites in both seasons. Perennial cover was higher in the spring than in the fall for in Dunes, Arroyo Shrub and Alkali Wash. Perennial cover was higher in the fall than in the spring in Badlands, Thin Breaks, and Sands. In all sites relative perennial cover varied widely between spring and fall. Other than Badlands sites, which had the lowest perennial cover in both spring and fall, the relative perennial cover in spring for all other sites was between 34.8% and 48.1%, but was only between 4.8% and 15% in the fall (Figures 7 and 8). Summaries of total cover by transect are presented in Attachment C.

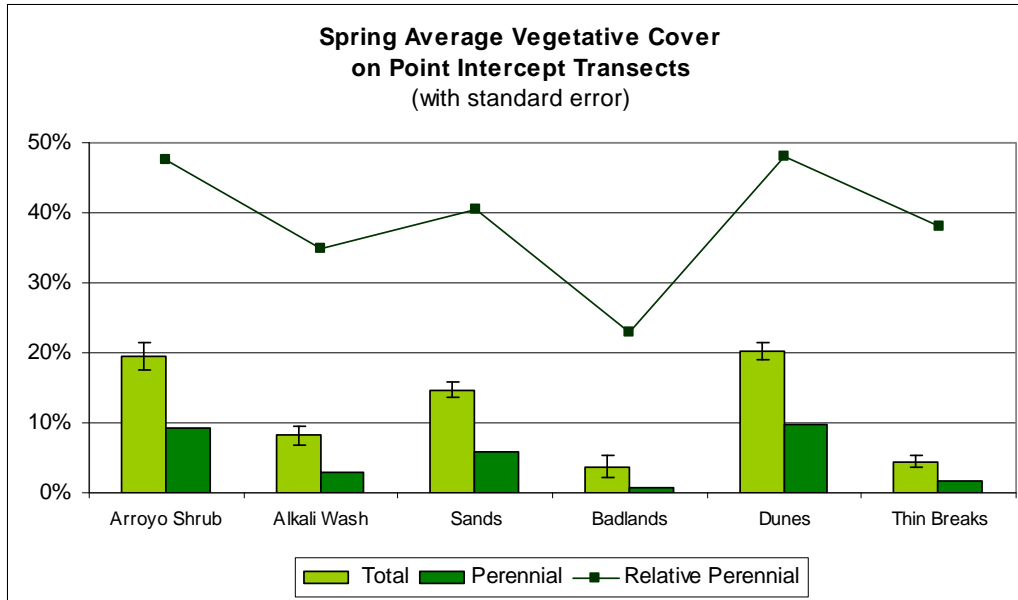


Figure 7: Spring Average Vegetative Cover in the Project Area

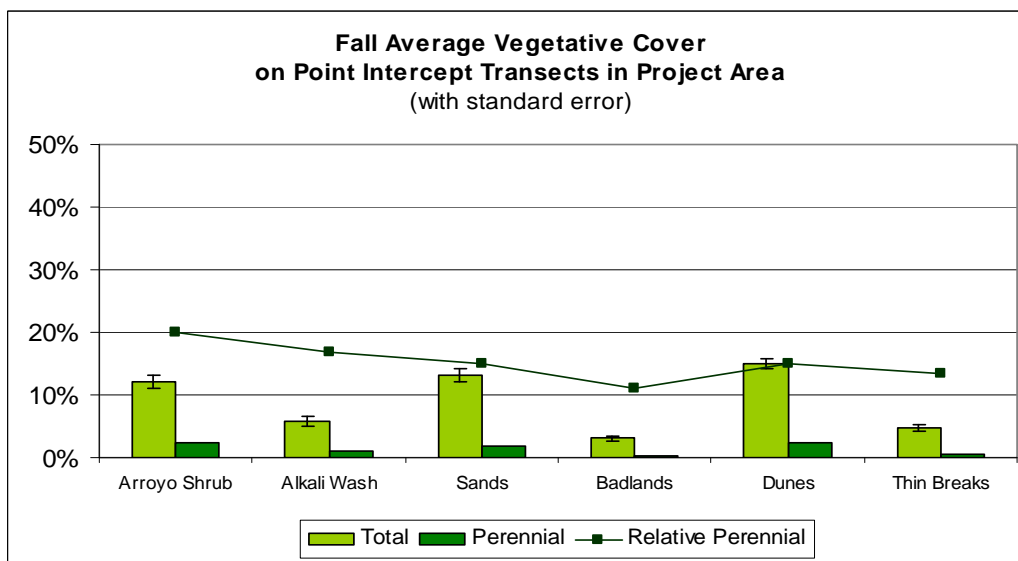


Figure 8: Fall Average Vegetative Cover in the Project Area

5.8 Constancy

A sites had the highest average number of species (18.7) during fall data collection, but Arroyo Shrub sites had higher species diversity (19.7) during spring data collection (Tables 2 and 4, Figure 9). Badlands had the least average number of species during both seasons; 12.9 in the spring and 7.7 in the fall (Table 7). Overall, the average number of species for all vegetation communities, with the exception of Thin Breaks was higher in the spring than in the fall, represented mainly by annual forbs (Figure 9). Summaries of the spring and fall constancy percentages by community are presented in Attachment E.

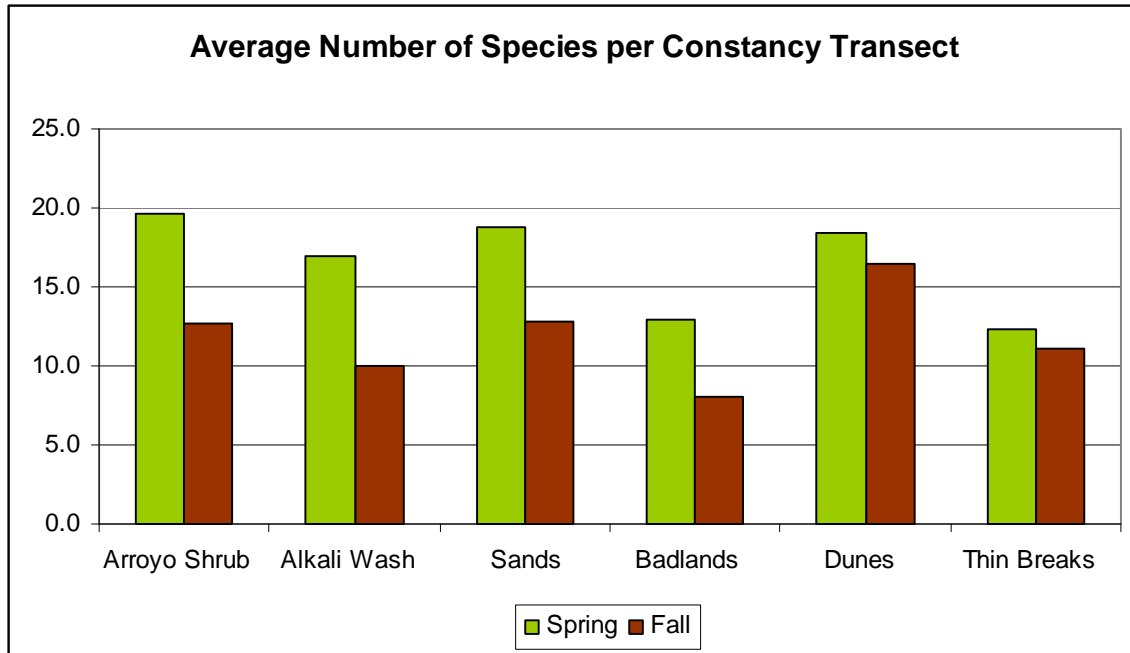


Figure 9: Average Number of Species Per Constancy Transect in the Project Area

5.9 Shrub Density

Arroyo Shrub and Sands sites had nearly identical shrub densities with 1100.8 (SD 857.1) and 1107.9 (SD 1183.0) respectively (Figure 10). However, when broom snakeweed was excluded from the calculations, the Sands shrub density average dropped considerably to 485.6 (SD 357.4), showing that broom snakeweed comprises a large proportion of shrubs in the Sands vegetation community (Figure 10). Arroyo Shrub had a high density of 940.9 (SD 881.2) shrubs per acre exclusive of broom snakeweed, while all other communities had between 408.6 and 543.4 stems per acre (Figure 10). Mound saltbush was the dominant shrub in three vegetation communities, comprising 25.4% of the shrubs in Arroyo Shrub, 46.3% in Alkali Wash, and 75.4% in Badlands. In the Dunes community the dominant shrub species were broom snakeweed and Mormon tea, 33.3% and 16.4% of the shrubs respectively. Broom snakeweed and shadscale saltbush were the dominant shrubs in the Sands community, 56.2% and 36.5% of the shrubs respectively. Shadscale saltbush was also dominant in Thin Breaks at 36.7%. Summaries of shrub density by community and by transect are presented in Attachment D.

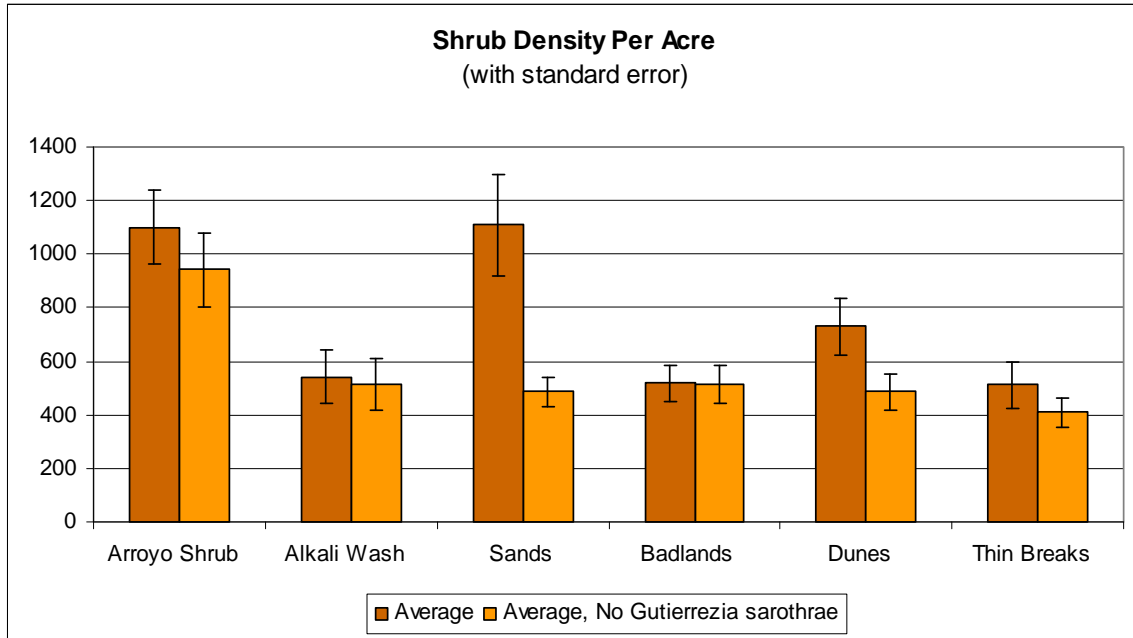


Figure 10: Average Shrub Density in the Project Area

5.10 Production

Arroyo Shrub had the highest total vegetative production per transect at 320.7 (SD 156.5) pounds per acre air dry weight, and Badlands had the lowest with 85.9 (109.5) pounds per acre (Figure 11). Dunes and Sands had similar production with 2209.7 (SD 58.8) pounds per acre and 208.6 (SD 62.5) pounds per acre respectively (Figure 11). There was more perennial species production than annual species production in all vegetation communities. Perennial production, including shrubs, was highest in the Badlands community at 91.5%, including a relative shrub production of 87.2% (Table 7). Perennial production, including shrubs, was lowest in Alkali Wash at 46% (Table 5). Summaries of spring and fall production by transect and by community are presented in Attachment F.

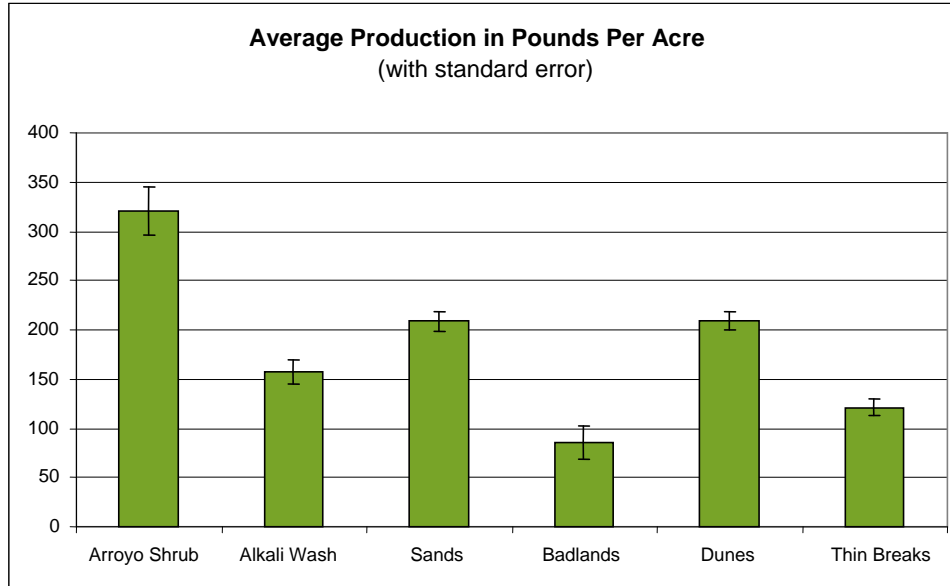


Figure 11: Fall Average Production in Pounds Per Acre in the Project Area

6.0 Reference Area

Vegetation reference areas are locations that will not be disturbed by mining activities and are managed in a manner that is consistent with post mining land uses (e.g., livestock grazing). Reference areas consist of the key vegetation communities found within the proposed mining area. Key communities were selected based on consultation with OSM and are consistent with communities within NMEP permit area. The key communities consist of representative Alkali Wash, Arroyo Shrub, and Sands.

Through consultations with the BNCC Environmental Department, two potential reference areas were selected for data collection. Potential reference areas were selected based the following criteria; 1) the potential reference areas were representative of the vegetation communities located within the boundaries of Areas 4 South and 5, 2) they were not going to be impacted by mining, and 3) they were large enough in size to maintain natural ecological processes. One potential reference area was eliminated from further consideration during an onsite visit and consultation with OSM personnel on September 18, 2007.

The remaining reference area vegetation types were mapped using the same methods outlined in Section 4.0 – Vegetation Information Collection and Analysis, followed by extensive ground truthing (Attachment A, Exhibit 6). The reference area totals 279.5 acres (Table 8).

In fall 2007, 45 transects were randomly located and 39 to 40 of these were sampled in each of the reference area vegetation communities (i.e., Alkali Wash, Arroyo Shrub, and Sands) (Exhibit 6). We attempted to sample 40 transects in each reference vegetation community; the variance in final transects sampled was due to on-the-ground changes in vegetation community delineations. All parameters and methods discussed in Section 4.0 – Vegetation Information Collection and Analysis were applied to the random sampling sites within the reference area.

Table 8 Reference Area Vegetation Community Acreages

Vegetation Community Type	Acreage	Percent of Total
Alkali Wash	157.6	56.4
Sands	60.1	21.5
Arroyo Shrub	61.8	22.1
Total	279.5	100%

6.1 Reference Alkali Wash

The species that occurred on at least half of all Reference Alkali Wash transects during fall data collection included, in descending order; mound saltbush, tansy mustard, Russian thistle, woolly plantain, alkali sacaton, annual Townsend daisy, halogeton, and globemallow. Shrub density averaged 773.0 stems per acre (SD 680.3) with broom snakeweed and 698.1 stems per acre (SD 600.2) without broom snakeweed. Fifty-six percent (56%) of the reference area is vegetated with Alkali Wash (Table 8). Forty (40) transects were sampled during the fall data collection (Attachment A, Exhibit 6). The most frequent species on point intercept transects were alkali sacaton, woolly plantain, and Russian thistle. Summaries by transect for the Reference Alkali Wash community are presented in Attachments C, D, E, and F.

Table 9: Average Cover, Constancy, and Production in the Reference Alkali Wash Community Type

	Fall Average Total Cover	Fall Average Relative Cover	Fall Average Number of Species from Constancy	Fall Average Production (lbs/acre)
Annual Forbs	3.5%	49.6%	7.1	71.4
Annual Grasses	0.9%	12.9%	1.2	2.4
Forbs ¹	0.0%	0.0%	0.1	0.1
Perennial Forbs	0.5%	6.4%	1.4	5.5
Perennial Grasses	1.5%	21.4%	1.8	6.7
Perennial Shrubs	0.7%	9.3%	1.8	28.4
Perennial Succulents	0.0%	0.4%	0.3	0.0
Unidentified	0.0%	0.0%	0.2	0.0
Total Perennial	2.6%	37.5%	5.3	40.6
Total	7.0%	100.0%	13.8	114.6
Standard Deviation	8.0%		3.9	51.3

¹. Forbs not specifically identified as either annual or perennial.

Vegetative cover in the Reference Alkali Wash community type totaled 7.0% (SD 8.0%) and was dominated by annual forbs which composed 49.6% of relative vegetative cover (Table 9). Perennial cover was measured at 2.6% for a relative cover value of 37.5% (Table 9). Perennial grasses comprised 21.4% of vegetative cover. An average of 13.8 species (SD 3.9) were recorded on constancy transects, and production averaged 114.6 pounds per acre air dry weight (SD 51.3) (Table 9).

6.2 Reference Arroyo Shrub

The species that occurred on at least half of all Reference Arroyo Shrub transects during fall data collection included, in descending order; alkali sacaton, mound saltbush, curlycup gumweed (*Grindelia squarrosa*=GRSQ), little barley (*Hordeum pusillum*=HOPU), woolly plantain, tansy mustard, galleta grass, and Russian thistle. Shrub density averaged 509.5 stems per acre (SD 442.5) with broom snakeweed and 443.1 stems per acre (SD 423.8) without broom snakeweed. Thirty-nine (39) transects were sampled during the fall data collection (Attachment A, Exhibit 6). The most frequent species on point intercept transects were alkali sacaton, little barley, and woolly plantain. Summaries by transect for the Reference Arroyo Shrub community are presented in Attachments C, D, E, and F.

Table 10: Average Cover, Constancy, and Production in the Reference Arroyo Shrub Community Type

	Fall Average Total Cover	Fall Average Relative Cover	Fall Average Number of Species from Constancy	Fall Average Production (lbs/acre)
Annual Forbs	4.1%	19.4%	5.1	41.9
Annual Grasses	5.7%	27.2%	2.3	36.6
Forbs ¹	0.1%	0.4%	0.3	2.2
Perennial Forbs	0.8%	4.0%	2.0	31.0
Perennial Grasses	9.2%	43.6%	1.9	77.1
Perennial Shrubs	1.0%	4.6%	1.9	65.7
Perennial Succulents	0.2%	0.7%	0.3	0.0
Unidentified	0.0%	0.0%	0.0	0.0
Perennial	11.2%	53.0%	6.1	173.8
Total	21.1%	100.0%	13.8	254.5
Standard Deviation	10.9%		4.2	91.6

¹. Forbs not specifically identified as either annual or perennial.

Vegetative cover in the Reference Arroyo Shrub community type totaled 21.1% (SD 10.9%) and was dominated by perennial grasses which composed 43.6% of the relative vegetative cover (Table 10). Annual grasses comprised a relative cover value of 27.2% of vegetative cover. An average of 13.8 species (SD 4.2) were recorded on constancy transects, and production averaged 254.5 pounds per acre air dry weight (SD 91.6) (Table 10).

6.3 Reference Sands

The species that occurred on at least half of all Reference Sands transects during fall data collection included, in descending order; Russian thistle, woolly plantain, alkali sacaton, cryptantha, tansy mustard, scorpion weed, galleta grass, Indian ricegrass, annual Townsend daisy, mound saltbush, purple aster, and broom snakeweed. Shrub density averaged 2,340.0 stems per acre (SD 2,352.5) with broom snakeweed and 402.6 stems per acre (SD 330.3) without broom snakeweed. Thirty-nine (39) transects were sampled during the fall data collection (Attachment A, Exhibit 6). The most frequent species on point intercept transects

were alkali sacaton, broom snakeweed, and galleta. Summaries by transect for the Reference Sands community are presented in Attachments C, D, E, and F.

Table 11: Average Cover, Constancy, and Production in the Reference Sands Community Type

	Fall Average Total Cover	Fall Average Relative Cover	Fall Average Number of Species from Constancy	Fall Average Production (lbs/acre)
Annual Forbs	3.6%	28.6%	7.6	69.1
Annual Grasses	0.2%	1.4%	0.8	0.5
Forbs ¹	0.0%	0.0%	0.0	0.0
Perennial Forbs	0.1%	0.8%	2.3	2.7
Perennial Grasses	5.4%	43.3%	2.7	41.9
Perennial Shrubs	3.2%	25.5%	2.2	74.7
Perennial Succulents	0.1%	0.4%	0.5	0.0
Unidentified	0.0%	0.0%	0.0	0.0
Perennial	8.8%	70.0%	7.7	119.4
Total	12.6%	100.0%	16.2	189.0
Standard Deviation	4.6%		2.8	52.6

¹. Forbs not specifically identified as either annual or perennial.

Vegetative cover in the Reference Sands community type totaled 12.6% (SD 4.6%) (Table 11). Vegetative cover in the Reference Sands community was dominated by perennial grasses which composed 43.3% of the relative vegetative cover. Annual forbs accounted for 28.6% of relative vegetative cover in the Sands reference area (Table 11). An average of 16.2 species (SD 2.8) were recorded on constancy transects, and production averaged 189.0 pounds per acre air dry weight (SD 52.6) (Table 11).

7.0 Project Area and Reference Area Comparison

7.1 Constancy

During fall sampling the Sands community had the largest variance between the number of species observed in the project area (12.8 species, SD 3.4) and the reference area (16.2 species, SD 2.8) (Table 12 and Figure 12). Reference Arroyo Shrub had an average of 13.8 species (SD 4.2) which was similar to the average 12.6 species (SD 6.2) recorded in the project area Arroyo Shrub sites (Table 12 and Figure 12). The average number of species in the Reference Alkali Wash was 13.8 (SD 3.9); while the project area Alkali Wash sites had an average of 10.0 species (SD 4.6) (Table 12 and Figure 12). Overall, the three vegetation types within the Reference Area displayed a higher average number of species than sites within the project area. The difference is not noticeable in any one life form, and the difference may not be statistically significant.

Table 12: Average Number of Species per Constancy Transect Comparison

Community	Average	Standard Deviation
Alkali Wash	10.0	4.6
Reference Alkali Wash	13.8	3.9
Arroyo Shrub	12.6	6.2
Reference Arroyo Shrub	13.8	4.2
Sands	12.8	3.4
Reference Sands	16.2	2.8

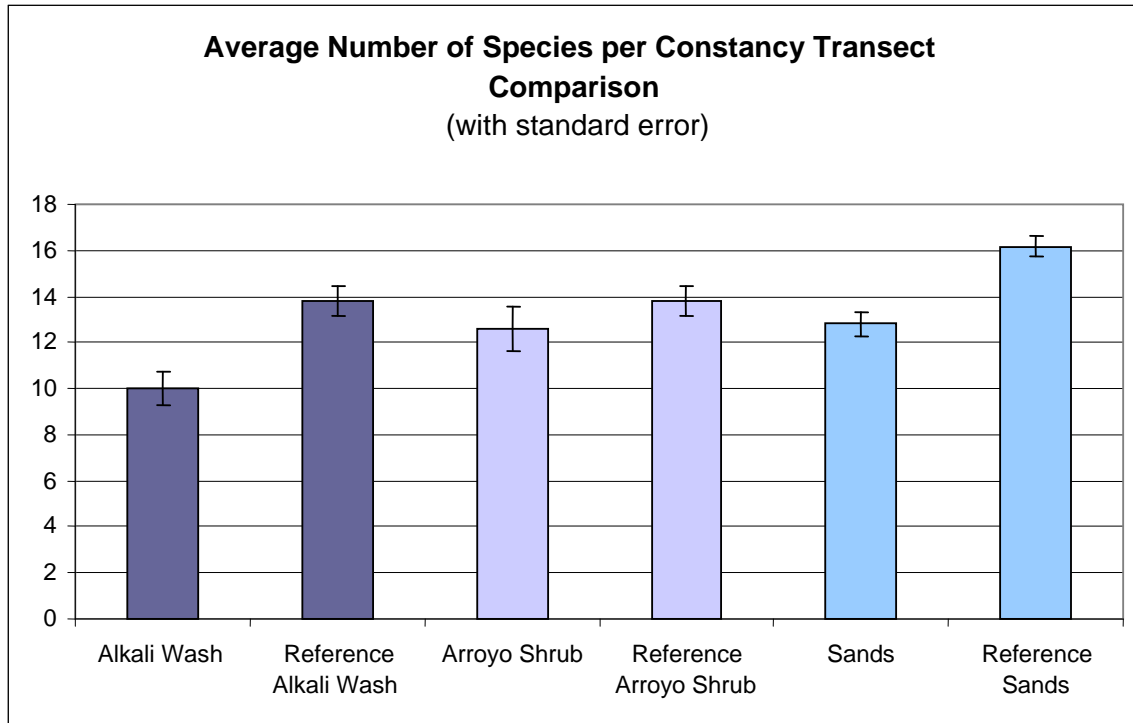


Figure 12: Fall Average Number of Species Per Constancy Transect in the Project Area and Reference Area.

7.2 Shrub Density

The Reference Sands sites showed the highest range of variability of shrub density with and without broom snakeweed (Table 13 and Figure 13). The average shrub density in this community type ranged from 2,340.0 stems per acre with broom snakeweed (SD 2,352.5) and 402.6 stems per acre without broom snakeweed (SD 330.3) (Table 13 and Figure 13). Comparatively, shrub density ranged from 1,107.9 stems per acre with broom snakeweed (SD 1,183.0) to 485.6 without broom snakeweed (SD 357.4) in the project area Sands sites (Table 13 and Figure 13). Shrub density averaged 773.0 stems per acre with broom snakeweed (SD 680.3) and 698.1 stems per acre without broom snakeweed (SD 600.2) in Reference Alkali Wash sites (Table 13 and Figure 13). In the project area, Alkali Wash sites averaged 540.3 stems per acre with broom snakeweed (SD 624.5) and

510.9 without broom snakeweed (SD 611.1) (Table 13 and Figure 13). Shrub density in the Reference Arroyo Shrub averaged 509.5 stems per acre with broom snakeweed (SD 442.5) and 443.1 stems per acre without broom snakeweed (SD 423.8) (Table 13 and Figure 13). In the project area Arroyo Shrub density averaged 1,100.8 stems per acre with snake weed (SD 857.1) and 940.9 stems per acre without broom snakeweed (SD 881.2) (Table 13 and Figure 13).

Table 13: Shrub Density per Acre Comparison

Community	Average	Standard Deviation	Average No broom snakeweed	Standard Deviation No broom snakeweed
Arroyo Shrub	1100.8	857.1	940.9	881.2
Reference Arroyo Shrub	509.5	442.5	443.1	423.8
Alkali Wash	540.3	624.5	510.9	611.1
Reference Alkali Wash	773.0	680.3	698.1	600.2
Sands	1107.9	1183.0	485.6	357.4
Reference Sands	2340.0	2352.5	402.6	330.3

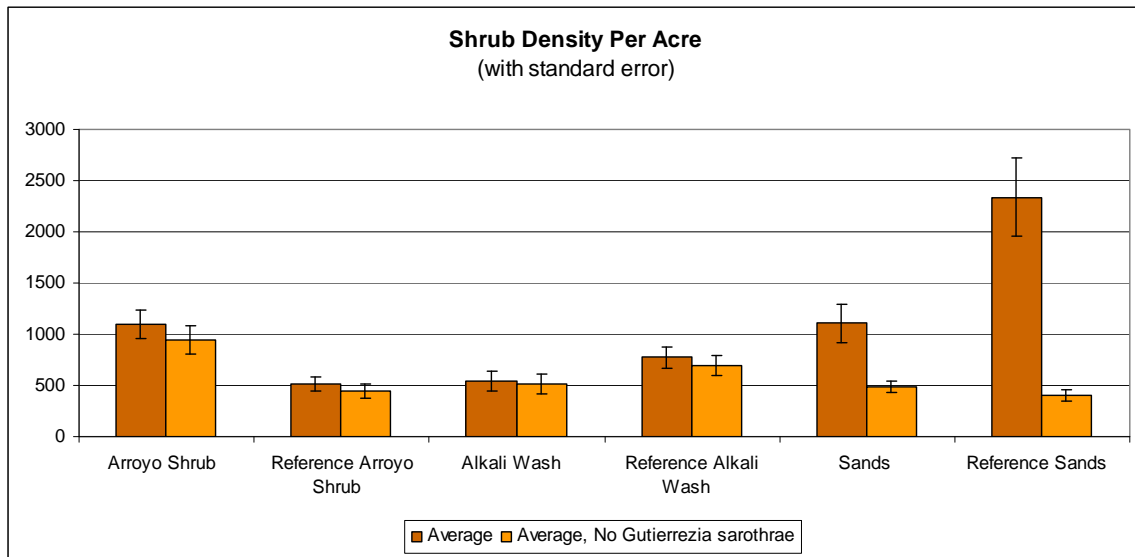


Figure 13: Fall Average Shrub Density in the Project Area and Reference Area.

7.3 Production

Arroyo Shrub had the highest production values in both the project area and reference area at 320.7 pounds per acre (SD 156.5) and 254.5 pounds per acre (SD 91.6), respectively (Table 14 and Figure 14). Shrubs accounted for 54.8% of production values in the Arroyo Shrub in the project area, while shrubs comprised 25.8% of total production in the Reference Arroyo Shrub (Table 14). In comparison, perennial grasses in the Reference Arroyo Shrub comprised 30.3% of total production compared to only 5.9% in the project area Arroyo Shrub (Table 14 and Figure 24). This suggests a variation in composition between the Arroyo Shrub and Reference Arroyo Shrub sites.

Production values were very similar between the project area and reference area Sands sites with the primary difference between the two areas being the percentage of forbs (Table 14). The total production for the project area and reference area was 208.6 pounds per acre (SD 62.5) and 189.0 (SD 52.6) pounds per acre, respectively (Table 14 and Figure 14). Annual forbs accounted for 50.5% of total production in the project area compared with 36.5% in the reference area.

Alkali Wash average production values ranged from 156.9 pounds per acre (SD 75.4) in the project area to 114.6 pounds per acre (SD 51.3) in the reference area (Table 14 and Figure 14). The composition of production was similar between the two areas with forbs comprising 65.6% of total average production in the project area and 62.3% in the reference area. Shrubs accounted for 25.6% and 19.5% of total average production in the project area and reference areas, respectively. Perennial grasses comprised 5.8% of total average production in both areas.

Table 14: Average Production in Pounds Per Acre by Life Form Comparison Between the Project Area and Reference Area.

	Alkali Wash	Reference Alkali Wash	Arroyo Shrub	Reference Arroyo Shrub	Sands	Reference Sands
Annual Forbs	102.9	71.4	105.1	41.9	105.1	69.1
Annual Grasses	1.0	2.4	2.5	36.6	0.2	0.5
Forbs ¹	0.0	0.1	8.7	2.2	0.0	0.0
Perennial Forbs	2.2	5.5	8.3	31.0	2.3	2.7
Perennial Grasses	9.1	6.7	19.2	77.1	44.1	41.9
Shrubs	40.2	28.4	175.8	65.7	57.0	74.7
Total	156.9	114.6	320.7	254.5	208.6	189.0
Standard Deviation	75.4	51.3	156.5	91.6	62.5	52.6

¹. Forbs not specifically identified as either annual or perennial.

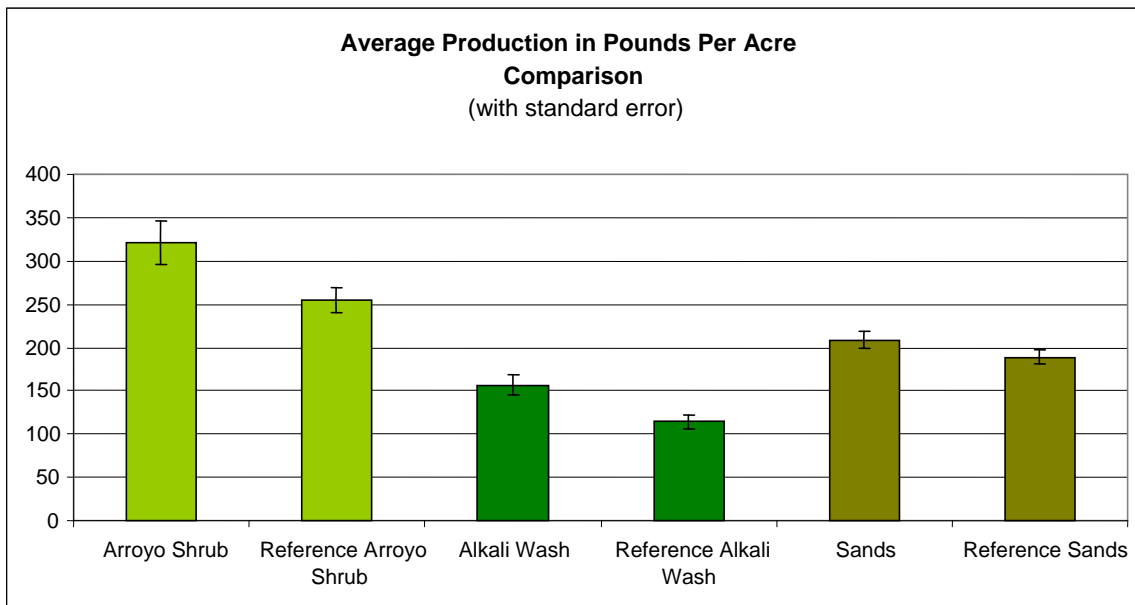


Figure 14: Production in Average Pounds Per Acre Comparison Between the Project Area and Reference Area.

We analyzed the distribution of production data within the project area and reference area for normalcy by creating histograms and probability plots using SYSTAT 12. The data was not normally distributed. To test our null hypothesis (H_0) that production values in the project area and reference area are the same, we used a Mann-Whitney test, the nonparametric analog of the two sample t-test. We tested this hypothesis in three vegetation communities assuming an alpha level of 0.05 (Table 15).

Table 15: Mann-Whitney Results for Production Comparison of Community Types in the Project Area and Reference Area.

Community	Project Area $\bar{x} \pm$ Standard Error	Reference Area $\bar{x} \pm$ Standard Error	<i>U</i>	<i>P</i> value
Arroyo Shrub	321 lbs/acre \pm 68	255 lbs/acre \pm 33	712	0.63
Alkali Wash	157 lbs/acre \pm 24	115 lbs/acre \pm 22	988	0.07
Sands	209 lbs/acre \pm 21	189 lbs/acre \pm 17	832	0.26

In the Arroyo Shrub community, production did not differ significantly (Mann-Whitney $U = 712$, $P = 0.63$) between the project area [$\bar{x} = 321$ lbs/acre \pm 68 (SE)] and the reference area ($\bar{x} = 255$ lbs/acre \pm 33). Below are box plots for production on Reference Arroyo Shrub in comparison to project area Arroyo Shrub transects (Figure 15). The central box spans the quartiles, the line in the box indicates the median, asterisks and circles indicate outliers, and the lines extending from the box indicate minimum and maximum values.

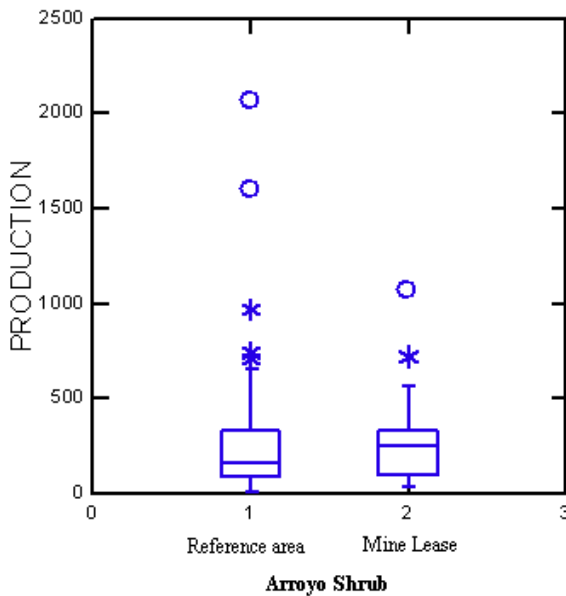


Figure 15: Box Plot Comparison for Production in the Project Area and Reference Area Arroyo Shrub Community Type.

In the Alkali Wash community, production also did not differ significantly (Mann-Whitney $U = 988$, $P = 0.07$) between the project area ($\bar{x} = 157$ lbs/acre \pm 24) and the reference area ($\bar{x} = 115$ lbs/acre \pm 22) (Figure 16).

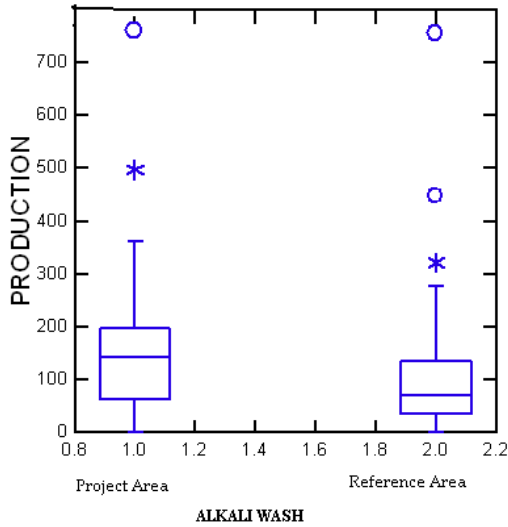


Figure 16: Box Plot Comparison for Production in the Project Area and Reference Area Alkali Wash Community Type.

In the Sands community, production did not differ significantly (Mann-Whitney $U = 832$, $P = 0.26$) between the project area ($\bar{x} = 209$ lbs/acre ± 21) and the reference area ($\bar{x} = 189$ lbs/acre ± 17) (Figure 17).

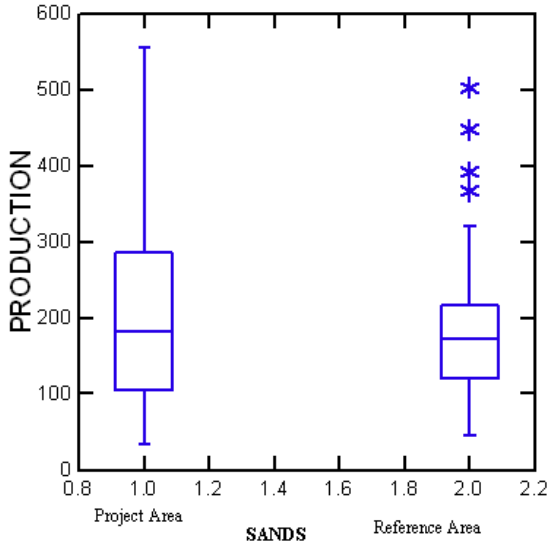


Figure 17: Box Plot Comparison for Production in the Project Area and Reference Area Sands Community Type.

7.4 Cover

The Arroyo Shrub vegetation type displayed the greatest difference in total vegetative cover between the project area and reference area. Total vegetative cover averaged 12.1%, with a minimum of 2.0% and a maximum of 27%, within the project area (Figure 18). In the reference area, Arroyo Shrub had an average

total cover of 21.1%, with a minimum of 4% and a maximum of 43% (Figure 18). Perennial cover between the two areas ranged from an average of 7.3% in the project area compared to 11.2% in the reference area (Figure 18). Bare ground values ranged from an average of 53.7% (SD 17.9%) in the reference area to 69.0% (SD 17.9%) in the project area (Figure 19.)

The Alkali Wash vegetation type in the project area had an average of 5.8% total vegetative cover with a minimum of 0% and a maximum of 21% (Figure 18). Total vegetative cover averaged 7.0% in the Reference Alkali Wash, with a minimum of 0% and a maximum of 50% (Figure 18). Average perennial cover ranged from 2.0% in the project area to 2.6% in the reference area (Figure 18). Bare ground values ranged from an average of 60.8% (SD 13.3%) in the reference area to 66.7% (SD 10.0%) in the project area (Figure 19.)

Vegetative cover in the project area Sands sites averaged 13.1%, with a minimum of 3% and a maximum of 27% (Figure 18). Total vegetative cover averaged 12.6% in the Reference Sands, with a minimum of 5% and a maximum of 25% (Figure 18). Perennial cover was similar with an average of 7.9% in the project area and an average of 8.8% in the reference area (Figure 18). Bare ground values ranged from an average of 65.6% (SD 7.3%) in the reference area to 62.7% (SD 10.3%) in the project area (Figure 19.)

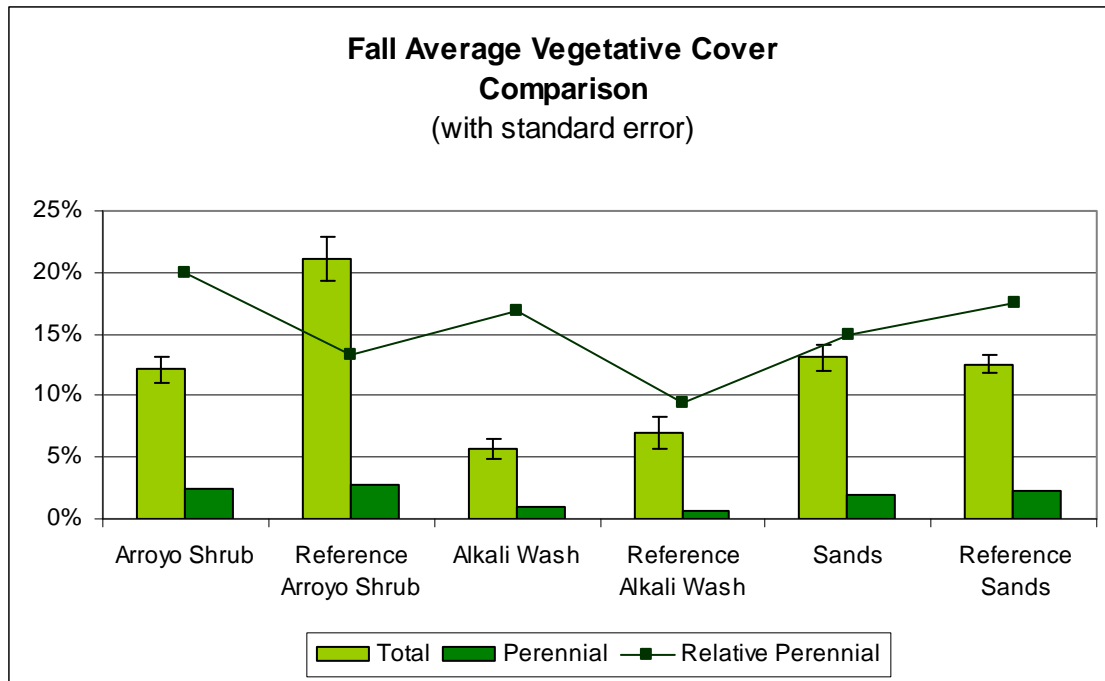


Figure 18: Vegetative Cover Comparison Between the Project Area and Reference Area.

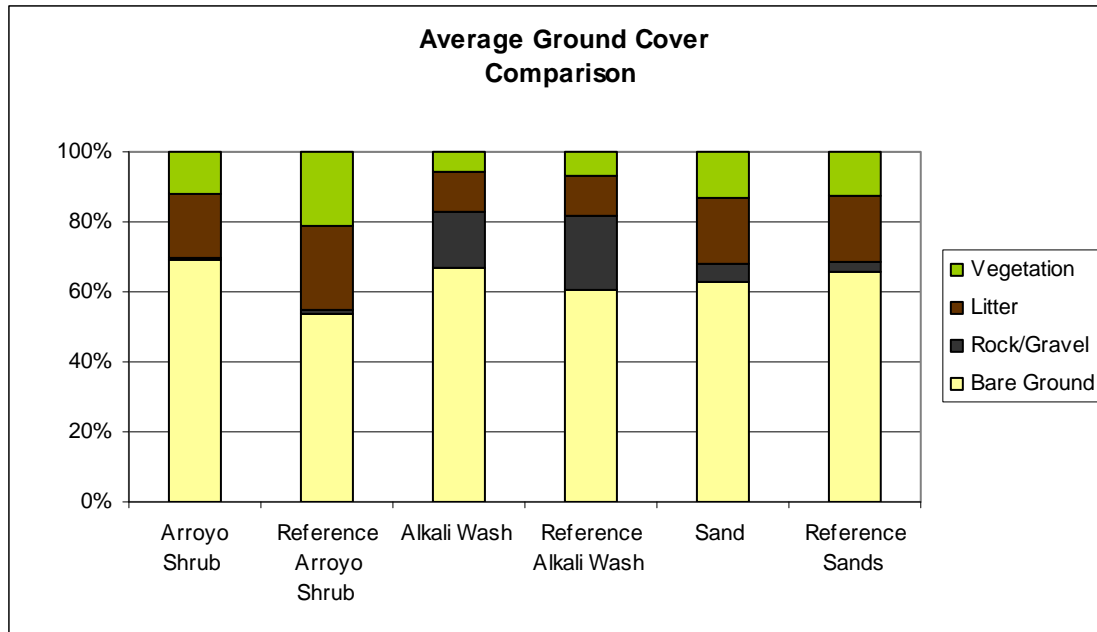


Figure 19: Ground Cover Comparison Between the Project Area and Reference Area.

We analyzed the distribution of vegetative cover data within the project area and reference area for normalcy by creating histograms and probability plots using SYSTAT 12. Similar to vegetative production, the data was not normally distributed. To test our null hypothesis (H_0) that vegetative cover values in the project area and reference area are the same, we used a Mann-Whitney test, the nonparametric analog of the two sample t-test. We tested this hypothesis in the three vegetation types assuming an alpha level of 0.05 (Table 16).

Table 16: Mann-Whitney Results for Vegetative Cover Comparison of Community Types in the Project Area and Reference Area.

Community	Project Area $\bar{x} \pm \text{Standard Error}$	Reference Area $\bar{x} \pm \text{Standard Error}$	U	P value
Arroyo Shrub	13% \pm 1	21% \pm 2	424	0.01
Alkali Wash	6% \pm 1	7% \pm 1	756	0.67
Sands	13% \pm 1	13% \pm 1	744	0.73

In the Arroyo Shrub vegetative cover did differ significantly (Mann-Whitney $U = 424$, $P < 0.01$; $\bar{x}_{\text{project area}} = 13\% \pm 1$, $\bar{x}_{\text{reference area}} = 21\% \pm 2$). Below are box plots for production and cover on Reference Arroyo Shrub in comparison to project area Arroyo Shrub transects (Figure 20). The central box spans the quartiles, the line in the box indicates the median, asterisks and circles indicate outliers, and the lines extending from the box indicate minimum and maximum values.

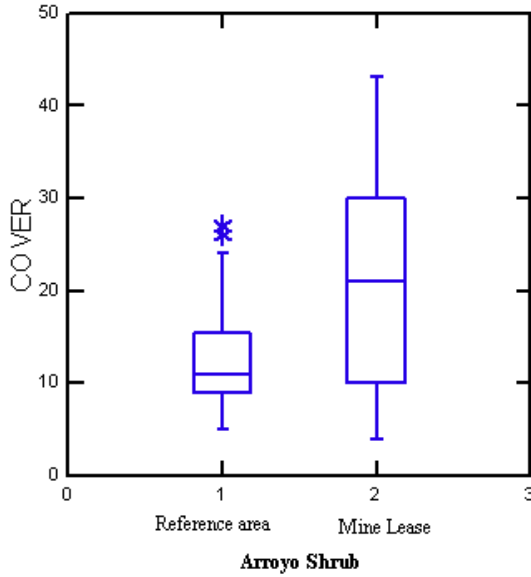


Figure 20: Box Plot Ground Cover Comparison Between the Project Area and Reference Area Arroyo Shrub.

Between the project area and reference area Alkali Wash sites, vegetative cover did not differ significantly (Mann-Whitney $U = 756$, $P = 0.67$; $\bar{x}_{\text{project area}} = 6\% \pm 1$, ($\bar{x}_{\text{reference area}} = 7\% \pm 1$) (Figure 21).

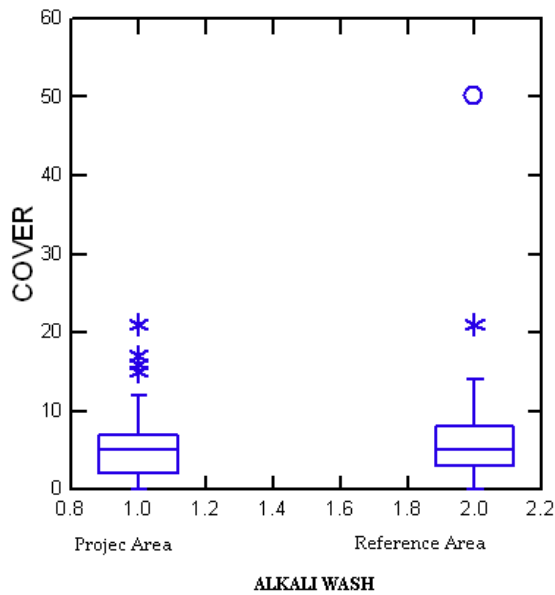


Figure 21: Box Plot Ground Cover Comparison Between the Project Area and Reference Area Alkali Wash.

Vegetative cover did not differ significantly (Mann-Whitney $U = 744$, $P = 0.72$; $\bar{x}_{\text{project area}} = 13\% \pm 1$, ($\bar{x}_{\text{reference area}} = 13\% \pm 1$) between the project area and reference area Sands sites (Figure 21).

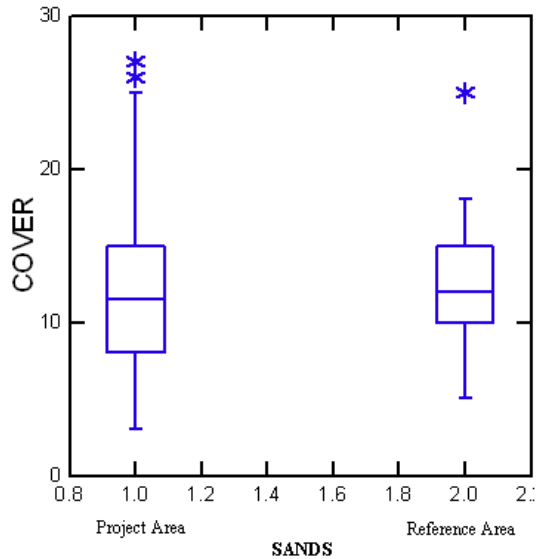


Figure 22: Box Plot Ground Cover Comparison Between the Project Area and Reference Area Sands.

7.5 Conclusion

According to our data, vegetative cover and production are statistically similar in the project area and the reference area for the Alkali Wash vegetation type. The Alkali Wash vegetation type in the project area had an average of 5.8% total vegetative cover while vegetative cover averaged 7.0% in the Reference Alkali Wash (Figure 18). Average perennial cover was 2.0% in the project area and 2.6% in the reference Alkali Wash community (Figure 18). Alkali Wash average production was 156.9 pounds per acre (SD 75.4) in the project area and 114.6 pounds per acre (SD 51.3) in the reference area (Table 14 and Figure 14). The composition of production was similar between the two areas with forbs comprising 65.6% of total average production in the project area and 62.3% in the reference area. Shrubs accounted for 25.6% and 19.5% of total average production in the project area and reference areas, respectively. Perennial grasses comprised 5.8% of total average production in both areas. The average number of species in the Reference Alkali Wash was 13.8; while the project area Alkali Wash sites had an average of 10.0 species (Figure 12). In Reference Alkali Wash sites shrub density averaged 773.0 stems per acre with broom snakeweed and 698.1 stems per acre without broom snakeweed. In the project area, Alkali Wash sites averaged 540.3 stems per acre with broom snakeweed and 510.9 without broom snakeweed (Figure 13).

Vegetative cover and production are statistically similar in the project area and the reference area for the Sands vegetation type. Vegetative cover in the project area Sands sites averaged 13.1% while total vegetative cover averaged 12.6% in the Reference Sands. Perennial cover was similar with an average of 7.9% in the project area and an average of 8.8% in the Sands reference area (Figure 18). Production was very similar between the project area and reference area Sands sites with the primary difference between the two areas being the percentage of forbs (Table 14). The average total production for the project area and reference area was 208.6 pounds per acre (SD 62.5) and 189.0 (SD 52.6) pounds per acre, respectively (Table 14 and Figure 14). During fall sampling the Sands community had the largest variance between the

number of species observed in the project area at 12.8 species, and the reference area with an average of 16.2 species (Figure 12). The Reference Sands sites showed the highest range of variability of shrub density with and without broom snakeweed. The average shrub density in this community type was 2,340.0 stems per acre with broom snakeweed and 402.6 stems per acre without broom snakeweed (Figure 13). Comparatively, shrub density was 1,107.9 stems per acre with broom snakeweed and 485.6 without broom snakeweed in the project area Sands sites (Figure 13).

For both the Alkali Wash and Sands communities, the similarities of vegetation parameters based on data collected and statistical analysis indicates that the reference area community types are representative of project area community types.

Production is statistically similar in the project area and the reference area in the Arroyo Shrub community. However, vegetative cover in the Arroyo Shrub community is statistically different between the project area and the reference area. Arroyo Shrub had the highest average production in both the project area and reference area at 320.7 pounds per acre and 254.5 pounds per acre, respectively (Table 14 and Figure 14). Shrubs accounted for 54.8% of production in the Arroyo Shrub in the project area, while shrubs comprised 25.8% of total production in the Reference Arroyo Shrub (Table 14). In comparison, perennial grasses in the Reference Arroyo Shrub comprised 30.3% of total production compared to only 5.9% in the project area Arroyo Shrub (Table 14 and Figure 24). This suggests a variation in composition between the Arroyo Shrub and Reference Arroyo Shrub sites.

The Arroyo Shrub vegetation type displayed the greatest difference in total vegetative cover between the project area and reference area. Total vegetative cover averaged 12.1%, with a minimum of 2.0% and a maximum of 27%, within the project area (Figure 18). In the reference area, Arroyo Shrub had an average total cover of 21.1%, with a minimum of 4% and a maximum of 43% (Figure 18). Perennial cover between the two areas ranged from an average of 7.3% in the project area compared to 11.2% in the reference area (Figure 18).

In the project area Arroyo Shrub density averaged 1,100.8 stems per acre with broom snakeweed and 940.9 stems per acre without broom snakeweed. Shrub density in the Reference Arroyo Shrub averaged 509.5 stems per acre with broom snakeweed and 443.1 stems per acre without broom snakeweed (Figure 13). Reference Arroyo Shrub had an average of 13.8 species which was similar to the average 12.6 species recorded in the project area Arroyo Shrub sites (Figure 12).

In the project area the most frequent species on the spring Arroyo Shrub point intercept transects were Russian thistle, tansy mustard, and four winged saltbush and greasewood, Russian thistle, and tansy mustard on the fall point intercept transects. The most frequent species on point intercept transects in the Reference Arroyo Shrub were alkali sacaton, little barley, and woolly plantain.

The main dissimilarities between the project area and reference area Arroyo Shrub communities are vegetation cover and composition. Production did not statistically differ between the project area and

reference area. Data for vegetative cover and production were not found to be normally distributed. However, data may simply be reflective of the inherent variability in the community type based on hydrologic, topographic, and edaphic factors.

The Arroyo Shrub community type in the permit area, which includes the reference area, is limited to small areas surrounding ephemeral stock ponds and to two ephemeral drainages; Pinabete and No Name arroyos. Vegetation along ephemeral drainages may be highly variable depending on a number of factors including water quantity and velocity, channel morphology, soil characteristics, slope and topography, and grazing pressure. The reference area is located near the headwaters of No Name Arroyo. No Name Arroyo is smaller in size than Pinabete, drains a smaller watershed, and is generally located on mild terrain, particularly in the reference area portion.

A suitable reference area should contain vegetation communities representative of those located within the proposed mining area, be located within an area that will not be impacted by mining, and large enough in size to maintain natural ecological processes. The proposed reference area meets these criteria as well as being located within the mine lease boundary, which would facilitate BNCC's ability to control land use, such as grazing. Revegetation efforts are designed to establish plant communities capable of meeting the approved post mining land requirements and are not focused on re-establishment of pre-mining communities.

Based on collected data, the reference area vegetation communities are similar to the mine lease communities with the exception of one parameter, vegetation cover within the Arroyo Shrub community type. The adjacent Navajo Mine determines revegetation success on an arithmetic mean of cover and production from the Alkali Wash, Arroyo Shrub, and Sands vegetation communities. We conducted a student t-test to determine if reference area and mine lease area total cover averages were statistically different. The means did not differ significantly ($P=0.54$) when the t-test was conducted on the arithmetic means of cover. When weighted by relative area extent (percentage of community type within the reference or lease area), the means also did not differ significantly ($P=0.36$).

Overall, the quantitative evidence supports the assumption that the reference area vegetation communities are representative of mine lease vegetation communities and it would function as a suitable reference area. The main implication of using the reference area to determine revegetation success would be a higher vegetative cover standard for the Arroyo Shrub community type (average 21.1% in the reference area versus 12.1% in the mine lease). This higher standard may result in difficulty in attaining revegetation success.

8.0 References

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