COORS ENERGY COMPANY

PO Box 4030
Golden, CO 80402

2024 ANNUAL HYDROLOGY & RECLAMATION REPORT

Prepared for:
COLORADO DIVISION OF RECLAMATION, MINING & SAFETY

PERMIT NO. C-1981-028

VEGETATION MONITORING
2024

AHR-2024

VEGETATION ACTIVITIES

The Habitat Management report is included.

2024 Vegetation Monitoring Report
Reclamation Areas
25, 32, 33, 34, 35, 36, 37, 38, 42, 43, and 44

Coors Energy Company Keenesburg Mine

Keenesburg, Colorado

December 2024

Prepared by:

Habitat Management
Environmental & Natural Resource Services

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

EXECUTIVE SUMMARY

Quantitative vegetation monitoring of Reclamation Areas 25, 32, 33, 34, 35, 36, 37, 38, 42, 43, and 44 at the Coors Energy Company (CEC) Keenesburg Mine was conducted in August 2024. Vegetation cover, herbaceous production, and species composition were evaluated. Comparisons were made between vegetation cover and herbaceous production means from the reclamation areas and predicted values calculated from the approved final revegetation success equations based on on-site precipitation from September 2023 to July 2024. The predictive equations for vegetation cover and herbaceous production were modified in Technical Revisions 43 and 46 to the Colorado Division of Reclamation Mining and Safety (DRMS) Mining and Reclamation Permit C-1981-028. The calculated final revegetation success vegetation cover standard value was 22.1%. The total herbaceous production standard was 13.6 g/m^2.

Reclamation Areas 32 and 33 were evaluated for Phase III bond release. Reclamation Areas 32 and 33 both met the production standard, but neither area met the cover or species composition standards.

Reclamation Areas 25, 34, 35, 36, 37, 38, 42, 43, and 44 were evaluated for Phase II bond release. Phase II areas are only subject to vegetation cover and diversity standards. None of these areas met the vegetation cover standard but all of them met the diversity standard.

Quarterly inspections of the entire permitted area were conducted during 2024 to monitor for the presence and impacts of noxious weeds, pests, or disease to the revegetation. No pests or diseases were identified during these inspections. The primary noxious weed observed during these inspections was cheatgrass which is pervasive on the reclamation and is being aggressively treated by CEC.

1 INTRODUCTION

Coors Energy Company (CEC) operated the Keenesburg Mine for coal extraction from 1980 to 1988 under Colorado Division of Reclamation Mining and Safety (DRMS) Mining and Reclamation Permit C-1981-028. After mining, CEC completed reclamation activities including backfilling, grading, topsoiling, and revegetation in accordance with their approved DRMS reclamation plan in 2020. Several reclamation areas were reseeded in 2022. Vegetation monitoring of reclaimed areas is required by DRMS. This report presents the results of annual reclamation monitoring conducted on August 12 – 16, 2024 by Habitat Management, Inc. (Habitat Management). Quantitative information in this report characterizes the vegetative condition of Reclamation Areas 25, 32, 33, 34, 35, 36, 37, 38, 42, 43, and 44. Vegetation sampling was performed in compliance with Colorado Mined Land Reclamation Board Surface Coal Mining Rules 2.04.10 and 4.15 and currently accepted methods for vegetation sampling.

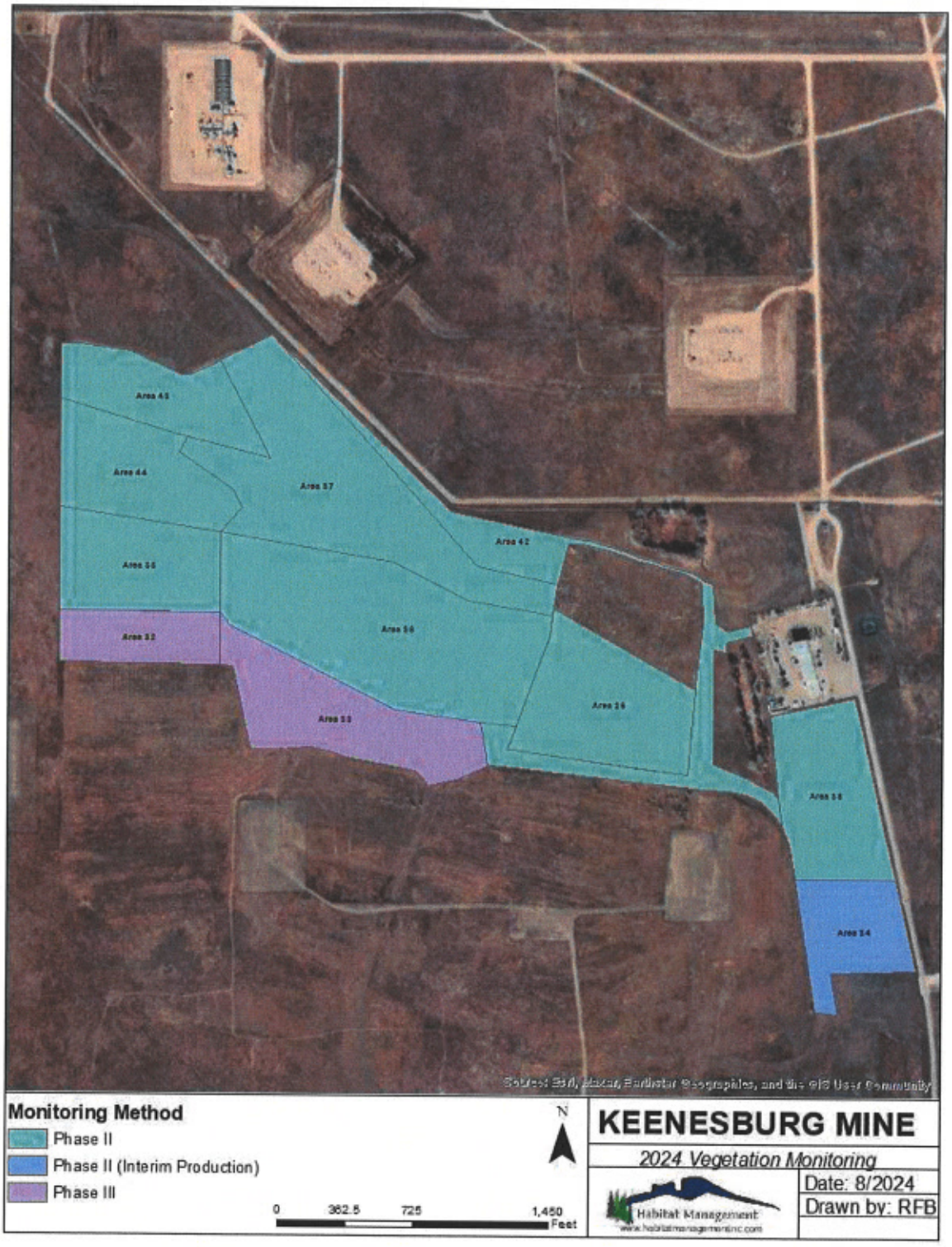
The Keenesburg Mine is in Weld County, Colorado, approximately seven miles north of the town of Keenesburg and is accessed by Weld County Road 59. In 2002, the Keenesburg Mine assigned numerical designations to each reclamation area starting in the northeast corner of the permit area and continuing clockwise through the reclaimed areas. Newly reclaimed areas are assigned consecutive numbers as needed (Figure 1). Reclamation Areas monitored in 2024 are summarized in Table 1.

Table 1: Reclamation Areas Monitored in 2023

Reclamation Area	Acres	Seeding Date	Bond Release Status	Monitoring Guidelines	
				Cover	Production
25	12.6	2012	Phase I	Phase II	n/a
32	5.5	2015	Phase II	Phase III	Phase III
33	12.4	2015	Phase II	Phase III	Phase III
34	6.9	2016	Phase I	Phase II	Interim
35	9.7	2020	Phase I	Phase II	n/a
36	25.1	2022	Phase I	Phase II	n/a
37	22.6	2022	Phase I	Phase II	n/a
38	10.9	2022	Phase I	Phase II	n/a
42	11.4	2022	Phase I	Phase II	n/a
43	8.3	2019	Phase I	Phase II	n/a
44	10.0	2019	Phase I	Phase II	n/a

Reclamation Areas 32 and 33 were monitored using the guidelines for Phase III bond release. Reclamation Areas 25, 34, 35, 36, 37, 38, 42, 43, and 44 were monitored using the guidelines for Phase II bond release. Additionally, Reclamation Area 34 was monitored for production using the interim guidelines because it is approaching the age for Phase III monitoring. This was the first year of Phase III monitoring in Areas 32 and 33. All of these areas were last monitored in 2023.

Figure 1: Keenesburg Mine Site Map



2 METHODS

The monitoring methods and revegetation standards used to evaluate these areas are those currently in effect under the Colorado Surface Coal Mining Reclamation Act (CRS 34-33-101) and the Keenesburg Mining and Reclamation Permit.

2.1 Sampling Design

Thirty sample points were located prior to going into the field using mapping software to create a square grid overlaid on each Reclamation Area being sampled. The sample points were located at the intersection of each square created by the grid. The grid size was adjusted to create the appropriate number of sample locations within each Reclamation Area. Sample numbers (1-30) were randomly assigned to each generated sample point along with a randomly generated azimuth (Appendix A). A minimum of 15 vegetation cover samples were collected in all Reclamation Areas with additional samples collected, if necessary, to meet sample adequacy for non-noxious vegetation cover in any area. A total of 30 herbaceous production samples were collected from Reclamation Areas 32 and 33 for Phase III sampling and a total of 15 herbaceous production samples were collected from Reclamation Area 34 per CEC's interim reclamation monitoring guidelines.

2.2 Sample Timing

Vegetation monitoring occurred on August 12 – 16, 2024 which was consistent with the timing of monitoring in previous years. Monitoring also coincided with maximum vegetation development of most plant species found in the reclaimed and adjacent native areas.

2.3 Vegetation Cover

Point-intercept methods were used to collect vegetation and ground cover, as well as species composition data. Each 25-meter transect represents a single sampling unit. Two data points were recorded at one-meter intervals along each transect, 0.5 m to each side of and at a right angle to the transect. A laser bar was used to determine intercepts, with the beam projected vertically to the ground surface. Each point-intercept represented an absolute cover value of 2%.

"First-hit" point-intercepts (the first item that the laser beam intercepts) were recorded as either: live vegetation (by plant species), litter, rock, or bare ground. Litter includes all dead plant material. Subsequent "hits" on vegetation (prior to interception of the ground) were also recorded. Vegetation cover was reported in absolute percentages from the point-intercept data using all 50 first-hit observations for each sample point. Additional interceptions were used to calculate relative cover of individual plant species and life forms. The quantitative cover data also provided the basis for calculation of species composition and relative importance.

2.4 Herbaceous Production

Herbaceous production was sampled using 0.5-square meter circular plots. For samples where cover data was also collected, the plots were located adjacent to the start point to the right of the transect. Production samples where no cover data were collected were placed with the plot centered on the sample point.

All herbaceous non-noxious growth within each plot's vertical projection was clipped, separated by growth form, and placed in labeled paper bags. Current year's herbaceous growth of shrubs was collected in the same manner, but no woody tissue was harvested. The bags containing the

clipped material were returned to the Habitat Management office and dried at 30 degrees Celsius until weights stabilized to within 0.1 gram. Herbaceous production was reported in grams per square meter.

2.5 Species Composition

During cover sampling, all plant species occurring within one meter of either side of the cover sample transect were noted as present within each sample. These species are presented in the data tables for each Reclamation Area (Appendix B) as well as on the complete species list (Appendix D).

Species composition information for comparison to the final revegetation success criterion was derived from quantitative relative vegetation cover data. The total hits (first hits and subsequent hits) for each non-noxious species were used to calculate relative cover as a basis for evaluation of the importance of each encountered plant species and life form.

2.6 Photographs

A photograph was taken at the start point of each cover transect looking along the length of the transect. These photos are presented in Appendix F.

2.7 Species Identification and Nomenclature

Species that were not readily identified in the field were collected for later identification. Specimens were identified using floral keys including Weber and Wittmann (2001) and Wingate (1994). Nomenclature follows the NRCS Plants Database (2024).

3 RECLAMATION SUCCESS STANDARDS

The Keenesburg Mine Reclamation Permit includes a species composition standard and predictive equations to determine the success standards for vegetation cover and herbaceous production. The equations for both cover and production were revised in 2012 with a Technical Revision to the permit (TR43) and the cover standard was revised again in 2014 with a Minor Revision (MR46) to the permit. Both the vegetation cover and herbaceous production equations use the previous year's precipitation (September – July) to predict the success standard for any given year. These equations are as follows, where x is equal to the cumulative September – July precipitation:

$$\text{Vegetation Cover Standard} = -0.0127x^3+0.2115x^2+2.1772x$$

$$\text{Herbaceous Production Standard} = 0.4666x^{2.1405}$$

To meet the reclamation standard specified in the permit, data are subjected to hypothesis testing as described in the DRMS Regulations of the Colorado Mined Land Reclamation Board for Coal Mining (DRMS 2005). Per this guideline, Reclamation Areas meet the success standard if the dataset is not significantly different from 90% of the standard using a one-sample T-test with a one-tailed confidence interval of 90%. Noxious species cover or production is removed as well as annual vegetation cover or production in excess of 10% of the overall average for each Reclamation Area to derive the allowable vegetation cover or production value used for hypothesis testing per the DRMS Guideline Regarding Selected Coal Mine Bond Release Issues (DRMS 1995).

Species composition is considered an indicator of successful vegetation establishment and a diverse vegetation community. The species composition standard for the Keenesburg Mine was modified in 2020 with a Technical Revision to the permit (TR47). The revised standard requires that there be at least four perennial grass species, each of which comprise between 3% and 40% non-noxious relative cover. Any perennial grass species, native or introduced, that is not defined as a noxious species may be used in the calculation of species composition.

The Phase III bond release guidelines require that vegetation cover, herbaceous production, and species composition meet the standards for two years. Phase II bond release guidelines require vegetation cover to meet the standard and that four perennial grass species be present in the community to potentially meet the species composition standard in the future.

3.1 2024 Revegetation Success Standards

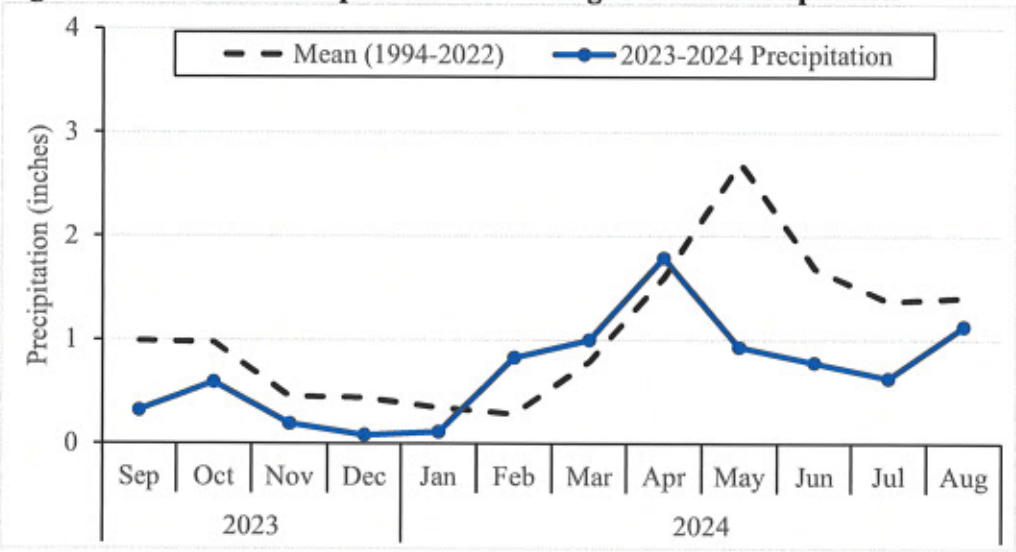
The following standards were calculated for vegetation cover and herbaceous production using the September 2023 through July 2024 precipitation (7.3 inches) in the permitted predictive equations.

1. Vegetation Cover Standard = 22.1% (90% Standard = 19.9%)
2. Herbaceous Production Standard = 13.6 g/m^2 (90% Standard = 12.2 g/m^2)

4 2023-2024 PRECIPITATION

The climate of the mine and surrounding area is typical of the region and characterized by cold winters and hot, dry summers. Average precipitation is generally lowest during the late fall and winter (October through March) and peaks in April through June (Figure 2).

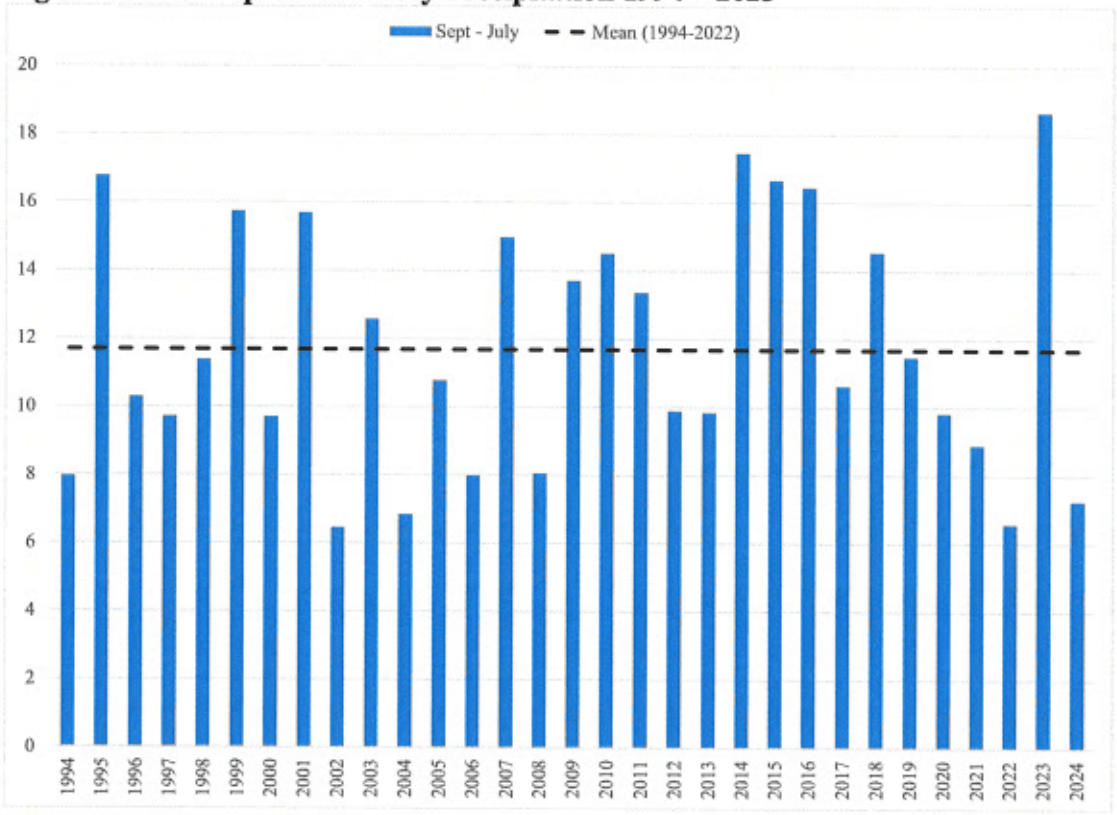
Figure 2: 2023-2024 Precipitation and Average Annual Precipitation



The Keenesburg Mine Reclamation Permit specifies the use of onsite precipitation from September to July for calculating the vegetation cover and herbaceous production standards. CEC collected precipitation data at the mine from 1984 through August 2020 using a manual rain gauge checked daily by on-site personnel. In January 2021, a solar-powered NOAH IV Total Precipitation Measurement System was installed in the reclamation with a cellular connection to measure precipitation in the absence of on-site personnel.

Total cumulative precipitation for the period from September 2023 – July 2024 was 7.3 inches. This represents 62% of the average precipitation for the same period (1994-2022) and is the fourth dryest year on record at the site (Figure 3). The pattern and timing of the precipitation was generally consistent with the average (Figure 2). However, the summer May-July precipitation was on 41% of average. This was the second dryest May – July on record and the dryest since 1994. All data from 1993 – 2024 are presented in Appendix E.

Figure 3: Total September - July Precipitation 1994 – 2023



5 2024 PEST & DISEASE INSPECTIONS

Habitat Management was contracted to complete quarterly pest and disease inspections at the Keenesburg Mine in 2024. The inspections were completed on March 27, June 21, September 18, and November 27. The reports from each inspection are included in Appendix G.

6 RESULTS

Vegetation cover, species composition, and herbaceous production results for each Reclamation Area are summarized below. Results for Reclamation Areas monitored for Phase III bond release are presented first followed by those areas monitored for Phase II bond release.

Complete vegetation cover and herbaceous production data for each Reclamation Area are presented in Appendix B and Appendix C, respectively. A complete species list for all Reclamation Areas is presented in Appendix D.

6.1 Phase III Monitoring

Reclamation Areas 32 and 33 were monitored under the Phase III evaluation guidelines.

6.1.1 Reclamation Area 32

Reclamation Area 32 is a 5.5-acre parcel that was formerly part of the B Pit mining area. This area was graded to blend into the undisturbed area to the west and the reclaimed mining and operational areas to the east resulting in a gentle, east-facing slope. Final revegetation seeding with the DRMS-approved permanent seed mixture took place in November 2015.

Total vegetation cover averaged 21.3% (Table 2) which was a substantial decrease from the 71.2% cover observed in 2023. Non-noxious vegetation cover was 12.9% down from 66.0% in 2023. Area 32 had no excess annual cover; thus, the non-noxious vegetation cover was used for hypothesis testing.

Total non-noxious herbaceous production averaged 14.7 g/m^2 (Table 2) down from 81.2 g/m^2 in 2023. Annual species accounted for only 3.8% of the relative production. Thus, the average allowable herbaceous production was the same as the non-noxious herbaceous production.

Table 2: Reclamation Area 32 Summary Statistics

Summary Statistics	Mean	SE
Absolute Cover Statistics (%)		
Total Ground Cover	81.9	1.7
Total Vegetation Cover	21.3	1.0
Non-Noxious Vegetation Cover	12.9	1.1
Allowable Vegetation Cover	12.9	1.1
Grass Cover	21.2	1.0
Forb Cover	0.1	0.1
Woody Cover	0.0	0.0
Perennial Cover	12.7	1.1
Annual Cover	8.5	1.3
Non-Noxious Relative Cover Statistics (%)		
Grass Cover	99.5	
Forb Cover	0.5	
Woody Cover	0.0	
Perennial Cover	99.0	
Annual Cover	1.0	
Herbaceous Production Statistics (g/m^2)		
Total Production	14.7	2.2
Allowable Production	14.7	2.2
Perennial Production	14.1	2.2
Annual Production	0.6	0.4

Twelve species contributed to the cover data and 19 other species were encountered along the transects (Table 3). Of the 31 species recorded, 26 were native or desirable. There were 17 grasses, 11 forbs, and three woody species, composed of 24 perennial species and 7 annual species.

The dominant species observed along all 30 transects was prairie sandreed (*Calamovilfa longifolia*) which contributed 69.7% of the non-noxious relative cover. Both blue grama (*Bouteloua gracilis*) and cheatgrass (*Bromus tectorum*) were also observed on 29 of the transects.

Allowable vegetation cover did not pass the technical standard when subjected to hypothesis testing, however, allowable production did pass (Table 4). Only two perennial grass species contributed greater than 3% and less than 40% of the non-noxious relative cover and a third species contributed more than 40% of the relative cover.

Table 3: Reclamation Area 32 Species Composition

Life Form	Cover Data	Present
Graminoids		
Perennial	9	14
Annual	2	3
Native	10	16
Introduced	1	1
Cool Season	2	6
Warm Season	7	8
Total	***11***	***17***
Forbs		
Perennial	1	7
Annual	0	8
Native	1	7
Introduced	0	4
Total	***1***	***11***
Woody Species		
Perennial	0	3
Total Species	**12**	**31**

Table 4: Reclamation Area 32 Success Criteria

Reclamation Success Criteria	Reclamation Area	Technical Standard	90% Technical Standard	Pass?
Allowable Cover (%)	12.9	22.1	19.9	No
Allowable Production (g/m^2)	14.7	13.6	12.2	Yes
Species Composition (perennial grass)	2	4		No

6.1.2 Reclamation Area 33

Reclamation Area 33 is a 12.4-acre parcel that was formerly part of the Long-Term Spoil Area. This area was graded to blend into the reclaimed mining and operational areas to the west resulting in an almost flat, east-facing slope. Final revegetation seeding with the DRMS-approved permanent seed mixture took place in November 2015.

Total vegetation cover averaged 18.4% (Table 5) down from 68.4% in 2023. Non-noxious vegetation cover was 15.9% down from 59.8% in 2023. Area 33 had no excess annual cover; thus, the non-noxious vegetation cover was used for hypothesis testing.

Table 5: Reclamation Area 33 Summary Statistics

Summary Statistics	Mean	SE
Absolute Cover Statistics (%)		
Total Ground Cover	96.1	0.8
Total Vegetation Cover	18.4	1.1
Non-Noxious Vegetation Cover	15.9	1.2
Allowable Vegetation Cover	15.9	1.2
Grass Cover	18.4	1.1
Forb Cover	0.0	0.0
Woody Cover	0.0	0.0
Perennial Cover	15.9	1.2
Annual Cover	2.6	0.5
Non-Noxious Relative Cover Statistics (%)		
Grass Cover	100.0	
Forb Cover	0.0	
Woody Cover	0.0	
Perennial Cover	100.0	
Annual Cover	0.0	
Herbaceous Production Statistics (g/m^2)		
Total Production	16.1	2.0
Allowable Production	16.1	2.0
Perennial Production	16.1	2.0
Annual Production	0.0	0.0

Total non-noxious herbaceous production averaged 16.1 g/m^2 (Table 5) down from 95.2 g/m^2 in 2023. Annual species accounted for 0% of the relative production; thus, the average allowable herbaceous production was the same as the non-noxious herbaceous production.

Ten species contributed to the cover data and seven other species were encountered along the transects (Table 6). Of the 17 species recorded, 15 were native or desirable. There were 12 grasses, four forbs, and one woody species composed of 14 perennial species and three annual species.

The dominant species contributing to cover in all 27 transects was prairie sandreed which contributed 49.6% of the non-noxious relative cover. Four other species were observed on at least 24 transects and included blue grama, sand dropseed (*Sporobolus cryptandrus*), switchgrass (*Panicum virgatum*), and cheatgrass.

Allowable vegetation cover did not pass the technical standard when subjected to hypothesis testing, however, allowable production did pass (Table 7). Only three perennial grass species contributed greater than 3% and less than 40% of the non-noxious relative cover, but a fourth species contributed more than 40% of the relative cover.

Table 6: Reclamation Area 33 Species Composition

Life Form	Cover Data	Present
Graminoids		
Perennial	9	11
Annual	1	1
Native	8	10
Introduced	1	1
Cool Season	3	4
Warm Season	6	7
Total	***10***	***12***
Forbs		
Perennial	0	2
Annual	0	2
Native	0	4
Introduced	0	0
Total	***0***	***4***
Woody Species		
Perennial	0	1
Total Species	**10**	**17**

Table 7: Reclamation Area 33 Success Criteria

Reclamation Success Criteria	Reclamation Area	Technical Standard	90% Technical Standard	Pass?
Allowable Cover (%)	15.9	22.1	19.9	No
Allowable Production (g/m^2)	16.1	13.6	12.2	Yes
Species Composition (perennial grass)	3	4		No

6.2 Phase II Monitoring

Reclamation Areas 25, 34, 35, 36, 37, 38, 42, 43, and 44 were monitored for Phase II bond release. Production data for Reclamation Area 34 collected using the interim monitoring guidelines are also presented in this section.

6.2.1 Reclamation Area 25

Reclamation Area 25 is a 12.6-acre parcel east of the long-term spoil area. This area was graded to blend into the reclaimed areas resulting in a gentle, southwest-facing slope. Revegetation seeding with the DRMS-approved permanent seed mixture took place in 1995, but it was repeated in 2002 and 2012 due to insufficient vegetation cover.

Total vegetation cover averaged 12.1% (Table 8) which was a decrease from the 64.9% cover observed in 2023. A small component of cheatgrass was observed resulting in a slightly lower non-noxious cover average of 11.7%. However, substantial excess annual cover was recorded, and the allowable cover used for hypothesis testing was only 7.4%, down from 19.1% in 2023. Reclamation Area 25 would have required 58 samples for sample adequacy; however, only the

minimum 15 samples were collected due to the obvious lack of sufficient cover to meet the Phase II standards.

Ten species contributed to the cover data and 18 more species were encountered along the transects (Table 9). Of the 28 species recorded, 22 were native or desirable. There were 11 grasses, 14 forbs, and three woody species composed of 14 perennial species and 14 annual species.

Table 8: Reclamation Area 25 Summary Statistics

Summary Statistics	Mean	SE
Absolute Cover Statistics (%)		
Total Ground Cover	66.0	3.3
Total Vegetation Cover	12.1	1.7
Non-Noxious Vegetation Cover	11.7	1.7
Allowable Vegetation Cover	7.4	1.6
Grass Cover	5.6	1.3
Forb Cover	6.4	1.0
Woody Cover	0.1	0.1
Perennial Cover	6.0	1.3
Annual Cover	6.1	0.9
Non-Noxious Relative Cover Statistics (%)		
Grass Cover	44.9	
Forb Cover	53.9	
Woody Cover	1.1	
Perennial Cover	51.7	
Annual Cover	48.3	

Table 9: Reclamation Area 25 Species Composition

Life Form	Cover Data	Present
Graminoids		
Perennial	5	8
Annual	1	3
Native	5	10
Introduced	1	1
Cool Season	1	2
Warm Season	4	6
Total	***6***	***11***
Forbs		
Perennial	1	3
Annual	2	11
Native	2	9
Introduced	1	5
Total	***3***	***14***
Woody Species		
Perennial	1	3
Total Species	**10**	**28**

The only species observed along all 15 transects were sand dropseed, Russian thistle (*Salsola tragus*), and common sunflower (*Helianthus annuus*) which comprised 23.6%, 24.7%, and 23.6% of the non-noxious relative cover, respectively. Five other species contributed at least 3% of the relative cover including prairie sandreed, sand bluestem (*Andropogon hallii*), blue grama, Cuman ragweed (*Ambrosia psilostachya*), and cheatgrass.

Allowable vegetation cover did not pass the technical standard when subjected to hypothesis testing (Table 10). However, eight perennial grasses were observed along the transects which meets the Phase II bond release species composition standard. No production data were collected in the area in 2024.

Table 10: Reclamation Area 25 Success Criteria

Reclamation Success Criteria	Reclamation Area	Technical Standard	90% Technical Standard	Pass?
Allowable Cover (%)	7.4	22.1	19.9	No*
Allowable Production (g/m^2)	n/a	n/a	n/a	n/a
Species Composition (perennial grass)	8	4		Yes

* Only sampled to the minimum sample size

6.2.2 Reclamation Area 34

Reclamation Area 34 is a 6.9-acre parcel that was formerly part of Topsand Piles A and B. This area was graded to blend into the reclaimed mining and operational areas to the south resulting in an almost flat area. Final revegetation seeding with the DRMS-approved permanent seed mixture took place in October 2016.

Total vegetation cover averaged 12.5% down from the 29.7% observed in 2023 (Table 11). A small component of cheatgrass was observed resulting in a slightly lower non-noxious cover average of 12.3%. Annual species contributed a substantial amount of the relative cover resulting in an allowable vegetation cover of only 6.4%, down from 19.2% in 2023. Area 34 would have required 38 samples for sample adequacy; however, only the minimum 15 samples were collected due to the obvious lack of sufficient cover to meet the Phase II standards.

Total non-noxious herbaceous production averaged 16.0 g/m^2 (Table 11) down from 66.9 g/m^2 in 2023. Annual species accounted for 73.8% of the relative production. Thus, the average allowable herbaceous production was only 8.7 g/m^2.

Seventeen species contributed to the cover data and 20 other species were encountered along the transects (Table 12). Of the 37 species recorded, 29 were native or desirable. There were 16 grasses, 18 forbs, and three woody species composed of 23 perennial species and 14 annual species.

The most common species observed on 14 of the 15 transects was sand dropseed which comprised 15.0% of the non-noxious relative cover. Common sunflower was only observed on 13 of the 15 transects but contributed 46.0% of the relative cover and prairie sandreed was only observed on 12 of the 15 transects but contributed 19.0% of the relative cover. The only other species that contributed at least 3% of the relative cover was Bigelow's tansyaster (*Machaeranthera bigelovii*).

Table 11: Reclamation Area 34 Summary Statistics

Summary Statistics	Mean	SE
Absolute Cover Statistics (%)		
Total Ground Cover	53.5	5.0
Total Vegetation Cover	12.5	1.4
Non-Noxious Vegetation Cover	12.3	1.4
Allowable Vegetation Cover	6.4	1.4
Grass Cover	5.1	0.9
Forb Cover	7.3	1.9
Woody Cover	0.1	0.1
Perennial Cover	5.2	0.8
Annual Cover	7.3	1.9
Non-Noxious Relative Cover Statistics (%)		
Grass Cover	43.0	
Forb Cover	56.0	
Woody Cover	1.0	
Perennial Cover	47.0	
Annual Cover	53.0	
Herbaceous Production Statistics (g/m^2)		
Total Production	16.0	2.5
Allowable Production	8.7	2.1
Perennial Production	4.2	1.0
Annual Production	11.8	2.9

Table 12: Reclamation Area 34 Species Composition

Life Form	Cover Data	Present
Graminoids		
Perennial	6	13
Annual	2	3
Native	5	13
Introduced	1	1
Cool Season	2	7
Warm Season	4	6
Total	***8***	***16***
Forbs		
Perennial	3	7
Annual	5	11
Native	7	13
Introduced	1	5
Total	***8***	***18***
Woody Species		
Perennial	1	3
Total Species	**17**	**37**

The allowable vegetation cover did not pass the technical standard when subjected to hypothesis testing (Table 13). Only 15 production samples were collected under the interim monitoring guidelines and the allowable production values calculated from these samples did not meet the technical standard. However, 13 perennial grasses were observed along the transects which does meet the Phase II bond release species composition standard.

Table 13: Reclamation Area 34 Success Criteria

Reclamation Success Criteria	Reclamation Area	Technical Standard	90% Technical Standard	Pass?
Allowable Cover (%)	6.4	22.1	19.9	No*
Allowable Production (g/m^2)	8.7	13.6	12.2	No*
Species Composition (perennial grass)	13	4		Yes

* Only sampled to the minimum sample size

6.2.3 Reclamation Area 35

Reclamation Area 35 is a 9.7-acre parcel that was formerly part of the B Pit mining area. This area was graded to blend into the undisturbed area to the west and the reclaimed mining and operational areas to the east resulting in a gentle, east-facing slope. Revegetation seeding with the DRMS-approved permanent seed mixture took place in 2020.

Total vegetation cover averaged 11.7% down from 37.1% in 2023 (Table 14). A small component of cheatgrass was observed resulting in a slightly lower non-noxious cover average of 11.1%. Substantial excess annual cover was recorded; thus, the allowable cover used for hypothesis testing was only 5.3% down from 11.0% in 2023. Only the minimum 15 samples were collected due to the obvious lack of sufficient cover to meet the Phase II standards.

Table 14: Reclamation Area 35 Summary Statistics

Summary Statistics	Mean	SE
Absolute Cover Statistics (%)		
Total Ground Cover	46.7	3.4
Total Vegetation Cover	11.7	1.7
Non-Noxious Vegetation Cover	11.1	1.7
Allowable Vegetation Cover	5.3	1.5
Grass Cover	4.3	1.0
Forb Cover	7.5	1.5
Woody Cover	0.0	0.0
Perennial Cover	3.6	1.0
Annual Cover	8.1	1.6
Non-Noxious Relative Cover Statistics (%)		
Grass Cover	32.1	
Forb Cover	67.9	
Woody Cover	0.0	
Perennial Cover	32.1	
Annual Cover	67.9	

Eleven species contributed to the cover data and 14 other species were encountered along the transects (Table 15). Of the 25 species recorded, 15 were native or desirable. There were 10 grasses, 14 forbs, and one woody species composed of 11 perennial species and 14 annual species.

There were two species observed along all of the 15 transects: Indian ricegrass (*Achnatherum hymenoides*) and Russian thistle which comprised 17.9% and 21.4% of the relative cover, respectively. Common sunflower was only observed on 14 of the transects but contributed 41.7% of the relative cover.

Allowable vegetation cover did not pass the technical standard when subjected to hypothesis testing (Table 16). However, eight perennial grasses were observed along the transects which meets the Phase II bond release species composition standard. No production data were collected in the area in 2024.

Table 15: Reclamation Area 35 Species Composition

Life Form	Cover Data	Present
Graminoids		
Perennial	4	8
Annual	1	2
Native	3	7
Introduced	1	1
Cool Season	1	4
Warm Season	3	4
Total	***5***	***10***
Forbs		
Perennial	0	2
Annual	6	12
Native	2	7
Introduced	4	7
Total	***6***	***14***
Woody Species		
Perennial	0	1
Total Species	**11**	**25**

Table 16: Reclamation Area 35 Success Criteria

Reclamation Success Criteria	Reclamation Area	Technical Standard	90% Technical Standard	Pass?
Allowable Cover (%)	5.3	22.1	19.9	No*
Allowable Production (g/m^2)	n/a	n/a	n/a	n/a
Species Composition (perennial grass)	8	4		Yes

* Only sampled to the minimum sample size

6.2.4 Reclamation Area 36

Reclamation Area 36 is a 25.1-acre parcel that was formerly part of the long-term spoil area. This area was graded to blend into the surrounding reclaimed mining and operational areas resulting in a gentle, east-facing slope. Revegetation seeding with the DRMS-approved permanent seed mixture took place in 2020 but was repeated in 2022 due to poor initial establishment.

Total vegetation cover averaged 13.2% which was a substantial decrease from the 42.3% observed in 2023. Non-noxious cover averaged 12.7% down from 41.5% in 2023 (Table 17). Substantial excess annual cover was recorded; thus, the allowable cover used for hypothesis testing was only 7.5% down from 14.4% in 2023. Only the minimum 15 samples were collected due to the obvious lack of sufficient cover to meet the Phase II standards.

Twelve species contributed to the cover data and 18 other species were encountered along the transects (Table 18). Of the 30 species recorded, 21 were native or desirable. There were 12 grasses, 16 forbs, and two woody species composed of 14 perennial species and 16 annual species.

Five species were observed along all 15 transects including two native perennial grasses, two weedy annual species, and cheatgrass. Indian ricegrass and sand dropseed comprised a total of 34.7% of the non-noxious relative vegetation cover while common sunflower and Russian thistle comprised a total of 47.4%. Cheatgrass only contributed 4.0% of the overall relative cover even though it was present on every transect.

Allowable vegetation cover did not pass the technical standard when subjected to hypothesis testing (Table 19). However, nine perennial grasses were observed along the transects which meets the Phase II bond release species composition standard. No production data were collected in the area in 2024.

Table 17: Reclamation Area 36 Summary Statistics

Summary Statistics	Mean	SE
Absolute Cover Statistics (%)		
Total Ground Cover	64.0	3.1
Total Vegetation Cover	13.2	1.2
Non-Noxious Vegetation Cover	12.7	1.1
Allowable Vegetation Cover	7.5	1.1
Grass Cover	6.4	1.1
Forb Cover	6.8	0.6
Woody Cover	0.0	0.0
Perennial Cover	6.3	1.4
Annual Cover	6.9	0.9
Non-Noxious Relative Cover Statistics (%)		
Grass Cover	46.3	
Forb Cover	53.7	
Woody Cover	0.0	
Perennial Cover	49.5	
Annual Cover	50.5	

Table 18: Reclamation Area 36 Species Composition

Life Form	Cover Data	Present
Graminoids		
Perennial	6	9
Annual	1	3
Native	5	9
Introduced	1	1
Cool Season	2	3
Warm Season	4	6
Total	***7***	***12***
Forbs		
Perennial	1	3
Annual	4	13
Native	2	10
Introduced	3	6
Total	***5***	***16***
Woody Species		
Perennial	0	2
Total Species	**12**	**30**

Table 19: Reclamation Area 36 Success Criteria

Reclamation Success Criteria	Reclamation Area	Technical Standard	90% Technical Standard	Pass?
Allowable Cover (%)	7.5	22.1	19.9	No*
Allowable Production (g/m^2)	n/a	n/a	n/a	n/a
Species Composition (perennial grass)	9	4		Yes

* Only sampled to the minimum sample size

6.2.5 Reclamation Area 37

Reclamation Area 37 is a 22.6-acre parcel that was formerly part of the long-term spoil area. This area was graded to blend into the surrounding reclaimed mining and operational areas resulting in a gentle, east-facing slope. Revegetation seeding with the DRMS-approved permanent seed mixture took place in 2020 but was repeated in 2022 due to poor initial establishment.

Total vegetation cover averaged 18.1% down from the 36.8% observed in 2023 and non-noxious cover averaged 10.7% down from 33.9% (Table 20). Substantial excess annual cover was recorded; thus, the allowable cover used for hypothesis testing was only 8.6% down from 12.5% in 2023. Only the minimum 15 samples were collected due to the obvious lack of sufficient cover to meet the Phase II standards.

Eleven species contributed to the cover data and 19 other species were encountered along the transects (Table 21). Of the 30 species recorded, 21 were native or desirable. There were 12 grasses,16 forbs, and two woody species composed of 16 perennial species and 14 annual species.

Table 20: Reclamation Area 37 Summary Statistics

Summary Statistics	Mean	SE
Absolute Cover Statistics (%)		
Total Ground Cover	66.4	5.1
Total Vegetation Cover	18.1	2.2
Non-Noxious Vegetation Cover	10.7	1.9
Allowable Vegetation Cover	8.6	1.7
Grass Cover	12.9	2.4
Forb Cover	5.2	1.2
Woody Cover	0.0	0.0
Perennial Cover	7.2	1.9
Annual Cover	10.9	2.3
Non-Noxious Relative Cover Statistics (%)		
Grass Cover	51.2	
Forb Cover	48.8	
Woody Cover	0.0	
Perennial Cover	68.3	
Annual Cover	31.7	

Table 21: Reclamation Area 37 Species Composition

Life Form	Cover Data	Present
Graminoids		
Perennial	6	9
Annual	1	3
Native	5	9
Introduced	1	1
Cool Season	4	4
Warm Season	2	5
Total	***7***	***12***
Forbs		
Perennial	1	5
Annual	3	11
Native	2	10
Introduced	2	6
Total	***4***	***16***
Woody Species		
Perennial	0	2
Total Species	**11**	**30**

While there were no species observed along all 15 transects, there were eight species that contributed more than 3% of the non-noxious relative cover. Four native grasses comprised 47.6% of the non-noxious relative cover: Indian ricegrass, sand dropseed, western wheatgrass (*Pascopyrum smithii*), and prairie sandreed. One native perennial forb (Cuman ragweed) contributed 17.1%, and three weedy annuals comprised a total of 31.7%: common sunflower,

Russian thistle, and burningbush (*Bassia scoparia*). Cheatgrass also contributed 40.6% of the overall relative cover.

Allowable vegetation cover did not pass the technical standard when subjected to hypothesis testing (Table 22). However, nine perennial grasses were observed along the transects which meets the Phase II bond release species composition standard. No production data were collected in the area in 2024.

Table 22: Reclamation Area 37 Success Criteria

Reclamation Success Criteria	Reclamation Area	Technical Standard	90% Technical Standard	Pass?
Allowable Cover (%)	8.6	22.1	19.9	No*
Allowable Production (g/m^2)	n/a	n/a	n/a	n/a
Species Composition (perennial grass)	9	4		Yes

* Only sampled to the minimum sample size

6.2.6 Reclamation Area 38

Reclamation Area 38 is a 10.9-acre parcel that was formerly part of Topsand Piles A and B. This area was graded to blend into the reclaimed mining and operational areas to the south resulting in an almost flat area. Revegetation seeding with the DRMS-approved permanent seed mixture took place in 2020 but was repeated in 2022 due to poor initial establishment.

Total vegetation cover averaged 14.4% which was a decrease from the 26.3% observed in 2023 (Table 23). Non-noxious cover averaged 13.1% down from 24.7% in 2023. Allowable cover used for hypothesis testing was 11.3% down slightly from 12.7% in 2023. Reclamation Area 38 would have required 52 samples to meet sample adequacy; however, only 16 samples were collected due to the obvious lack of sufficient cover to meet the Phase II standards

Table 23: Reclamation Area 38 Summary Statistics

Summary Statistics	Mean	SE
Absolute Cover Statistics (%)		
Total Ground Cover	51.4	3.9
Total Vegetation Cover	14.4	1.8
Non-Noxious Vegetation Cover	13.1	1.8
Allowable Vegetation Cover	11.3	1.8
Grass Cover	11.1	1.4
Forb Cover	3.3	0.9
Woody Cover	0.0	0.0
Perennial Cover	10.0	1.4
Annual Cover	4.4	1.1
Non-Noxious Relative Cover Statistics (%)		
Grass Cover	75.5	
Forb Cover	24.5	
Woody Cover	0.0	
Perennial Cover	76.4	
Annual Cover	23.6	

Twelve species contributed to the cover data and 17 other species were encountered along the transects (Table 24). Of the 29 species recorded, 24 were native or desirable. There were 12 grasses, 15 forbs, and two woody species composed of 16 perennial species and 13 annual species.

Three species (Indian ricegrass, Russian thistle, and common sunflower) were observed along all 16 transects comprising 43.4%, 13.2%, and 9.4% of the non-noxious relative vegetation cover, respectively. Two other species, sand dropseed and sand bluestem, each contributed more than 3% of the relative cover. Cheatgrass contributed 8.6% of the overall relative cover.

Allowable vegetation cover did not pass the technical standard when subjected to hypothesis testing (Table 25). However, nine perennial grasses were observed along the transects which meets the Phase II bond release species composition standard. No production data were collected in the area in 2024.

Table 24: Reclamation Area 38 Species Composition

Life Form	Cover Data	Present
Graminoids		
Perennial	7	9
Annual	1	3
Native	7	11
Introduced	1	1
Cool Season	3	4
Warm Season	4	5
Total	***8***	***12***
Forbs		
Perennial	1	5
Annual	3	10
Native	3	11
Introduced	1	4
Total	***4***	***15***
Woody Species		
Perennial	0	2
Total Species	**12**	**29**

Table 25: Reclamation Area 38 Success Criteria

Reclamation Success Criteria	Reclamation Area	Technical Standard	90% Technical Standard	Pass?
Allowable Cover (%)	11.3	22.1	19.9	No*
Allowable Production (g/m^2)	n/a	n/a	n/a	n/a
Species Composition (perennial grass)	9	4		Yes

* Only sampled to the minimum sample size

6.2.7 Reclamation Area 42

Reclamation Area 42 is an 11.4-acre parcel that was formerly the access road for the mining and operational areas. This area was graded to blend into the surrounding reclaimed mining and operational areas. Revegetation seeding with the DRMS-approved permanent seed mixture took place in 2020 but was repeated in 2022 due to poor initial establishment.

Total vegetation cover averaged 15.5% which was a substantial decrease from the 48.9% observed in 2023 (Table 26). Cheatgrass cover was a large component resulting in an average non-noxious cover of only 7.6% down from 42.1% in 2023. Some excess annual cover was also recorded; thus, the allowable cover used for hypothesis testing was only 5.2% down from 10.5% in 2023. Only the minimum 15 samples were collected due to the obvious lack of sufficient cover to meet the Phase II standards.

Table 26: Reclamation Area 42 Summary Statistics

Summary Statistics	Mean	SE
Absolute Cover Statistics (%)		
Total Ground Cover	63.7	5.8
Total Vegetation Cover	15.5	1.9
Non-Noxious Vegetation Cover	7.6	1.9
Allowable Vegetation Cover	5.2	1.8
Grass Cover	11.7	1.8
Forb Cover	3.7	0.9
Woody Cover	0.0	0.0
Perennial Cover	4.0	1.2
Annual Cover	11.5	1.9
Non-Noxious Relative Cover Statistics (%)		
Grass Cover	51.7	
Forb Cover	48.3	
Woody Cover	0.0	
Perennial Cover	53.4	
Annual Cover	46.6	

Eleven species contributed to the cover data and 31 other species were encountered along the transects (Table 27). Of the 42 species recorded, 32 were native or desirable. There were 13 grasses, 26 forbs, and three woody species composed of 21 perennial species and 21 annual species.

While there were no species observed along all 15 transects, there were six species that contributed more than 3% of the non-noxious relative cover. Three native grasses comprised 51.7% of the non-noxious relative cover: Indian ricegrass, sand dropseed, and prairie sandreed. Russian thistle contributed 15.5%, and two native annuals comprised a total of 25.9%: common sunflower and crested pricklypoppy (*Argemone polyanthemos*). Cheatgrass also contributed 50.4% of the overall relative cover.

Table 27: Reclamation Area 42 Species Composition

Life Form	Cover Data	Present
Graminoids		
Perennial	3	10
Annual	1	3
Native	3	11
Introduced	1	2
Cool Season	1	4
Warm Season	2	6
Total	***4***	***13***
Forbs		
Perennial	1	8
Annual	6	18
Native	5	18
Introduced	2	8
Total	***7***	***26***
Woody Species		
Perennial	0	3
Total Species	**11**	**42**

Allowable vegetation cover did not pass the technical standard when subjected to hypothesis testing (Table 28). However, 10 perennial grasses were observed along the transects which meets the Phase II bond release species composition standard. No production data were collected in the area in 2024.

Table 28: Reclamation Area 42 Success Criteria

Reclamation Success Criteria	Reclamation Area	Technical Standard	90% Technical Standard	Pass?
Allowable Cover (%)	5.2	22.1	19.9	No*
Allowable Production (g/m^2)	n/a	n/a	n/a	n/a
Species Composition (perennial grass)	10	4		Yes

* Only sampled to the minimum sample size

6.2.8 Reclamation Area 43

Reclamation Area 43 is an 8.3-acre parcel that was formerly the northernmost part of the B Pit mining area. This area was monitored as part of Reclamation Area 44 in 2021 but was split off when the boundaries were adjusted in the spring of 2022. This area was graded to blend into the undisturbed area to the west and the reclaimed mining and operational areas to the east resulting in a gentle, east-facing slope. Revegetation seeding with the DRMS-approved permanent seed mixture took place in 2019.

Total vegetation cover averaged 19.9% down from 40.8% in 2023 and non-noxious vegetation cover was 11.1% down from 33.9% in 2023 (Table 29) Substantial excess annual cover was recorded; thus, the allowable cover used for hypothesis testing was only 7.6% down from 18.1%

in 2023. Only the minimum 15 samples were collected due to the obvious lack of sufficient cover to meet the Phase II standards.

Twelve species contributed to the cover data and 19 more species were encountered along the transects (Table 30). Of the 31 species recorded, 29 were native or desirable. There were 12 grasses, 16 forbs, and three woody species composed of 19 perennial species and 12 annual species.

Table 29: Reclamation Area 43 Summary Statistics

Summary Statistics	Mean	SE
Absolute Cover Statistics (%)		
Total Ground Cover	73.7	4.6
Total Vegetation Cover	19.9	2.1
Non-Noxious Vegetation Cover	11.1	1.6
Allowable Vegetation Cover	7.6	1.5
Grass Cover	13.3	2.3
Forb Cover	6.4	1.3
Woody Cover	0.1	0.1
Perennial Cover	6.3	1.0
Annual Cover	13.6	1.6
Non-Noxious Relative Cover Statistics (%)		
Grass Cover	43.7	
Forb Cover	55.2	
Woody Cover	1.1	
Perennial Cover	58.6	
Annual Cover	41.4	

Table 30: Reclamation Area 43 Species Composition

Life Form	Cover Data	Present
Graminoids		
Perennial	3	10
Annual	2	2
Native	4	11
Introduced	1	1
Cool Season	0	4
Warm Season	3	6
Total	***5***	***12***
Forbs		
Perennial	3	6
Annual	3	10
Native	6	15
Introduced	0	1
Total	***6***	***16***
Woody Species		
Perennial	1	3
Total Species	**12**	**31**

The only species observed on all 15 transects were sand dropseed and cheatgrass which contributed 21.6% and 43.1% of the overall relative cover, respectively. Other species contributing more than 3% of the relative cover were annual ragweed (*Ambrosia artemisiifolia*) with 13.7%, Biglow's tansyaster with 6.5%, Cuman ragweed with 5.9%, and bractless blazing star (*Mentzelia nuda*) with 3.3%.

Allowable vegetation cover did not pass the technical standard when subjected to hypothesis testing (Table 31). Ten perennial grasses were observed along the transects which meets the Phase II bond release species composition standard. No production data were collected in the area in 2024.

Table 31: Reclamation Area 43 Success Criteria

Reclamation Success Criteria	Reclamation Area	Technical Standard	90% Technical Standard	Pass?
Allowable Cover (%)	7.6	22.1	19.9	No*
Allowable Production (g/m^2)	n/a	n/a	n/a	n/a
Species Composition (perennial grass)	10	4		Yes

* Only sampled to the minimum sample size

6.2.9 Reclamation Area 44

Reclamation Area 44 is a 10.0-acre parcel that was formerly part of the B Pit mining area. The area monitored as Reclamation Area 44 in 2021 included this area along with what is now Area 43 and part of Area 37. Adjustments were made to the Reclamation Area boundaries in the spring of 2022 due to re-seeding of some areas. Reclamation Area 44 was graded to blend into the undisturbed area to the west and the reclaimed mining and operational areas to the east resulting in a gentle, east-facing slope. Revegetation seeding with the DRMS-approved permanent seed mixture took place in 2019.

Total vegetation cover averaged 16.7% (Table 32) this is a decrease from the 38.1% observed in 2023. Cheatgrass contributed over 60% of the overall relative vegetation cover, thus the non-noxious cover was only 6.3% down from 30.8% in 2023. Additionally, excess annual cover was recorded further reducing the allowable cover used for hypothesis testing to only 5.1% down from 14.9% in 2023. Only the minimum 15 samples were collected due to the obvious lack of sufficient cover to meet the Phase II standards.

Only nine species contributed to the cover data, but 31 more species were encountered along the transects (Table 33). Of the 40 species recorded, 30 were native or desirable. There were 14 grasses, 24 forbs, and two woody species composed of 19 perennial species and 21 annual species.

Cheatgrass contributed to the cover on all 15 transects and sand dropseed was observed on all the transects contributing 61.4% and 19.7% of the overall relative cover, respectively. With cheatgrass removed, sand dropseed comprised 51.0% of the non-noxious relative cover. Six other species each contributed at least 3% of the non-noxious relative cover including flatspine bur ragweed (*Ambrosia acanthicarpa*), common sunflower, Indian ricegrass, thickspike wheatgrass (*Elymus lanceolatus*), prairie sandreed, and annual ragweed.

Table 32: Reclamation Area 44 Summary Statistics

Summary Statistics	Mean	SE
Absolute Cover Statistics (%)		
Total Ground Cover	65.1	3.1
Total Vegetation Cover	16.7	1.5
Non-Noxious Vegetation Cover	6.3	1.0
Allowable Vegetation Cover	5.1	0.9
Grass Cover	14.5	1.9
Forb Cover	2.1	0.8
Woody Cover	0.0	0.0
Perennial Cover	4.3	1.0
Annual Cover	12.4	1.0
Non-Noxious Relative Cover Statistics (%)		
Grass Cover	67.3	
Forb Cover	32.7	
Woody Cover	0.0	
Perennial Cover	69.4	
Annual Cover	30.6	

Table 33: Reclamation Area 44 Species Composition

Life Form	Cover Data	Present
Graminoids		
Perennial	4	12
Annual	1	2
Native	4	13
Introduced	1	1
Cool Season	2	6
Warm Season	2	6
Total	***5***	***14***
Forbs		
Perennial	1	5
Annual	3	19
Native	3	15
Introduced	1	9
Total	***4***	***24***
Woody Species		
Perennial	0	2
Total Species	**9**	**40**

Allowable vegetation cover did not pass the technical standard when subjected to hypothesis testing (Table 34). Twelve perennial grasses were observed along the transects which meets the Phase II bond release species composition standard. No production data were collected in the area in 2024.

Table 34: Reclamation Area 44 Success Criteria

Reclamation Success Criteria	Reclamation Area	Technical Standard	90% Technical Standard	Pass?
Allowable Cover (%)	5.1	22.1	19.9	No*
Allowable Production (g/m^2)	n/a	n/a	n/a	n/a
Species Composition (perennial grass)	12	4		Yes

* Only sampled to the minimum sample size

7 DISCUSSION

Reclamation Areas 25, 32, 33, and 34 have been monitored every year since at least 2018. Reclamation Areas 35, 43, and 44 were monitored for the first time in 2022. Reclamation Areas 36, 37, 38, and 42 were monitored for the first time in 2023.

7.1 Vegetation Cover

Based on the results of the quantitative sampling, none of the 11 Reclamation Areas had allowable vegetation cover that passed the success standard (Table 35). Area 32 would have passed using total vegetation cover including cheatgrass, but none of the other areas would have passed with total cover.

There was a huge decrease in vegetation cover from 2023 to 2024 in every area (Figure 4) which was likely a function of precipitation. The September 2022 – July 2023 precipitation was 181% of the 30-year average while the same period in the past year was only 62% (Appendix E). The contrast was even greater when looking at just the growing season. May – July 2023 experienced 223% of the average precipitation while May – July 2024 was only 41% of average. While the reduced precipitation also reduced the climate-adjusted cover standard, it was not enough to account for the plant response to the extremely low precipitation. However, the positive result in the data is that the relative percentage of cover that was comprised of native and desirable perennial species was equal to or greater than it was in 2023 in seven of the 11 Reclamation Areas (Areas 25, 33, 35, 36, 37, 38, and 42) (Figure 5). Additionally, in Reclamation Area 34 the total native and desirable vegetation relative cover (perennial and annual) was greater than it was in 2023.

A concerning result was the large increase in cheatgrass from 2023 to 2024. There was an increased in the absolute cover of cheatgrass is seven of the Reclamation Areas (Areas 25, 32, 35, 37, 42, 43, and 44) (Figure 4) and an increase in the relative cover of cheatgrass in every Reclamation Area (Figure 5). Reclamation Areas 25 and 34 were treated with a pre-emergent herbicide in 2020 to control the cheatgrass which effectively reduced its cover for the next several years, and these two areas still have the lowest cheatgrass cover on the mine. However, the combination of climate events in the past couple of years have allowed the cheatgrass to flourish in adjacent areas.

Table 35: Vegetation Cover Success Standard Comparison

	Phase II Monitoring									Phase III Monitoring	
Vegetation Cover	**Area 25**	**Area 34**	**Area 35**	**Area 36**	**Area 37**	**Area 38**	**Area 42**	**Area 43**	**Area 44**	**Area 32**	**Area 33**
Average Vegetation Cover	12.1	12.5	11.7	13.2	18.1	14.4	15.5	19.9	16.7	21.3	18.4
Average Non-Noxious Cover	11.7	12.3	11.1	12.7	10.7	13.1	7.6	11.1	6.3	12.9	15.9
Average Allowable Cover	7.4	6.4	5.3	7.5	8.6	11.3	5.2	7.6	5.1	12.9	15.9
N	15	15	15	15	15	16	15	15	15	30	27
Nmin (non-noxious)	58	38	62	21	83	52	40	54	68	41	25
Nmin (allowable)	132	137	211	60	110	70	167	102	88	41	25
Stdev Allowable Cover	6.3	5.6	5.8	4.3	6.7	7.0	7.3	5.7	3.5	6.3	6.0
Standard	22.1										
90% of Standard	19.9										
T (one-tail, α=0.9)	1.345	1.345	1.345	1.345	1.345	1.341	1.345	1.345	1.345	1.311	1.315
Standard Passed?	**No***	**No***	**No***	**No***	**No***	**No***	**No***	**No***	**No***	**No**	**No**

* Only sampled to the minimum sample size

Figure 4: Absolute Cover by Life Form 2022 – 2024

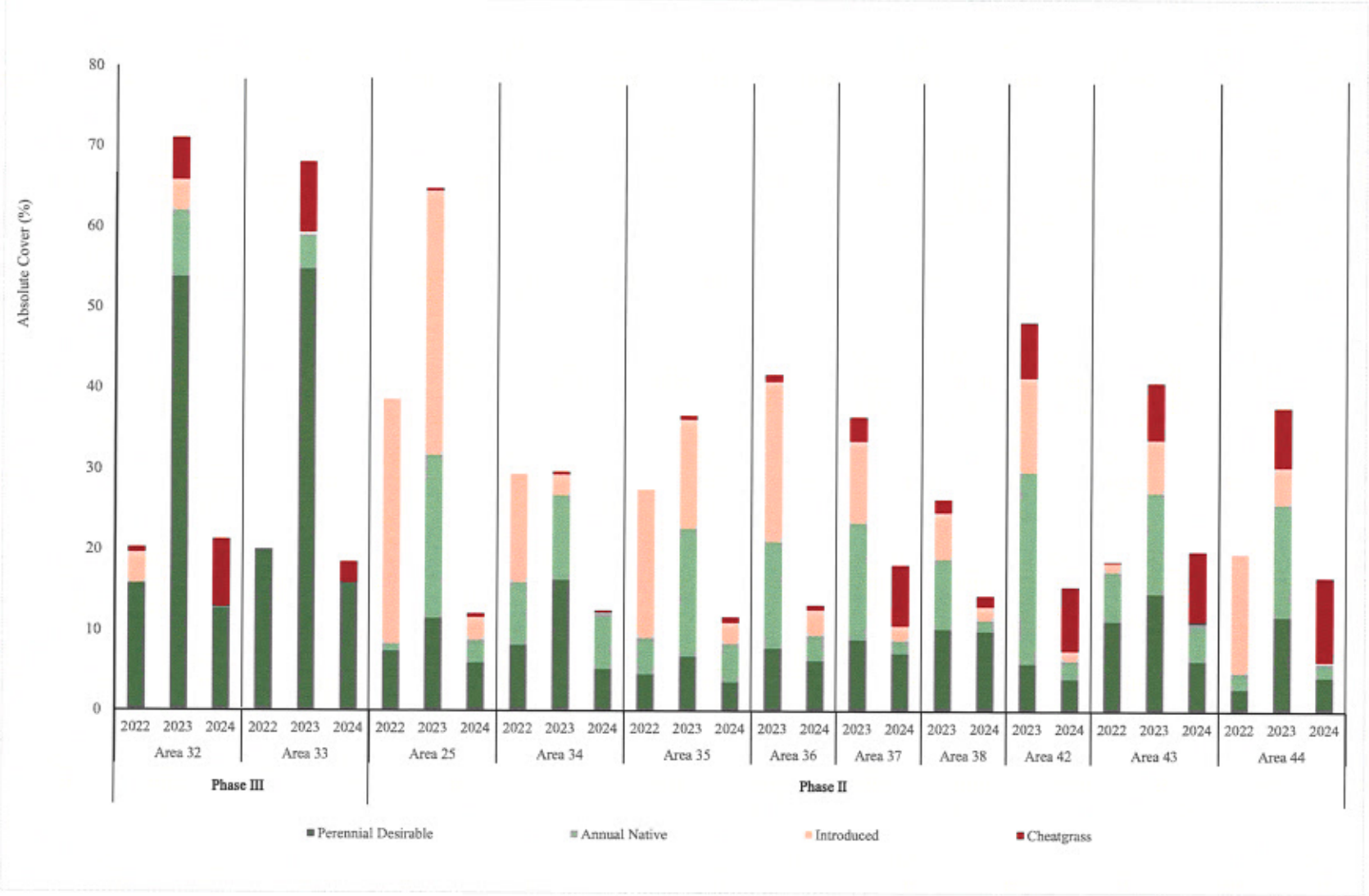
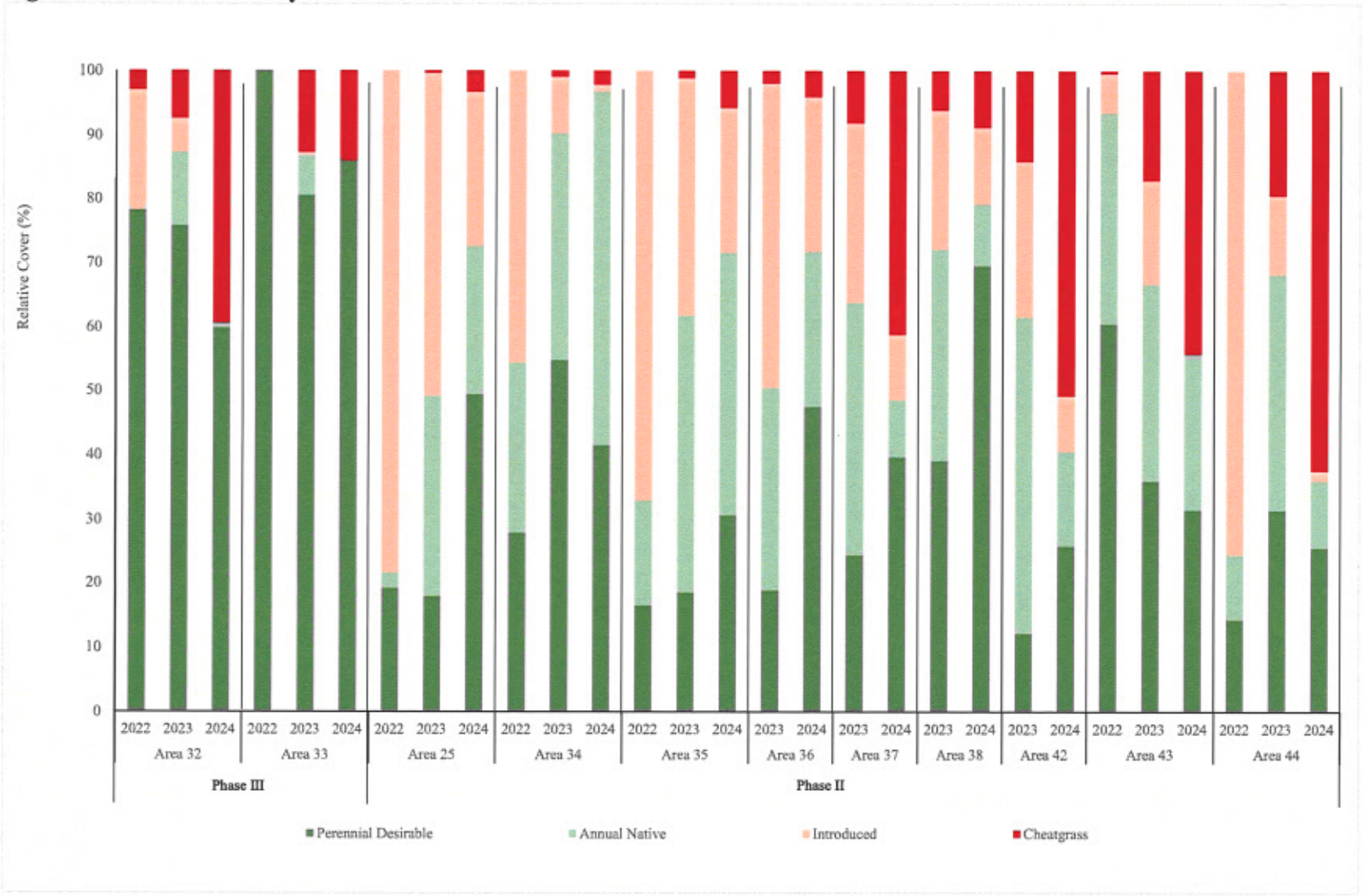


Figure 5: Relative Cover by Life Form 2022 – 2024



7.2 Herbaceous Production

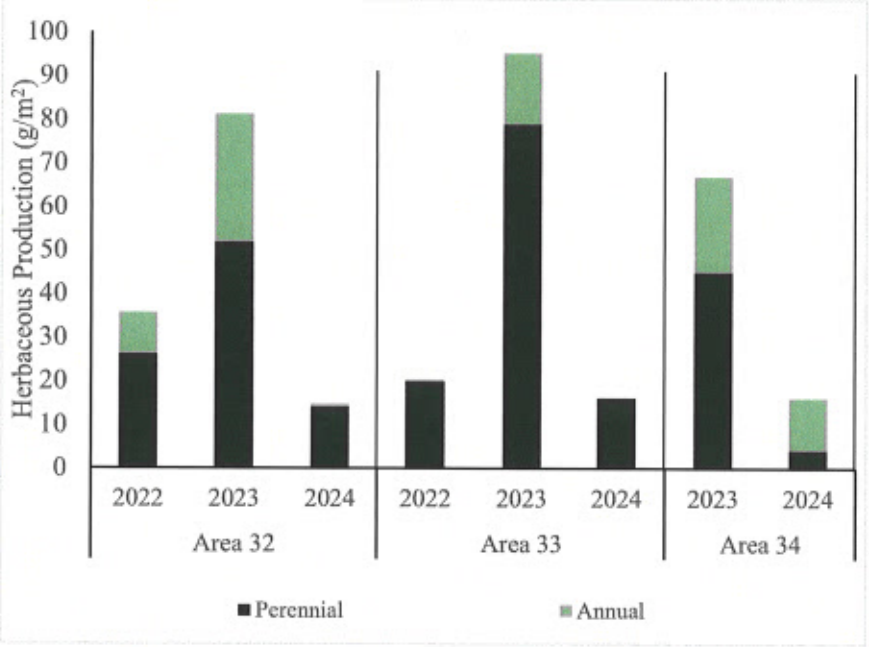
Based on the results of the herbaceous production sampling, both Phase III Reclamation Areas (32 and 33) passed the production success standard (Table 36). Using the total non-noxious production without subtracting excess annual production, Area 34 would also have passed had an adequate sample size been collected. Overall, non-noxious herbaceous production and allowable production decreased substantially from 2023 to 2024 in all areas (Figure 6). However, the extremely low precipitation in summer 2024 resulted in a decreased production standard as well.

Table 36: Herbaceous Production Success Standard Comparison

	Phase III Monitoring		**Interim Monitoring**
Herbaceous Production	**Area 32**	**Area 33**	**Area 34**
Average Total Production	14.7	16.1	16.0
Average Allowable Production	14.7	16.1	8.7
N	15	15	15
Nmin (non-noxious)	113	80	136
Nmin (allowable)	113	80	310
Stdev Allowable Production	11.9	11.0	11.3
Standard	13.6		
90% of Standard	12.2		
T (one-tail, α=0.9)	1.311	1.311	1.345
Standard Passed?	**Yes**	**Yes**	**No***

* Only sampled to the minimum sample size

Figure 6: Non-Noxious Herbaceous Production by Life Form 2022 – 2024



7.3 Species Composition

The Phase III species composition bond release standard requires that four perennial grass species each contribute a minimum of 3% and a maximum of 40% of the relative non-noxious vegetation cover. Neither Area 32 or Area 33 met the standard.

The species composition standard for Phase II bond release is that a sufficient number of species be present to meet the future Phase III bond release cover requirements. All nine of the reclamation areas monitored for Phase II release exhibited at least four perennial grasses in the data.

8 SUMMARY

Quantitative monitoring revealed that none of the areas monitored using the Phase III guidelines (Reclamation Areas 32 and 33) met the vegetation cover standard or species composition standard for Phase III bond release (Table 37). However, they did meet the production standard. Additionally, none of the areas monitored using the Phase II guidelines (Reclamation Areas 25, 34, 35, 36, 37, 38, 42, 43, and 44) met the vegetation cover standard for Phase II bond release (Table 37), but they did all meet the Phase II species composition standard.

All Phase II and Phase III reclamation areas will require additional sampling in 2025.

Table 37: Success Standard Summary

	Phase II Monitoring									**Phase III Monitoring***	
Reclamation Standard	**Area 25**	**Area 34**	**Area 35**	**Area 36**	**Area 37**	**Area 38**	**Area 42**	**Area 43**	**Area 44**	**Area 32**	**Area 33**
Vegetation Cover	No*	No*	No*	No*	No*	No*	No*	No*	No*	No	No
Herbaceous Production	n/a	No*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Yes	Yes
Species Composition	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Eligible for Release	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**n/a**	**n/a**

* Only sampled to the minimum sample size

9 LITERATURE CITED

Colorado Division of Reclamation Mining and Safety (DRMS). 1995. Guideline Regarding Selected Coal Mine Bond Release Issues (DRMS 1995). http://mining.state.co.us/Programs/Coal/RulesRegs/Documents/BondReleaseGuidelines.pdf [Accessed October 2016].

Colorado Division of Reclamation Mining and Safety (DRMS). 2005. Regulations of the Colorado Mined Land Reclamation Board for Coal Mining, Effective August 30, 1980, revised September 14, 2005. https://mining.state.co.us/SiteCollectionDocuments/CoalRegulations91405.pdf [Accessed October 2019].

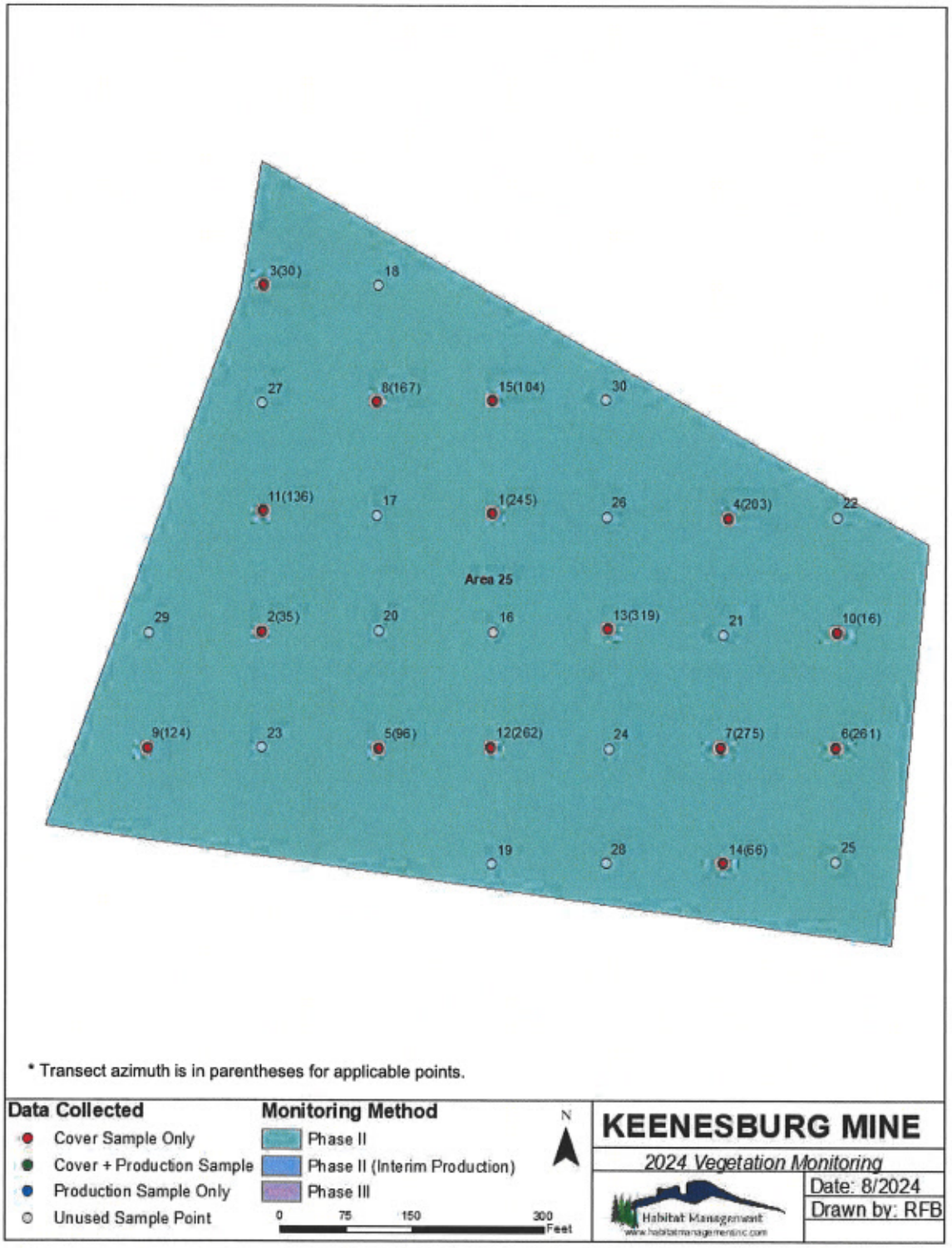
USDA, NRCS. 2024. The PLANTS Database. National Plant Data Team, Greensboro, NC. http://plants.usda.gov [Accessed August 2024].

Weber, W. A. and R. C. Wittmann. 2001. Colorado Flora Easter Slope: Third Edition. University Press of Colorado, Boulder, CO.

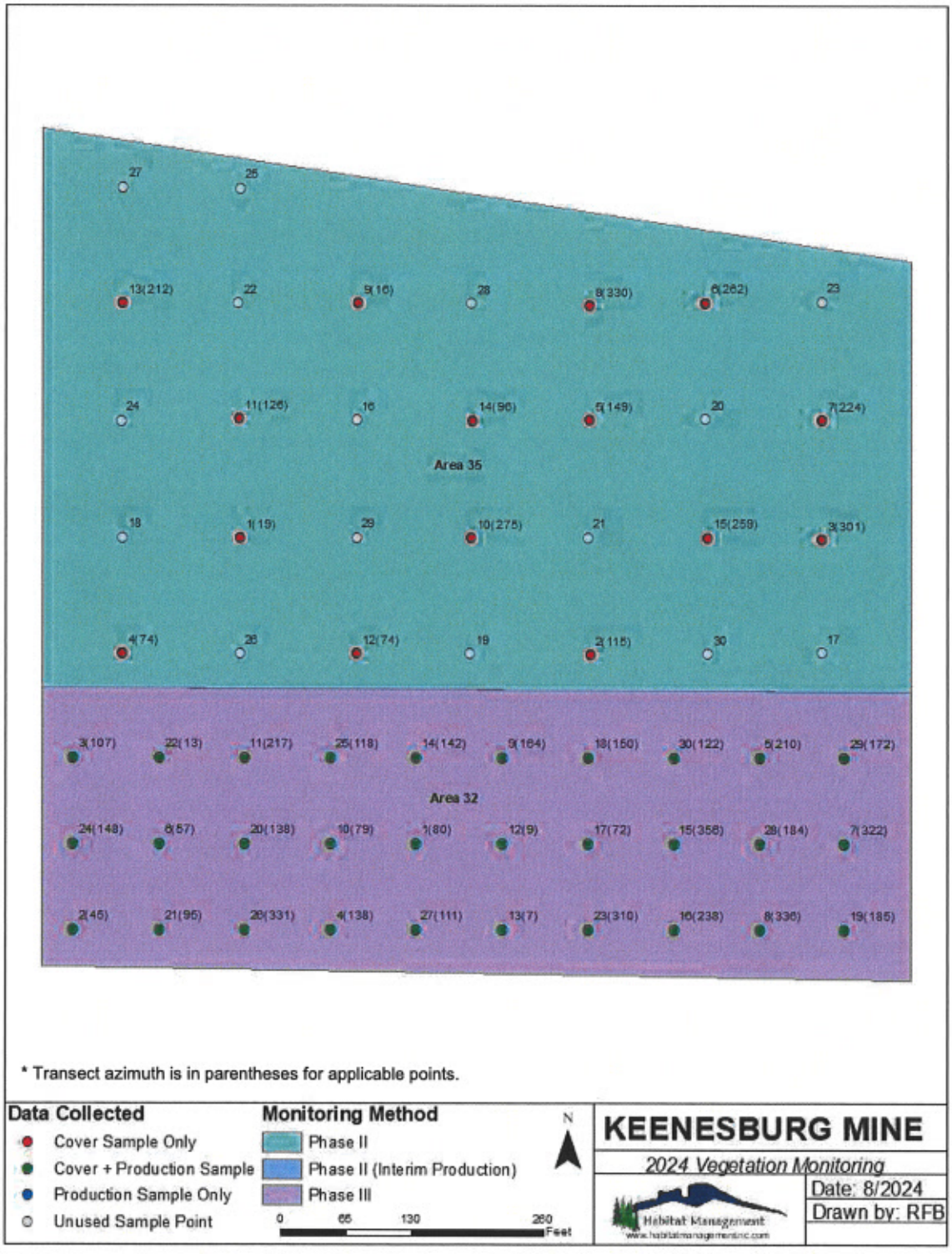
Wingate, J. L. 2021. Colorado Grasses with Illustrated Keys. Wingate Consulting, Denver, CO.

Appendix A: Sample Point Location Maps

Sample Point Locations Area 25



Sample Point Locations Areas 32 & 35



* Transect azimuth is in parentheses for applicable points.

Data Collected

- Cover Sample Only
- Cover + Production Sample
- Production Sample Only
- Unused Sample Point

Monitoring Method

- Phase II
- Phase II (Interim Production)
- Phase III

0 65 130 260 Feet

N

KEENESBURG MINE

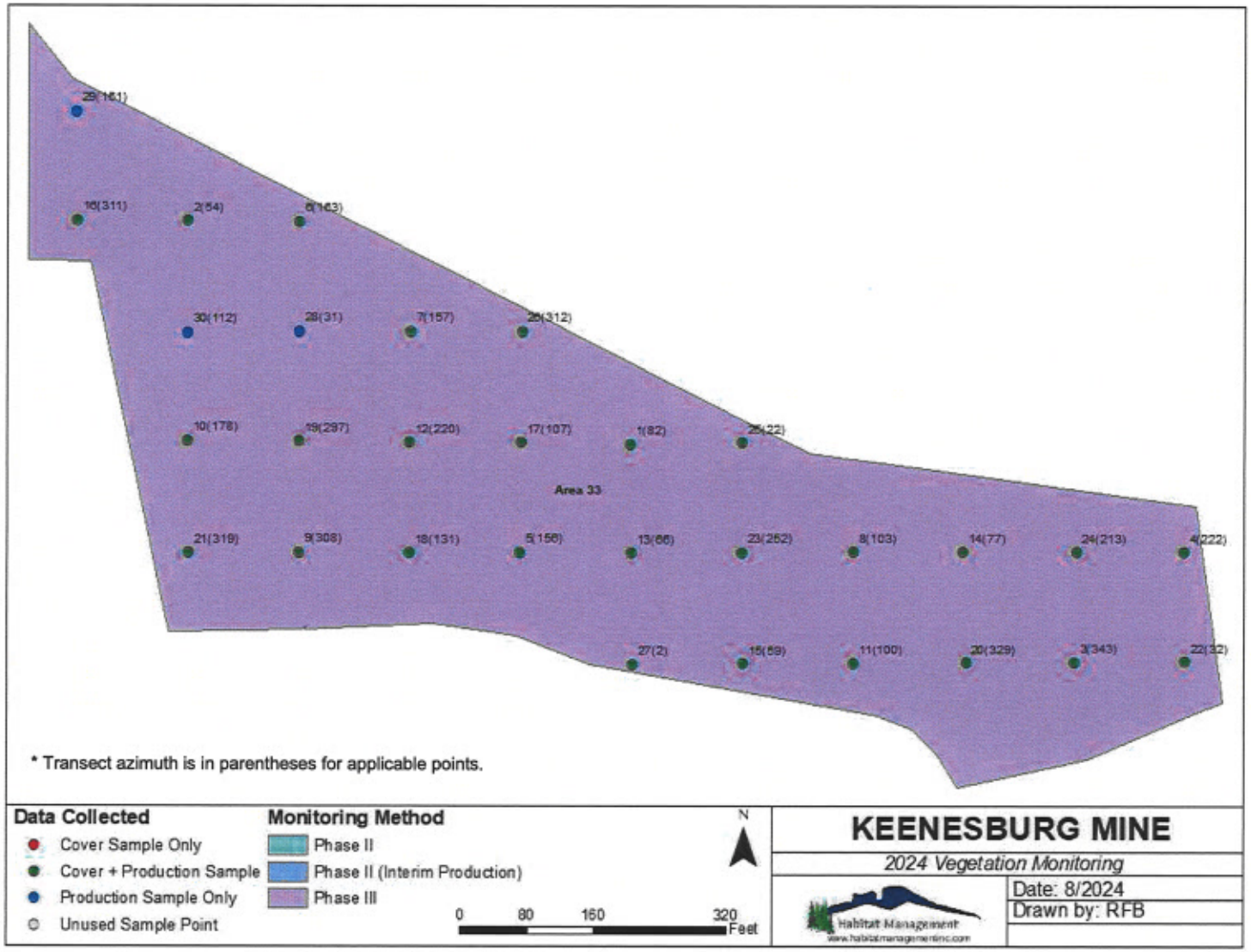
2024 Vegetation Monitoring

Habitat Management
www.habitatmanagementsinc.com

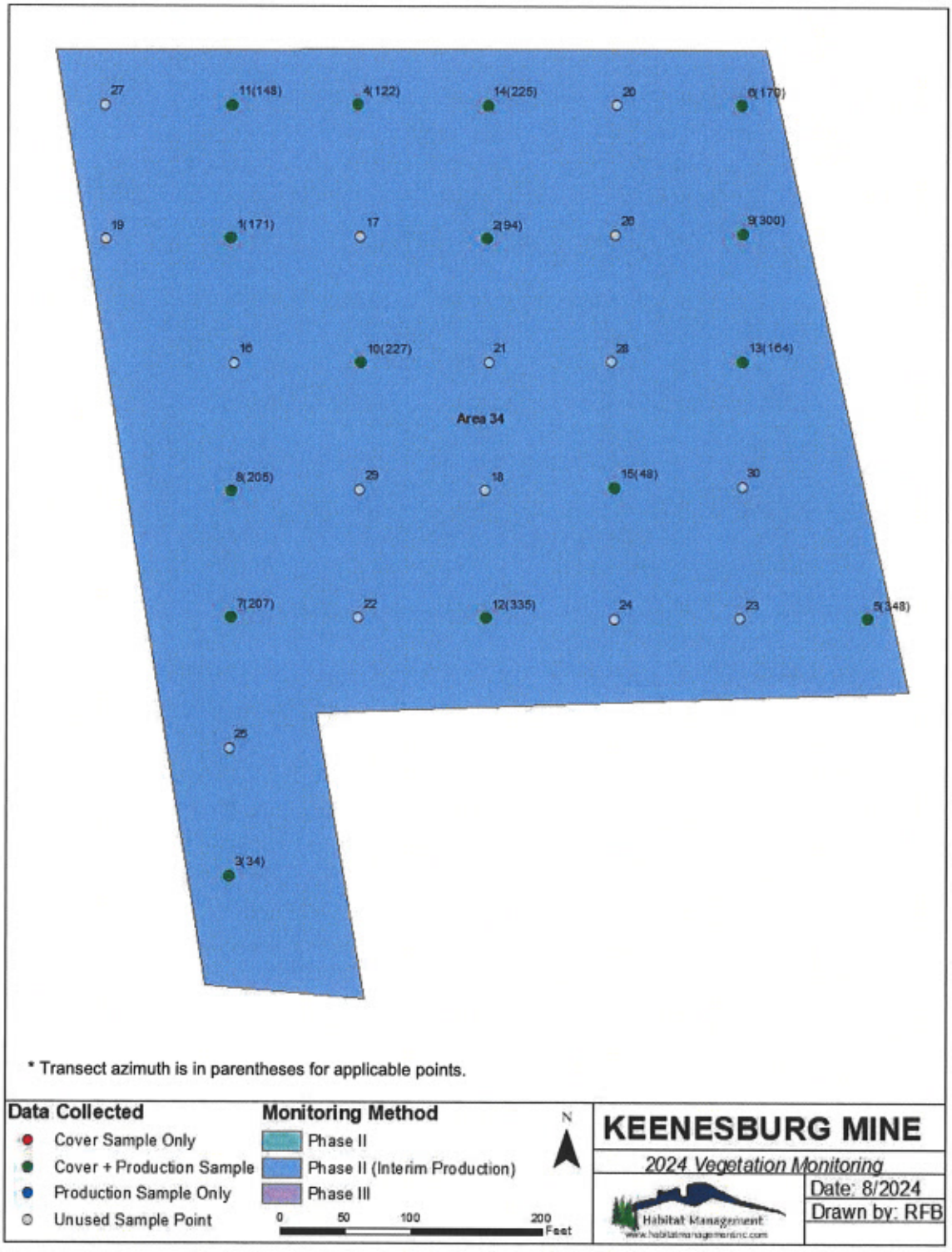
Date: 8/2024

Drawn by: RFB

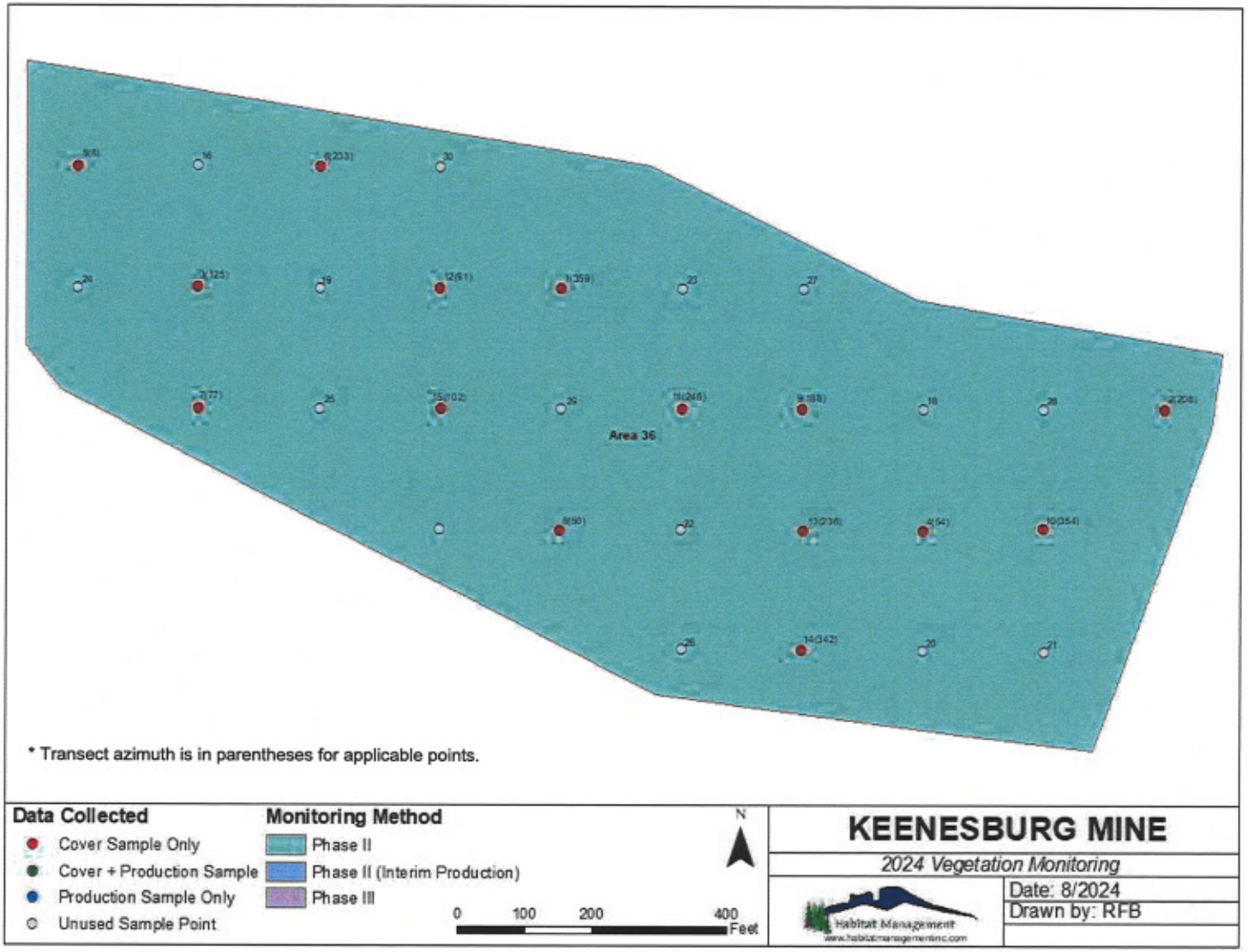
Sample Point Locations Area 33



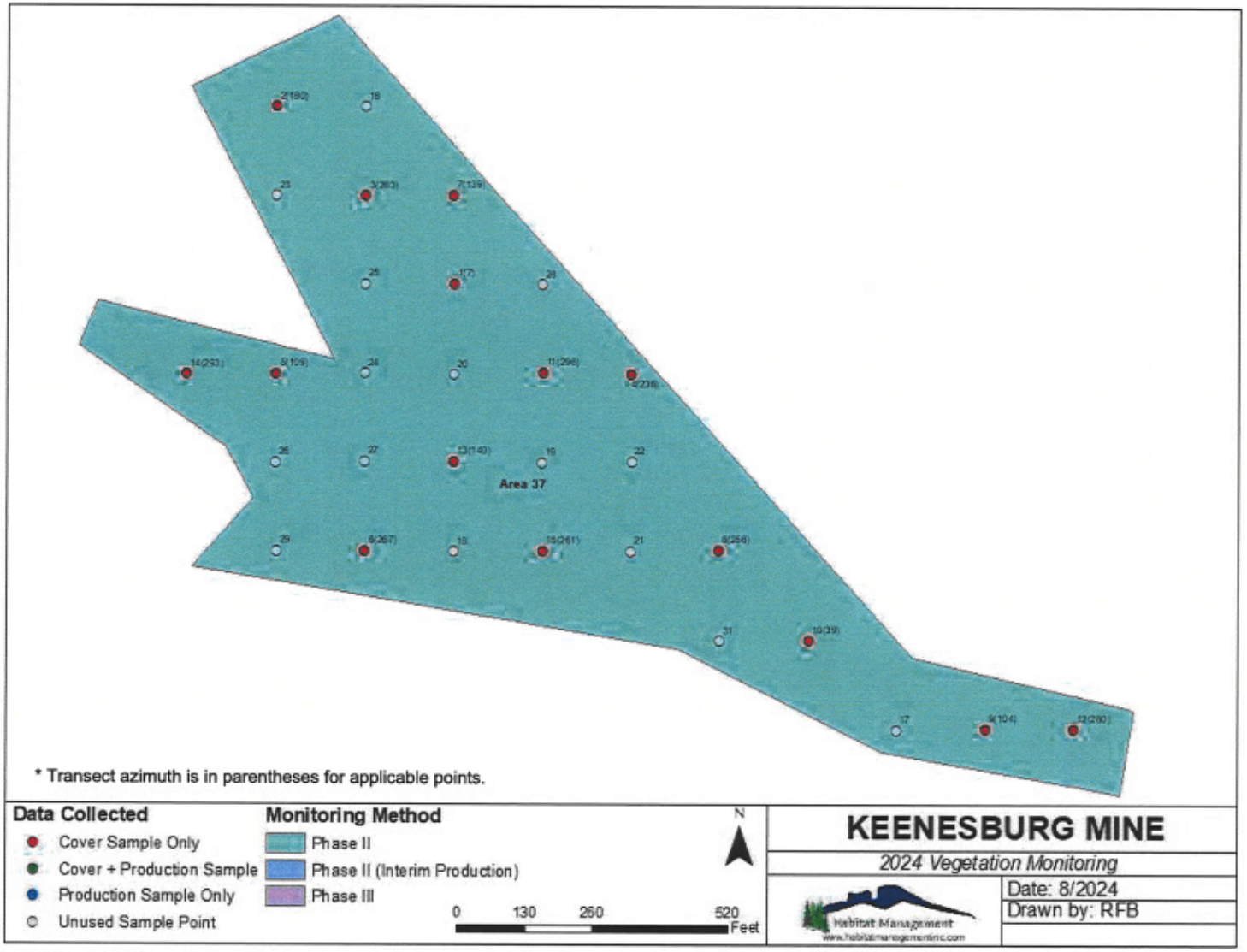
Sample Point Locations Area 34



Sample Point Locations Area 36

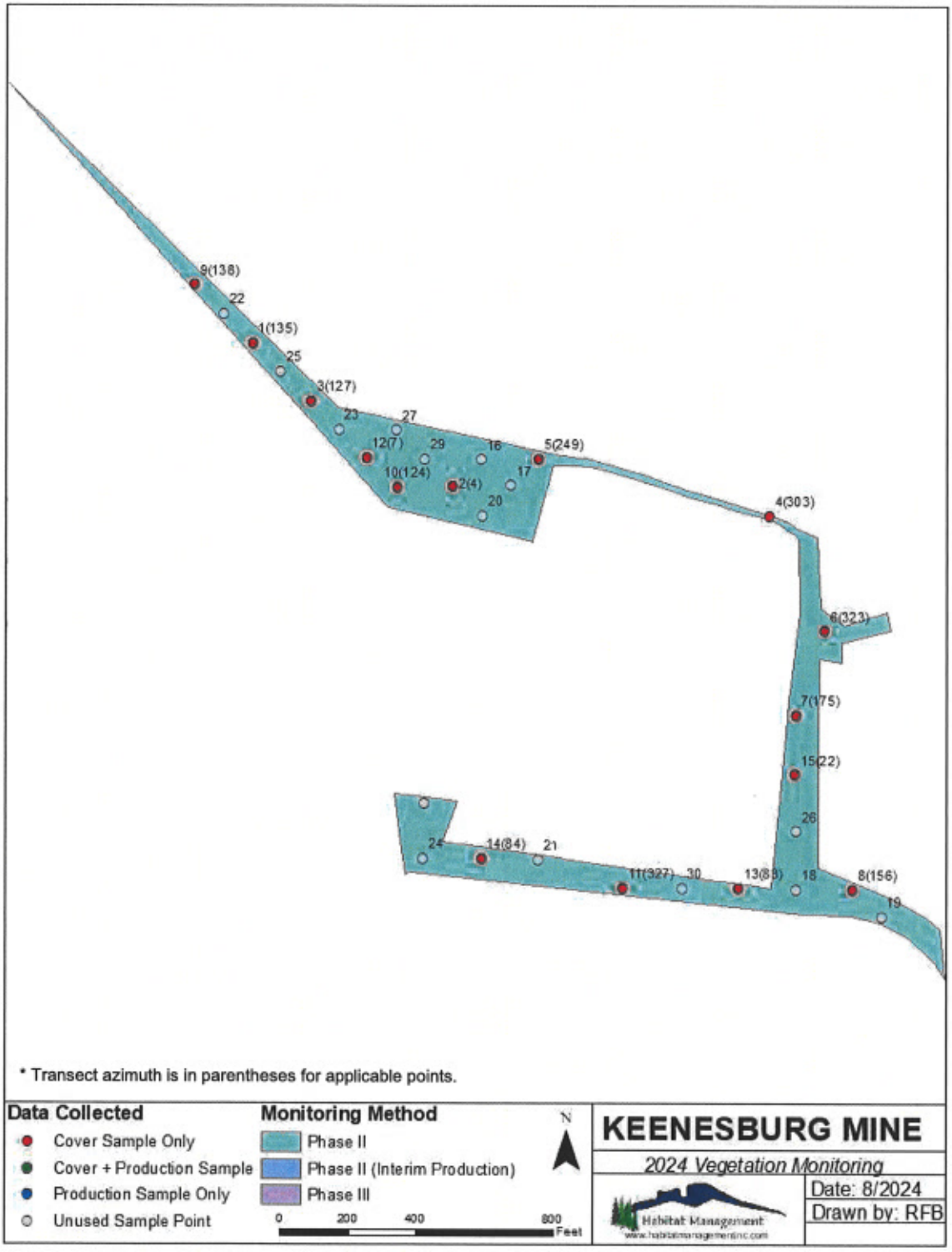


Sample Point Locations Area 37

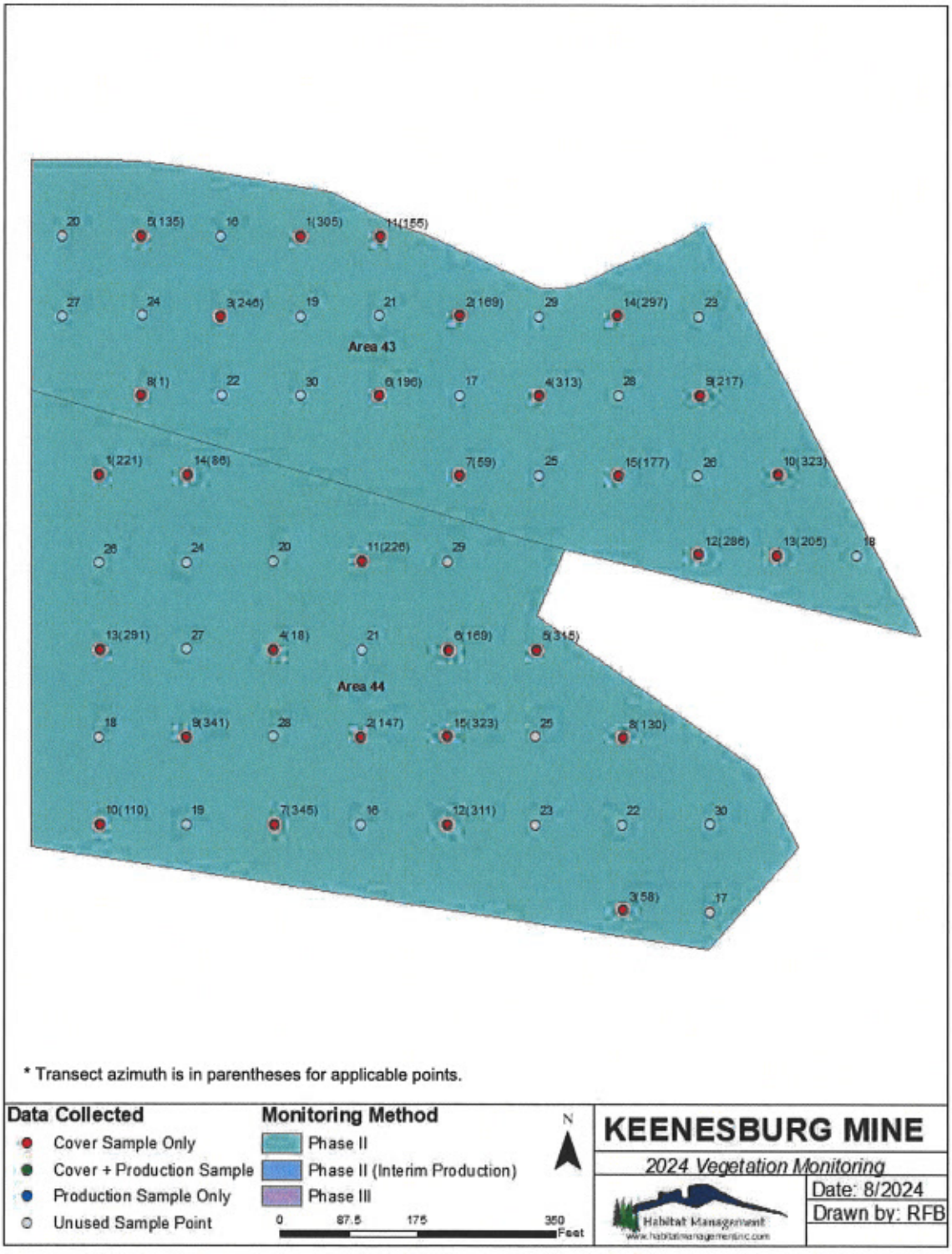


Sample Point Locations Area 38

Sample Point Locations Area 42



Sample Point Locations Areas 43 & 44



Appendix B: Vegetation Cover Data

Reclamation Area 25 Vegetation Cover Data

Scientific Name	Common Name	1 1st	1 2nd	2 1st	2 2nd	3 1st	3 2nd	4 1st	4 2nd	5 1st	5 2nd	6 1st	6 2nd	7 1st	7 2nd	8 1st	8 2nd	9 1st	9 2nd	10 1st	10 2nd	11 1st	11 2nd	12 1st	12 2nd	13 1st	13 2nd	14 1st	14 2nd	15 1st	15 2nd	Total Hits 1st	Total Hits All	Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
Grass: Annual Native																																			
Munroa squarrosa	false buffalograss									P																				0	0	0.0	0.0	0.0
Vulpia octoflora	sixweeks fescue							P				P								P						P				0	0	0.0	0.0	0.0
Subtotal								P		P		P								P						P				0	0	0.0	0.0	0.0
Grass: Annual Introduced																																			
Bromus tectorum	cheatgrass	2						P								P		1		P						P		P		P		3	3	0.4	3.3	
Subtotal		2						P								P		1		P						P		P		P		3	3	0.4	3.3	
Grass: Perennial Desirable (Cool)																																			
Achnatherum hymenoides	Indian ricegrass									P		P		1						P				P				1				2	2	0.3	2.2	2.2
Elymus lanceolatus	thickspike wheatgrass			P																				P								0	0	0.0	0.0	0.0
Subtotal				P						P		P		1						P				P				1				2	2	0.3	2.2	2.2
Grass: Perennial Desirable (Warm)																																			
Andropogon hallii	sand bluestem					P		P				P		2										P		P		P	1			2	3	0.3	3.3	3.4
Bouteloua curtipendula	sideoats grama					P																										0	0	0.0	0.0	0.0
Bouteloua gracilis	blue grama					2						P		P						P						1		1		P		4	4	0.5	4.3	4.5
Calamovilfa longifolia	prairie sandreed	1		P		1		P		2		P		2				P				3		P		1				P		10	10	1.3	10.9	11.2
Schizachyrium scoparium	little bluestem											P																				0	0	0.0	0.0	0.0
Sporobolus cryptandrus	sand dropseed	2		P		P		P		3		2		3		P		P		P		P		2		3		4		2		21	21	2.8	22.8	23.6
Subtotal		3		P		3		P		5		2		7		P		P		P		3		2		5		5	1	2		37	38	4.9	41.3	42.7
Total Grass Cover		5	0	0	0	3	0	0	0	5	0	2	0	8	0	0	0	1	0	0	0	3	0	2	0	5	0	6	1	2	0	42	43	5.6	46.7	44.9
Forbs: Annual & Biennial Native																																			
Amaranthus retroflexus	redroot amaranth			P						P																		P		P		0	0	0.0	0.0	0.0
Ambrosia acanthicarpa	flatspine bur ragweed							P						P												P		P				0	0	0.0	0.0	0.0
Argemone polyanthemos	crested pricklypoppy											P										P										0	0	0.0	0.0	0.0
Croton texensis	Texas croton					P																										0	0	0.0	0.0	0.0
Helianthus annuus	common sunflower	P		1		5		2		1		2		P		P		1		2		P		P		1		5		1		21	21	2.8	22.8	23.6
Machaeranthera bigelovii	Bigelow's tansyaster																							P								0	0	0.0	0.0	0.0
Subtotal		P		1		5		2		1		2		P		P		1		2		P		P		1		5		1		21	21	2.8	22.8	23.6
Forbs: Annual & Biennial Introduced																																			
Ambrosia artemisiifolia	annual ragweed																			P										P		0	0	0.0	0.0	0.0
Bassia scoparia	burningbush					P										P										P		P				0	0	0.0	0.0	0.0
Dysphania botrys	Jerusalem oak goosefoot					P								P																		0	0	0.0	0.0	0.0
Lactuca serriola	prickly lettuce	P		P		P						P						P				P										0	0	0.0	0.0	0.0
Salsola tragus	prickly Russian thistle	1		1		1		1		5		1		P		1		1		1		3		2		1		P		3		22	22	2.9	23.9	24.7
Subtotal		1		1		1		1		5		1		P		1		1		1		3		2		1		P		3		22	22	2.9	23.9	24.7

Reclamation Area 25 Vegetation Cover Data (continued)

Scientific Name	Common Name	1 1st	1 2nd	2 1st	2 2nd	3 1st	3 2nd	4 1st	4 2nd	5 1st	5 2nd	6 1st	6 2nd	7 1st	7 2nd	8 1st	8 2nd	9 1st	9 2nd	10 1st	10 2nd	11 1st	11 2nd	12 1st	12 2nd	13 1st	13 2nd	14 1st	14 2nd	15 1st	15 2nd	Total Hits 1st	Total Hits All	Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
Forbs: Perennial Desirable																																			
Ambrosia psilostachya	Cuman ragweed					1		P				2		P						1				P		1		P				5	5	0.7	5.4	5.6
Erigeron bellidiastrum	western daisy fleabane													P																		0	0	0.0	0.0	0.0
Physalis hispida	prairie groundcherry			P										P																		0	0	0.0	0.0	0.0
Subtotal				P		1		P				2		P						1				P		1		P				5	5	0.7	5.4	5.6
Total Forb Cover		1	0	2	0	7	0	3	0	6	0	5	0	0	0	1	0	2	0	4	0	3	0	2	0	3	0	5	0	4	0	48	48	6.4	52.2	53.9
Subshrubs/Shrubs/Succulents: Perennial Native																																			
Artemisia filifolia	sand sagebrush											1																				1	1	0.1	1.1	1.1
Opuntia polyacantha	hairspine pricklypear	P				P												P		P												0	0	0.0	0.0	0.0
Yucca glauca	soapweed yucca													P																		0	0	0.0	0.0	0.0
Subtotal		P				P						1		P				P		P												1	1	0.1	1.1	1.1
Total Shrub Cover		0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.1	1.1	1.1
Rock						1																										1	1	0.1		
Litter		36		29		19		20		33		21		31		31		27		27		33		31		28		22		15		403	403	53.7		
Bare Ground		8		19		20		27		6		21		11		18		20		19		11		15		14		17		29		255	255	34.0		
Total Hits		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	1	50	0	750	751	100		
Total Vegetation Cover		12	0	4	0	20	0	6	0	22	0	16	0	16	0	2	0	6	0	8	0	12	0	8	0	16	0	22	2	12	0			12.1	100.0	100.0
Non-Noxious Vegetation Cover		8	0	4	0	20	0	6	0	22	0	16	0	16	0	2	0	4	0	8	0	12	0	8	0	16	0	22	2	12	0			11.7		
Total Ground Cover		84		62		60		46		88		58		78		64		60		62		78		70		72		66		42				66.0		
Allowable Vegetation Cover		3.4		0.0		15.4		1.4		17.4		11.4		11.4		0.0		0.0		3.4		7.4		3.4		11.4		17.4		7.4				7.4		

Non-Noxious Annual Cover	5.7
Excess Annual Cover	4.6

Reclamation Area 32 Vegetation Cover Data

Scientific Name	Common Name	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18	
		1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
Grass: Annual Native																																			
Munroa squarrosa	false buffalograss																														P				
Vulpia octoflora	sixweeks fescue	P		P		P		P				P		P		P						P		P							P				
Subtotal		P		P		P		P				P		P		P						P		P							P				
Grass: Annual Introduced																																			
Bromus tectorum	cheatgrass	6		1		1		P		10		1		7		6		2		3		2		5		5		5		11		3		13		5	
Subtotal		6		1		1		P		10		1		7		6		2		3		2		5		5		5		11		3		13		5	
Grass: Perennial Desirable (Cool)																																			
Agropyron cristatum	crested wheatgrass																							P												
Elymus lanceolatus	thickspike wheatgrass			1																															
Elymus trachycaulus	slender wheatgrass																	P										P							
Hesperostipa comata	needle and thread					P																													
Pascopyrum smithii	western wheatgrass			P																								1							
Thinopyrum intermedium	intermediate wheatgrass																																		P
Subtotal				1		P												P						P				1							P
Grass: Perennial Desirable (Warm)																																			
Andropogon hallii	sand bluestem					P		1				1										P		P		P						1				
Bouteloua curtipendula	sideoats grama																																		
Bouteloua gracilis	blue grama	1		1		1		2		1		2		3		1	1	1		2		P		1		2		1		P		1		1		1	
Calamovilfa longifolia	prairie sandreed	2		13		10		5		1		4		1		5		6		7		6		8	1	6		4	1	2		1		3		5	
Panicum virgatum	switchgrass	1														P				P								P	1	P							
Schizachyrium scoparium	little bluestem																															1				
Sorghastrum nutans	Indiangrass							P				1		P												1						P				P	
Sporobolus cryptandrus	sand dropseed											P				P										P						1		P			
Subtotal		4		14		11		8		2		8		4		6	1	7		9		6		9	1	9		5	2	2		5		4		6	
Total Grass Cover		**10**	**0**	**16**	**0**	**12**	**0**	**8**	**0**	**12**	**0**	**9**	**0**	**11**	**0**	**12**	**1**	**9**	**0**	**12**	**0**	**8**	**0**	**14**	**1**	**14**	**0**	**11**	**2**	**13**	**0**	**8**	**0**	**17**	**0**	**11**	**0**
Forbs: Annual & Biennial Native																																			
Amaranthus retroflexus	redroot amaranth																														P				
Conyza canadensis	Canadian horseweed					P								P																					
Helianthus annuus	common sunflower																																		
Machaeranthera bigelovii	Bigelow's tansyaster							P						P																			P		
Subtotal						P		P						P																	P		P		
Forbs: Annual & Biennial Introduced																																			
Lactuca serriola	prickly lettuce													P		P															P				
Onopordum acanthium	Scotch cottonthistle																																P		
Salsola tragus	prickly Russian thistle					P								P		P																			
Tragopogon dubius	yellow salsify													P																					
Subtotal						P								P		P															P		P		

Reclamation Area 32 Vegetation Cover Data (continued)

Scientific Name	Common Name	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18	
		1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
Forbs: Perennial Desirable																																					
Ambrosia psilostachya	Cuman ragweed																																				
Heterotheca villosa	hairy false goldenaster																																	P			
Physalis hispida	prairie groundcherry																																				
Subtotal																																		P			
Total Forb Cover		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subshrubs/Shrubs/Succulents: Perennial Native																																					
Cylindropuntia whipplei	Whipple cholla																	P																			
Opuntia polyacantha	hairspine pricklypear									P		P		P		P																		P		P	
Yucca glauca	soapweed yucca																											P									
Subtotal										P		P		P		P		P										P						P		P	
Total Shrub Cover		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rock																																					
Litter		33		30		30		30		29		30		26		34		33		31		29		28		27		24		32		38		31		26	
Bare Ground		7		4		8		12		9		11		13		4		8		7		13		8		9		15		5		4		2		13	
Total Hits		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	1	50	0	50	0	50	0	50	1	50	0	50	2	50	0	50	0	50	0	50	0
Total Vegetation Cover		20	0	32	0	24	0	16	0	24	0	18	0	22	0	24	2	18	0	24	0	16	0	28	2	28	0	22	4	26	0	16	0	34	0	22	0
Non-Noxious Vegetation Cover		8	0	30	0	22	0	16	0	4	0	16	0	8	0	12	2	14	0	18	0	12	0	18	2	18	0	12	4	4	0	10	0	8	0	12	0
Total Ground Cover		86		92		84		76		82		78		74		92		84		86		74		84		82		70		90		92		96		74	
Allowable Vegetation Cover		8.0		30.0		22.0		16.0		4.0		16.0		8.0		12.0		14.0		18.0		12.0		18.0		18.0		12.0		4.0		10.0		8.0		12.0	

Non-Noxious Annual Cover	0.1
Excess Annual Cover	0.0

Reclamation Area 32 Vegetation Cover Data (continued)

Scientific Name	Common Name	19		20		21		22		23		24		25		26		27		28		29		30		Total Hits		Average Absolute Cover (%)	Average Relative Cover (%)	Noxious Relative Cover (%)
		1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	All			
Grass: Annual Native																														
Munroa squarrosa	false buffalograss	P								P																0	0	0.0	0.0	0.0
Vulpia octoflora	sixweeks fescue	1		P		P		P		P						1										2	2	0.1	0.6	1.0
Subtotal		1		P		P		P		P						1										2	2	0.1	0.6	1.0
Grass: Annual Introduced																														
Bromus tectorum	cheatgrass	P		3				4		4		P		4		2		P		10		7		6		126	126	8.4	38.9	
Subtotal		P		3				4		4		P		4		2		P		10		7		6		126	126	8.4	38.9	
Grass: Perennial Desirable (Cool)																														
Agropyron cristatum	crested wheatgrass																									0	0	0.0	0.0	0.0
Elymus lanceolatus	thickspike wheatgrass					P																		P		1	1	0.1	0.3	0.5
Elymus trachycaulus	slender wheatgrass																									0	0	0.0	0.0	0.0
Hesperostipa comata	needle and thread																									0	0	0.0	0.0	0.0
Pascopyrum smithii	western wheatgrass																									1	1	0.1	0.3	0.5
Thinopyrum intermedium	intermediate wheatgrass																									0	0	0.0	0.0	0.0
Subtotal						P																		P		2	2	0.1	0.6	1.0
Grass: Perennial Desirable (Warm)																														
Andropogon hallii	sand bluestem	P		P		P		P		P		1		P		P		P								4	4	0.3	1.2	2.0
Bouteloua curtipendula	sideoats grama											P				P										0	0	0.0	0.0	0.0
Bouteloua gracilis	blue grama	1		2		5				3		P		P		P		4		1		P		1		39	40	2.6	12.3	20.2
Calamovilfa longifolia	prairie sandreed	3		6		2		3		5		6	1	3		7		4		2		P		5		135	138	9.0	42.6	69.7
Panicum virgatum	switchgrass																									1	2	0.1	0.6	1.0
Schizachyrium scoparium	little bluestem	P		P																						1	1	0.1	0.3	0.5
Sorghastrum nutans	Indiangrass	1		1		1		P		P		P				2		P		P						7	7	0.5	2.2	3.5
Sporobolus cryptandrus	sand dropseed			P								P				P								P		1	1	0.1	0.3	0.5
Subtotal		5		9		8		3		8		7	1	3		9		8		3		P		6		188	193	12.5	59.6	97.5
Total Grass Cover		6	0	12	0	8	0	7	0	12	0	7	1	7	0	12	0	8	0	13	0	7	0	12	0	318	323	21.2	99.7	99.5
Forbs: Annual & Biennial Native																														
Amaranthus retroflexus	redroot amaranth									P		P				P										0	0	0.0	0.0	0.0
Conyza canadensis	Canadian horseweed																					P				0	0	0.0	0.0	0.0
Helianthus annuus	common sunflower													P												0	0	0.0	0.0	0.0
Machaeranthera bigelovii	Bigelow's tansyaster	P																				P		P		0	0	0.0	0.0	0.0
Subtotal		P								P		P		P		P						P		P		0	0	0.0	0.0	0.0
Forbs: Annual & Biennial Introduced																														
Lactuca serriola	prickly lettuce																					P				0	0	0.0	0.0	0.0
Onopordum acanthium	Scotch cottonthistle																									0	0	0.0	0.0	0.0
Salsola tragus	prickly Russian thistle							P				P										P				0	0	0.0	0.0	0.0
Tragopogon dubius	yellow salsify																									0	0	0.0	0.0	0.0
Subtotal								P				P										P				0	0	0.0	0.0	0.0

Reclamation Area 32 Vegetation Cover Data (continued)

Scientific Name	Common Name	19 1st	19 2nd	20 1st	20 2nd	21 1st	21 2nd	22 1st	22 2nd	23 1st	23 2nd	24 1st	24 2nd	25 1st	25 2nd	26 1st	26 2nd	27 1st	27 2nd	28 1st	28 2nd	29 1st	29 2nd	30 1st	30 2nd	Total Hits 1st	Total Hits All	Average Absolute Cover (%)	Average Relative Cover (%)	Noxious Relative Cover (%)
Forbs: Perennial Desirable																														
Ambrosia psilostachya	Cuman ragweed													P				1								1	1	0.1	0.3	0.5
Heterotheca villosa	hairy false goldenaster																									0	0	0.0	0.0	0.0
Physalis hispida	prairie groundcherry					P																				0	0	0.0	0.0	0.0
Subtotal						P								P				1								1	1	0.1	0.3	0.5
Total Forb Cover		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0.1	0.3	0.5
Subshrubs/Shrubs/Succulents: Perennial Native																														
Cylindropuntia whipplei	Whipple cholla																					P				0	0	0.0	0.0	0.0
Opuntia polyacantha	hairspine pricklypear					P		P		P								P								0	0	0.0	0.0	0.0
Yucca glauca	soapweed yucca																									0	0	0.0	0.0	0.0
Subtotal						P		P		P								P				P				0	0	0.0	0.0	0.0
Total Shrub Cover		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Rock																										0	0	0.0		
Litter		29		34		32		34		32		30		23		34		27		35		27		31		909	909	60.6		
Bare Ground		15		4		10		9		6		13		20		4		14		2		16		7		272	272	18.1		
Total Hits		50	0	50	0	50	0	50	0	50	0	50	1	50	0	50	0	50	0	50	0	50	0	50	0	1500	1505	100.0		
Total Vegetation Cover		12	0	24	0	16	0	14	0	24	0	14	2	14	0	24	0	18	0	26	0	14	0	24	0			21.3	100.0	100.0
Non-Noxious Vegetation Cover		12	0	18	0	16	0	6	0	16	0	14	2	6	0	20	0	18	0	6	0	0	0	12	0			12.9		
Total Ground Cover		70		92		80		82		88		74		60		92		72		96		68		86				81.9		
Allowable Vegetation Cover		12.0		18.0		16.0		6.0		16.0		14.0		6.0		20.0		18.0		6.0		0.0		12.0				12.9		

Non-Noxious Annual Cover	0.1
Excess Annual Cover	0.0

Reclamation Area 33 Vegetation Cover Data

Scientific Name	Common Name	1 1st	1 2nd	2 1st	2 2nd	3 1st	3 2nd	4 1st	4 2nd	5 1st	5 2nd	6 1st	6 2nd	7 1st	7 2nd	8 1st	8 2nd	9 1st	9 2nd	10 1st	10 2nd	11 1st	11 2nd	12 1st	12 2nd	13 1st	13 2nd	14 1st	14 2nd	15 1st	15 2nd	16 1st	16 2nd	17 1st	17 2nd	18 1st	18 2nd
Grass: Annual Introduced																																				
Bromus tectorum	cheatgrass	2		3		2		P		4		1		1		1		P		P		1		P		3		P		P		4		P		2	
Subtotal		2		3		2		P		4		1		1		1		P		P		1		P		3		P		P		4		P		2	
Grass: Perennial Desirable (Cool)																																				
Achnatherum hymenoides	Indian ricegrass							1																												
Agropyron cristatum	crested wheatgrass	P						1						P				P								P										
Elymus lanceolatus	thickspike wheatgrass	P		1		P		P																												
Thinopyrum intermedium	intermediate wheatgrass																	P																		
Subtotal		P		1		P		2						P				P								P										
Grass: Perennial Desirable (Warm)																																				
Andropogon hallii	sand bluestem									P												P							1				P			
Bouteloua curtipendula	sideoats grama															P															1					
Bouteloua gracilis	blue grama	1		2	2	2		1		2	1	2		4	3	P	1	1	1	6	2	6	3	1		3		P		1		2	1	4	1	3	3
Calamovilfa longifolia	prairie sandreed	4		1		6		6		2		2	1	10		7	1	4		2		4		8		6		6		5		7		8		3	
Panicum virgatum	switchgrass	P		1		P		P		1		P	1	P		P		1	1	1	2			3		P		P		P	1	2	1	1		1	1
Schizachyrium scoparium	little bluestem																	P												P						
Sporobolus cryptandrus	sand dropseed	P		P		P		P		P		P		P		P		P		2	1	1	2			P				P		P		P		P	
Subtotal		5		2	2	8	2	7		5	1	4	2	14	3	7	2	6	2	11	5	11	5	12		9		6		7	1	12	2	13	1	7	4
Total Grass Cover		7	0	6	2	10	2	9	0	9	1	5	2	15	3	8	2	6	2	11	5	12	5	12	0	12	0	6	0	7	1	16	2	13	1	9	4
Forbs: Annual & Biennial Native																																				
Conyza canadensis	Canadian horseweed																															P				
Machaeranthera bigelovii	Bigelow's tansyaster																									P						P				
Subtotal																										P						P				
Forbs: Perennial Desirable																																				
Ambrosia psilostachya	Cuman ragweed							P								P																				
Ratibida columnifera	upright prairie coneflower							P																												
Subtotal								P								P																				
Total Forb Cover		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subshrubs/Shrubs/Succulents: Perennial Native																																				
Opuntia polyacantha	hairspine pricklypear							P		P																						P				
Subtotal								P		P																						P				
Total Shrub Cover		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rock																																				
Litter		42		42		37		40		37		44		34		39		44		37		38		37		36		44		41		32		37		40	
Bare Ground		1		2		3		1		4		1		1		3				2				1		2				2		2				1	
Total Hits		50	0	50	2	50	2	50	0	50	1	50	2	50	3	50	2	50	2	50	5	50	5	50	0	50	0	50	0	50	1	50	2	50	1	50	4
Total Vegetation Cover		14	0	12	4	20	4	18	0	18	2	10	4	30	6	16	4	12	4	22	10	24	10	24	0	24	0	12	0	14	2	32	4	26	2	18	8
Non-Noxious Vegetation Cover		10	0	6	4	16	4	18	0	10	2	8	4	28	6	14	4	12	4	22	10	22	10	24	0	18	0	12	0	14	2	24	4	26	2	14	8
Total Ground Cover		98		96		94		98		92		98		98		94		100		96		100		98		96		100		96		96		100		98	
Allowable Vegetation Cover		10.0		6.0		16.0		18.0		10.0		8.0		28.0		14.0		12.0		22.0		22.0		24.0		18.0		12.0		14.0		24.0		26.0		14.0	

Non-Noxious Annual Cover	0.0
Excess Annual Cover	0.0

Reclamation Area 33 Vegetation Cover Data (continued)

Scientific Name	Common Name	19 1st	19 2nd	20 1st	20 2nd	21 1st	21 2nd	22 1st	22 2nd	23 1st	23 2nd	24 1st	24 2nd	25 1st	25 2nd	26 1st	26 2nd	27 1st	27 2nd	Total Hits 1st	Total Hits All	Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
Grass: Annual Introduced																								
Bromus tectorum	cheatgrass			P		1		2		3		2		3		P		P		35	35	2.6	11.6	
Subtotal				P		1		2		3		2		3		P		P		35	35	2.6	11.6	
Grass: Perennial Desirable (Cool)																								
Achnatherum hymenoides	Indian ricegrass																			1	1	0.1	0.3	0.4
Agropyron cristatum	crested wheatgrass																			1	1	0.1	0.3	0.4
Elymus lanceolatus	thickspike wheatgrass	1																		2	2	0.1	0.7	0.7
Thinopyrum intermedium	intermediate wheatgrass							P				P								0	0	0.0	0.0	0.0
Subtotal		1						P				P								4	4	0.3	1.3	1.5
Grass: Perennial Desirable (Warm)																								
Andropogon hallii	sand bluestem			P		P												P		1	1	0.1	0.3	0.4
Bouteloua curtipendula	sideoats grama																			1	1	0.1	0.3	0.4
Bouteloua gracilis	blue grama	1		5	4	5	3	2	1	P	1	2	2	2	1			2	1	58	91	4.3	30.0	34.0
Calamovilfa longifolia	prairie sandreed	3	1	3		2		2	1	9	1	5		2		7		4		128	133	9.5	43.9	49.6
Panicum virgatum	switchgrass	2		1		1	1			P	1	P				P		1	2	16	27	1.2	8.9	10.1
Schizachyrium scoparium	little bluestem																			0	0	0.0	0.0	0.0
Sporobolus cryptandrus	sand dropseed			3	1	P		P		P		P	1	P		P		P		6	11	0.4	3.6	4.1
Subtotal		6	1	12	5	8	4	4	2	9	3	7	3	4	1	7		7	3	210	264	15.6	87.1	98.5
Total Grass Cover		7	1	12	5	9	4	6	2	12	3	9	3	7	1	7	0	7	3	249	303	18.4	100.0	100.0
Forbs: Annual & Biennial Native																								
Conyza canadensis	Canadian horseweed																			0	0	0.0	0.0	0.0
Machaeranthera bigelovii	Bigelow's tansyaster																			0	0	0.0	0.0	0.0
Subtotal																				0	0	0.0	0.0	0.0
Forbs: Perennial Desirable																								
Ambrosia psilostachya	Cuman ragweed																			0	0	0.0	0.0	0.0
Ratibida columnifera	upright prairie coneflower																			0	0	0.0	0.0	0.0
Subtotal																				0	0	0.0	0.0	0.0
Total Forb Cover		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Subshrubs/Shrubs/Succulents: Perennial Native																								
Opuntia polyacantha	hairspine pricklypear			P										P				P		0	0	0.0	0.0	0.0
Subtotal				P										P				P		0	0	0.0	0.0	0.0
Total Shrub Cover		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Rock																				0	0	0.0		
Litter		43		38		38		41		38		41		36		36		36		1048	1048	77.6		
Bare Ground						3		3						7		7		7		53	53	3.9		
Total Hits		50	1	50	5	50	4	50	2	50	3	50	3	50	1	50	0	50	3	1350	1404	100.0		
Total Vegetation Cover		14	2	24	10	18	8	12	4	24	6	18	6	14	2	14	0	14	6			18.4	100.0	100.0
Non-Noxious Vegetation Cover		14	2	24	10	16	8	8	4	18	6	14	6	8	2	14	0	14	6			15.9		
Total Ground Cover		100		100		94		94		100		100		86		86		86				96.1		
Allowable Vegetation Cover		14.0		24.0		16.0		8.0		18.0		14.0		8.0		14.0		14.0				15.9		

Non-Noxious Annual Cover	0.0
Excess Annual Cover	0.0

Reclamation Area 34 Vegetation Cover Data

Scientific Name	Common Name	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		Total Hits		Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
		1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	All			
Grass: Annual Native																																		
Munroa squarrosa	false buffalograss	P		P								1						P								P						1	1	0.1	1.0	1.0
Vulpia octoflora	sixweeks fescue																													P		0	0	0.0	0.0	0.0
Subtotal		P		P								1						P								P				P		1	1	0.1	1.0	1.0
Grass: Annual Introduced																																		
Bromus tectorum	cheatgrass			P		P				1		P		P		P								P		P		1				2	2	0.3	2.0	
Subtotal				P		P				1		P		P		P								P		P		1				2	2	0.3	2.0	
Grass: Perennial Desirable (Cool)																																		
Achnatherum hymenoides	Indian ricegrass			1		P						P						P				P				P				P		1	1	0.1	1.0	1.0
Agropyron cristatum	crested wheatgrass															P																0	0	0.0	0.0	0.0
Bromus inermis	smooth brome													P																		0	0	0.0	0.0	0.0
Cyperus schweinitzii	Schweinitz's flatsedge			P								1						P														1	1	0.1	1.0	1.0
Elymus elymoides	squirreltail	P																						P								0	0	0.0	0.0	0.0
Hesperostipa comata	needle and thread					P																										0	0	0.0	0.0	0.0
Thinopyrum intermedium	intermediate wheatgrass															P																0	0	0.0	0.0	0.0
Subtotal		P		1		P						1		P		P		P				P		P		P				P		2	2	0.3	2.0	2.0
Grass: Perennial Desirable (Warm)																																		
Andropogon hallii	sand bluestem					P		P						P		P						1		P	1			P				1	2	0.1	2.0	2.0
Bouteloua curtipendula	sideoats grama															P	2															0	2	0.0	2.0	2.0
Bouteloua gracilis	blue grama					P		P		P				1		P				P								P	1			1	2	0.1	2.0	2.0
Calamovilfa longifolia	prairie sandreed			P		2		3				P		3	2	1	1	P		P		1		P				6		P		16	19	2.1	18.6	19.0
Schizachyrium scoparium	little bluestem	P				P																P		P								0	0	0.0	0.0	0.0
Sporobolus cryptandrus	sand dropseed	2		1		P		P		P		2				3		1		1		2		2		P		P		1		15	15	2.0	14.7	15.0
Subtotal		2		1		2		3		P		2		4	2	4	3	1		1		4		2	1	P		6	1	1		33	40	4.4	39.2	40.0
Total Grass Cover		**2**	**0**	**2**	**0**	**2**	**0**	**3**	**0**	**1**	**0**	**4**	**0**	**4**	**2**	**4**	**3**	**1**	**0**	**1**	**0**	**4**	**0**	**2**	**1**	**0**	**0**	**7**	**1**	**1**	**0**	**38**	**45**	**5.1**	**44.1**	**43.0**
Forbs: Annual & Biennial Native																																		
Ambrosia acanthicarpa	flatspine bur ragweed	P		P		1								P						P												1	1	0.1	1.0	1.0
Argemone polyanthemos	crested pricklypoppy									P		1														P				P		1	1	0.1	1.0	1.0
Conyza canadensis	Canadian horseweed																			P												0	0	0.0	0.0	0.0
Croton texensis	Texas croton			P								P						P		P		P								P		0	0	0.0	0.0	0.0
Helianthus annuus	common sunflower	4		6				1		3		P				P		3		4		2		1		13		P		9		46	46	6.1	45.1	46.0
Machaeranthera bigelovii	Bigelow's tansyaster	P		P				P		P		P								P				1		1		1		P		3	3	0.4	2.9	3.0
Subtotal		4		6		1		1		3		1		P		P		3		4		2		2		14		1		9		51	51	6.8	50.0	51.0
Forbs: Annual & Biennial Introduced																																		
Ambrosia artemisiifolia	annual ragweed			P				P				P						P				P				P						0	0	0.0	0.0	0.0
Dysphania botrys	Jerusalem oak goosefoot			P				P				P						P								P		P		P		0	0	0.0	0.0	0.0
Lactuca serriola	prickly lettuce	P																														0	0	0.0	0.0	0.0
Salsola collina	slender Russian thistle	P																														0	0	0.0	0.0	0.0
Salsola tragus	prickly Russian thistle	P		P				1		P		P				P		P		P				P		P		P		P		1	1	0.1	1.0	1.0
Subtotal		P		P				1		P		P				P		P		P		P		P		P		P		P		1	1	0.1	1.0	1.0

Reclamation Area 34 Vegetation Cover Data (continued)

Scientific Name	Common Name	1 1st	1 2nd	2 1st	2 2nd	3 1st	3 2nd	4 1st	4 2nd	5 1st	5 2nd	6 1st	6 2nd	7 1st	7 2nd	8 1st	8 2nd	9 1st	9 2nd	10 1st	10 2nd	11 1st	11 2nd	12 1st	12 2nd	13 1st	13 2nd	14 1st	14 2nd	15 1st	15 2nd	Total Hits 1st	Total Hits All	Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
Forbs: Perennial Desirable																																			
Ambrosia psilostachya	Cuman ragweed															P				1		P		P								1	1	0.1	1.0	1.0
Cirsium flodmanii	Flodman's thistle	P		P																P									P		0	0	0.0	0.0	0.0
Mirabilis hirsuta	hairy four o'clock											P	1																		0	1	0.0	1.0	1.0
Oenothera pallida	pale evening primrose											P																			0	0	0.0	0.0	0.0
Physalis hispida	prairie groundcherry					P						1																P			1	1	0.1	1.0	1.0
Ratibida columnifera	upright prairie coneflower																							P							0	0	0.0	0.0	0.0
Rumex venosus	veiny dock									1																					1	1	0.1	1.0	1.0
Subtotal		P		P		P				1		1	1			P				1		P		P				P		P	3	4	0.4	3.9	4.0
Total Forb Cover		4	0	6	0	1	0	2	0	4	0	2	1	0	0	0	0	3	0	5	0	2	0	2	0	14	0	1	0	9	0	55	56	7.3	54.9	56.0
Subshrubs/Shrubs/Succulents: Perennial Native																																			
Cylindropuntia whipplei	Whipple cholla					P																		P							0	0	0.0	0.0	0.0
Escobaria vivipara	spinystar					P																									0	0	0.0	0.0	0.0
Opuntia polyacantha	hairspine pricklypear	P				1		P								P								P							1	1	0.1	1.0	1.0
Subtotal		P				1		P								P								P							1	1	0.1	1.0	1.0
Total Shrub Cover		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.1	1.0	1.0
Rock																																0	0	0.0		
Litter		18		7		32		17		27		13		41		44		16		24		12		21		10		15		10		307	307	40.9		
Bare Ground		26		35		14		28		18		31		5		2		30		20		32		25		26		27		30		349	349	46.5		
Total Hits		50	0	50	0	50	0	50	0	50	0	50	1	50	2	50	3	50	0	50	0	50	0	50	1	50	0	50	1	50	0	750	758	100.0		
Total Vegetation Cover		12	0	16	0	8	0	10	0	10	0	12	2	8	4	8	6	8	0	12	0	12	0	8	2	28	0	16	2	20	0			12.5	100.0	100.0
Non-Noxious Vegetation Cover		12	0	16	0	8	0	10	0	8	0	12	2	8	4	8	6	8	0	12	0	12	0	8	2	28	0	14	2	20	0			12.3		
Total Ground Cover		48		30		72		44		64		38		90		96		40		60		36		50		48		46		40				53.5		
Allowable Vegetation Cover		6.2		10.2		2.2		4.2		2.2		6.2		2.2		2.2		2.2		6.2		6.2		2.2		22.2		8.2		14.2				6.4		

Non-Noxious Annual Cover	7.1
Excess Annual Cover	5.8

Reclamation Area 35 Vegetation Cover Data

Scientific Name	Common Name	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		Total Hits		Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
		1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	All			
Grass: Annual Native																																		
Munroa squarrosa	false buffalograss																	P		P		P										0	0	0.0	0.0	0.0
Subtotal																		P		P		P										0	0	0.0	0.0	0.0
Grass: Annual Introduced																																		
Bromus tectorum	cheatgrass			P		P		P		P						1		P								4		P		P		5	5	0.7	5.6	
Subtotal				P		P		P		P						1		P								4		P		P		5	5	0.7	5.6	0.0
Grass: Perennial Desirable (Cool)																																		
Achnatherum hymenoides	Indian ricegrass	P		2		P		P		2		1		P		2		P		2		1		P		P		3		2		15	15	2.0	16.9	17.9
Agropyron cristatum	crested wheatgrass																							P								0	0	0.0	0.0	0.0
Cyperus schweinitzii	Schweinitz's flatsedge																									P						0	0	0.0	0.0	0.0
Pascopyrum smithii	western wheatgrass																													P		0	0	0.0	0.0	0.0
Subtotal		P		2		P		P		2		1		P		2		P		2		1		P		P		3		2		15	15	2.0	16.9	17.9
Grass: Perennial Desirable (Warm)																																		
Andropogon hallii	sand bluestem													P																		0	0	0.0	0.0	0.0
Bouteloua gracilis	blue grama					P								5																		5	5	0.7	5.6	6.0
Calamovilfa longifolia	prairie sandreed	P		3				P						P				P		P				P		P		P				3	3	0.4	3.4	3.6
Sporobolus cryptandrus	sand dropseed	P		P		P		P		P		2		1		P		P				P		P		1		P		P		4	4	0.5	4.5	4.8
Subtotal		P		3		P		P		P		2		6		P		P		P		P		P		1		P		P		12	12	1.6	13.5	14.3
Total Grass Cover		0	0	5	0	0	0	0	0	2	0	3	0	6	0	3	0	0	0	2	0	1	0	0	0	5	0	3	0	2	0	32	32	4.3	36.0	32.1
Forbs: Annual & Biennial Native																																		
Amaranthus retroflexus	redroot amaranth					1						P						P												P		1	1	0.1	1.1	1.2
Ambrosia acanthicarpa	flatspine bur ragweed			P				P										P						P								0	0	0.0	0.0	0.0
Conyza canadensis	Canadian horseweed																													P		0	0	0.0	0.0	0.0
Helianthus annuus	common sunflower	6		P		2		6		1		7		1		5		1		P		1				3		1		1		35	35	4.7	39.3	41.7
Machaeranthera bigelovii	Bigelow's tansyaster																													P		0	0	0.0	0.0	0.0
Subtotal		6		P		3		6		1		7		1		5		1		P		1		P		3		1		1		36	36	4.8	40.4	42.9
Forbs: Annual & Biennial Introduced																																		
Ambrosia artemisiifolia	annual ragweed																	P												P		0	0	0.0	0.0	0.0
Bassia scoparia	burningbush					P																								P		0	0	0.0	0.0	0.0
Dysphania botrys	Jerusalem oak goosefoot	1						P										P		P		P		P		P		P		P		1	1	0.1	1.1	1.2
Lactuca serriola	prickly lettuce			1		P				P										P				P		P		P				1	1	0.1	1.1	1.2
Polygonum aviculare	prostrate knotweed											P																				0	0	0.0	0.0	0.0
Salsola collina	slender Russian thistle	P				P		P		P		P								P		P		1		P		P				1	1	0.1	1.1	1.2
Salsola tragus	prickly Russian thistle	1		P		1		P	1	5		2		3		2		P		2		P		1		P		P		P		17	18	2.3	20.2	21.4
Subtotal		2		1		1		P	1	5		2		3		2		P		2		P		2		P		P		P		20	21	2.7	23.6	25.0
Forbs: Perennial Desirable																																		
Cirsium flodmanii	Flodman's thistle															P																0	0	0.0	0.0	0.0
Physalis hispida	prairie groundcherry											P																				0	0	0.0	0.0	0.0
Subtotal												P				P																0	0	0.0	0.0	0.0
Total Forb Cover		8	0	1	0	4	0	6	1	6	0	9	0	4	0	7	0	1	0	2	0	1	0	2	0	3	0	1	0	1	0	56	57		64.0	67.9

Reclamation Area 35 Vegetation Cover Data (continued)

Scientific Name	Common Name	1 1st	1 2nd	2 1st	2 2nd	3 1st	3 2nd	4 1st	4 2nd	5 1st	5 2nd	6 1st	6 2nd	7 1st	7 2nd	8 1st	8 2nd	9 1st	9 2nd	10 1st	10 2nd	11 1st	11 2nd	12 1st	12 2nd	13 1st	13 2nd	14 1st	14 2nd	15 1st	15 2nd	Total Hits 1st	Total Hits All	Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
Subshrubs/Shrubs/Succulents: Perennial Native																																			
Opuntia polyacantha	hairspine pricklypear					P																								0	0	0.0	0.0	0.0
Subtotal						P																								0	0	0.0	0.0	0.0
Total Shrub Cover		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0.0	0.0
Rock																														0	0	0.0			
Litter		16		21		18		11		22		18		18		20		18		25		9		15		20		8		23		262	262	34.9		
Bare Ground		26		23		28		33		20		20		22		21		31		21		39		33		22		38		24		401	401	53.5		
Total Hits		50	0	50	0	50	0	50	1	50	0	50	0	50	0	51	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	751	752	100.1		
Total Vegetation Cover		16	0	12	0	8	0	12	2	16	0	24	0	20	0	20	0	2	0	8	0	4	0	4	0	16	0	8	0	6	0			11.7	100.0	100.0
Non-Noxious Vegetation Cover		16	0	12	0	8	0	12	2	16	0	24	0	20	0	18	0	2	0	8	0	4	0	4	0	8	0	8	0	6	0			11.1		
Total Ground Cover		48		54		44		34		60		60		56		60		38		58		22		34		56		24		52				46.7		
Allowable Vegetation Cover		9.6		5.6		1.6		5.6		9.6		17.6		13.6		11.6		0.0		1.6		0.0		0.0		1.6		1.6		0.0				5.3		

Non-Noxious Annual Cover	7.5
Excess Annual Cover	6.4

Reclamation Area 36 Vegetation Cover Data

Scientific Name	Common Name	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		Total Hits		Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
		1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	All			
Grass: Annual Native																																		
Munroa squarrosa	false buffalograss					P						P								P		P										0	0	0.0	0.0	0.0
Panicum capillare	witchgrass																													P		0	0	0.0	0.0	0.0
Subtotal						P						P								P		P								P		0	0	0.0	0.0	0.0
Grass: Annual Introduced																																		
Bromus tectorum	cheatgrass	P		P		P		P		1		P		2		1		P		P		P		P		P		P		P		4	4	0.5	4.0	
Subtotal		P		P		P		P		1		P		2		1		P		P		P		P		P		P		P		4	4	0.5	4.0	0.0
Grass: Perennial Desirable (Cool)																																		
Achnatherum hymenoides	Indian ricegrass	1		P		3		3		P		2		1		1		2		2		2		3		2		P		2		24	24	3.2	24.2	25.3
Elymus lanceolatus	thickspike wheatgrass			P								1								P												1	1	0.1	1.0	1.1
Pascopyrum smithii	western wheatgrass																					P										0	0	0.0	0.0	0.0
Subtotal		1		P		3		3		P		3		1		1		2		2		2		3		2		P		2		25	25	3.3	25.3	26.3
Grass: Perennial Desirable (Warm)																																		
Andropogon hallii	sand bluestem											P																				0	0	0.0	0.0	0.0
Bouteloua curtipendula	sideoats grama											1																				1	1	0.1	1.0	1.1
Bouteloua gracilis	blue grama											P						P		P												0	0	0.0	0.0	0.0
Calamovilfa longifolia	prairie sandreed			P		3						1		P						3												7	7	0.9	7.1	7.4
Panicum virgatum	switchgrass					1						P								1												2	2	0.3	2.0	2.1
Sporobolus cryptandrus	sand dropseed	1		P		1		P		1		P		2		1		P		P		1		1		1		P		P		9	9	1.2	9.1	9.5
Subtotal		1		P		5		P		1		2		2		1		P		4		1		1		1		P		P		19	19	2.5	19.2	20.0
Total Grass Cover		2	0	0	0	8	0	3	0	2	0	5	0	5	0	3	0	2	0	6	0	3	0	4	0	3	0	0	0	2	0	48	48	6.4	48.5	46.3
Forbs: Annual & Biennial Native																																		
Amaranthus retroflexus	redroot amaranth			P																												0	0	0.0	0.0	0.0
Ambrosia acanthicarpa	flatspine bur ragweed					P																										0	0	0.0	0.0	0.0
Chenopodium leptophyllum	narrowleaf goosefoot																													P		0	0	0.0	0.0	0.0
Conyza canadensis	Canadian horseweed	P				P										P		P		P										P		0	0	0.0	0.0	0.0
Descurainia pinnata	western tansymustard															P		P														0	0	0.0	0.0	0.0
Helianthus annuus	common sunflower	P		3		P		P		3		P		2		3		2		2		2		P		3		3		1		24	24	3.2	24.2	25.3
Machaeranthera bigelovii	Bigelow's tansyaster	P								P		P		P				P								P						0	0	0.0	0.0	0.0
Subtotal		P		3		P		P		3		P		2		3		2		2		2		P		3		3		1		24	24	3.2	24.2	25.3
Forbs: Annual & Biennial Introduced																																		
Bassia scoparia	burningbush	P						P		P		P		P		P						P		P		P				P		0	0	0.0	0.0	0.0
Dysphania botrys	Jerusalem oak goosefoot			P										P								P						P				0	0	0.0	0.0	0.0
Lactuca serriola	prickly lettuce	1		P		P		P				P		P				P		P		P		P		P						1	1	0.1	1.0	1.1
Polygonum aviculare	prostrate knotweed			P												P		1				1				P		P				2	2	0.3	2.0	2.1
Salsola collina	slender Russian thistle																					P						P				0	0	0.0	0.0	0.0
Salsola tragus	prickly Russian thistle	5		P		P		4		P		2		2		2		P		1		P		1		P		P		4		21	21	2.8	21.2	22.1
Subtotal		6		P		P		4		P		2		2		2		1		1		1		1		P		P		4		24	24	3.2	24.2	25.3

Reclamation Area 36 Vegetation Cover Data (continued)

Scientific Name	Common Name	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		Total Hits		Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
		1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	All			
Forbs: Perennial Desirable																																		
Ambrosia psilostachya	Cuman ragweed			P		3								P												P					3	3			
Physalis hispida	prairie groundcherry											P																			0	0	0.4	3.0	3.2
Ratibida columnifera	upright prairie coneflower							P				P						P		P				P		P					0	0	0.0	0.0	0.0
Subtotal				P		3		P				P		P				P		P				P		P					3	3	0.0	0.0	0.0
Total Forb Cover		6	0	3	0	3	0	4	0	3	0	2	0	4	0	5	0	3	0	3	0	3	0	1	0	3	0	3	0	5	0	51	51	6.8	51.5	53.7
Subshrubs/Shrubs/Succulents: Perennial Native																																				
Opuntia polyacantha	hairspine pricklypear	P																														0	0	0.0	0.0	0.0
Yucca glauca	soapweed yucca							P																								0	0	0.0	0.0	0.0
Subtotal		P						P																								0	0	0.0	0.0	0.0
Total Shrub Cover		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Rock																														1		1	1	0.1		
Litter		30		32		21		28		21		27		28		20		31		28		19		32		31		15		17		380	380	50.7		
Bare Ground		12		15		18		15		24		16		13		22		14		13		25		13		13		32		25		270	270	36.0		
Total Hits		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	750	750	100.0		
Total Vegetation Cover		16	0	6	0	22	0	14	0	10	0	14	0	18	0	16	0	10	0	18	0	12	0	10	0	12	0	6	0	14	0			13.2	100.0	100.0
Non-Noxious Vegetation Cover		16	0	6	0	22	0	14	0	8	0	14	0	14	0	14	0	10	0	18	0	12	0	10	0	12	0	6	0	14	0			12.7		
Total Ground Cover		76		70		64		70		52		68		74		56		72		74		50		74		74		36		50				64.0		
Allowable Vegetation Cover		10.9		0.9		16.9		8.9		2.9		8.9		8.9		8.9		4.9		12.9		6.9		4.9		6.9		0.9		8.9				7.5		

Non-Noxious Annual Cover	6.4
Excess Annual Cover	5.1

Reclamation Area 37 Vegetation Cover Data

Scientific Name	Common Name	1 1st	1 2nd	2 1st	2 2nd	3 1st	3 2nd	4 1st	4 2nd	5 1st	5 2nd	6 1st	6 2nd	7 1st	7 2nd	8 1st	8 2nd	9 1st	9 2nd	10 1st	10 2nd	11 1st	11 2nd	12 1st	12 2nd	13 1st	13 2nd	14 1st	14 2nd	15 1st	15 2nd	Total Hits 1st	Total Hits All	Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
Grass: Annual Native																																			
Munroa squarrosa	false buffalograss							P														P				P			P	0	0	0.0	0.0	0.0
Vulpia octoflora	sixweeks fescue							P																						0	0	0.0	0.0	0.0
Subtotal								P														P				P			P	0	0	0.0	0.0	0.0
Grass: Annual Introduced																																			
Bromus tectorum	cheatgrass	P		2		P				14		P		P		P		11		6		P		12		3		7		1		56	56	7.5	40.6	
Subtotal		P		2		P				14		P		P		P		11		6		P		12		3		7		1		56	56	7.5	40.6	0.0
Grass: Perennial Desirable (Cool)																																			
Achnatherum hymenoides	Indian ricegrass	6		1		1		1	1			P		1		P				P		P				2				3		15	16	2.0	11.6	19.5
Elymus lanceolatus	thickspike wheatgrass													2								P										2	2	0.3	1.4	2.4
Pascopyrum smithii	western wheatgrass	1				5								1																		7	7	0.9	5.1	8.5
Pseudoroegneria spicata	bluebunch wheatgrass					1								P																		1	1	0.1	0.7	1.2
Subtotal		7		1		7		1	1			P		4		P				P		P				2				3		25	26	3.3	18.8	31.7
Grass: Perennial Desirable (Warm)																																			
Bouteloua curtipendula	sideoats grama					P																										0	0	0.0	0.0	0.0
Bouteloua gracilis	blue grama			P																												0	0	0.0	0.0	0.0
Calamovilfa longifolia	prairie sandreed			3		1						1		P														1				6	6	0.8	4.3	7.3
Panicum virgatum	switchgrass					P																										0	0	0.0	0.0	0.0
Sporobolus cryptandrus	sand dropseed	P		5		P		1		2		1		P		P						P				P		1		P		10	10	1.3	7.2	12.2
Subtotal		P		8		1		1		2		2		P		P						P				P		2		P		16	16	2.1	11.6	19.5
Total Grass Cover		7	0	11	0	8	0	2	1	16	0	2	0	4	0	0	0	11	0	6	0	0	0	12	0	5	0	9	0	4	0	97	98	12.9	71.0	51.2
Forbs: Annual & Biennial Native																																			
Amaranthus retroflexus	redroot amaranth							P														P								P		0	0	0.0	0.0	0.0
Ambrosia acanthicarpa	flatspine bur ragweed							P														P										0	0	0.0	0.0	0.0
Chenopodium leptophyllum	narrowleaf goosefoot					P																P				P						0	0	0.0	0.0	0.0
Helianthus annuus	common sunflower	1		P		P		1				2		P		2		P		P		1		P		3				2		12	12	1.6	8.7	14.6
Machaeranthera bigelovii	Bigelow's tansyaster	P						P		P		P																				0	0	0.0	0.0	0.0
Subtotal		1		P		P		1		P		2		P		2		P		P		1		P		3				2		12	12	1.6	8.7	14.6
Forbs: Annual & Biennial Introduced																																			
Bassia scoparia	burningbush											P				2				P						1				P		3	3	0.4	2.2	3.7
Dysphania botrys	Jerusalem oak goosefoot	P														P						P								P		0	0	0.0	0.0	0.0
Lactuca serriola	prickly lettuce									P												P				P						0	0	0.0	0.0	0.0
Polygonum aviculare	prostrate knotweed																					P										0	0	0.0	0.0	0.0
Salsola collina	slender Russian thistle											P										P								P		0	0	0.0	0.0	0.0
Salsola tragus	prickly Russian thistle	P		P		P		2				2		P		1				1		1				3				1		11	11	1.5	8.0	13.4
Subtotal		P		P		P		2		P		2		P		3				1		1				4				1		14	14	1.9	10.1	17.1

Reclamation Area 37 Vegetation Cover Data (continued)

Scientific Name	Common Name	1 1st	1 2nd	2 1st	2 2nd	3 1st	3 2nd	4 1st	4 2nd	5 1st	5 2nd	6 1st	6 2nd	7 1st	7 2nd	8 1st	8 2nd	9 1st	9 2nd	10 1st	10 2nd	11 1st	11 2nd	12 1st	12 2nd	13 1st	13 2nd	14 1st	14 2nd	15 1st	15 2nd	Total Hits 1st	Total Hits All	Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
Forbs: Perennial Desirable																																			
Ambrosia psilostachya	Cuman ragweed			3	1	1				4				3		2												P				13	14	1.7	10.1	17.1
Cuscuta indecora	bigseed alfalfa dodder					P																										0	0	0.0	0.0	0.0
Oenothera pallida	pale evening primrose																											P				0	0	0.0	0.0	0.0
Physalis hispida	prairie groundcherry									P																						0	0	0.0	0.0	0.0
Ratibida columnifera	upright prairie coneflower											P																				0	0	0.0	0.0	0.0
Subtotal				3	1	1				4		P		3		2												P				13	14	1.7	10.1	17.1
Total Forb Cover		1	0	3	1	1	0	3	0	4	0	4	0	3	0	7	0	0	0	1	0	2	0	0	0	7	0	0	0	3	0	39	40	5.2	29.0	48.8
Subshrubs/Shrubs/Succulents: Perennial Native																																			
Opuntia phaeacantha	tulip pricklypear															P																0	0	0.0	0.0	0.0
Yucca glauca	soapweed yucca							P																								0	0	0.0	0.0	0.0
Subtotal								P								P																0	0	0.0	0.0	0.0
Total Shrub Cover		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Rock		1						1																						1		3	3	0.4		
Litter		18		17		32		16		29		29		13		24		26		36		20		26		25		38		10		359	359	47.9		
Bare Ground		23		19		9		28		1		15		30		19		13		7		28		12		13		3		32		252	252	33.6		
Total Hits		50	0	50	1	50	0	50	1	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	750	752	100.0		
Total Vegetation Cover		16	0	28	2	18	0	10	2	40	0	12	0	14	0	14	0	22	0	14	0	4	0	24	0	24	0	18	0	14	0			18.1	100.0	100.0
Non-Noxious Vegetation Cover		16	0	24	2	18	0	10	2	12	0	12	0	14	0	14	0	0	0	2	0	4	0	0	0	18	0	4	0	12	0			10.7		
Total Ground Cover		54		62		82		44		98		70		40		62		74		86		44		76		74		94		36				66.4		
Allowable Vegetation Cover		13.6		21.6		15.6		7.6		9.6		9.6		11.6		11.6		0.0		0.0		1.6		0.0		15.6		1.6		9.6				8.6		

Non-Noxious Annual Cover	3.5
Excess Annual Cover	2.4

Reclamation Area 38 Vegetation Cover Data

Scientific Name	Common Name	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		Total Hits		Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
		1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	All			
Grass: Annual Native																																				
Munroa squarrosa	false buffalograss	P				P						P		P								P		P						P		P		0	0	0.0	0.0	0.0
Panicum capillare	witchgrass																	P																0	0	0.0	0.0	0.0
Subtotal		P				P						P		P				P				P		P						P		P		0	0	0.0	0.0	0.0
Grass: Annual Introduced																																				
Bromus tectorum	cheatgrass	2		P		1		2		P		P		P		P		P		3		P		P		1		P		1				10	10	1.3	8.6	
Subtotal		2		P		1		2		P		P		P		P		P		3		P		P		1		P		1				10	10	1.3	8.6	0.0
Grass: Perennial Desirable (Cool)																																				
Achnatherum hymenoides	Indian ricegrass	3		1		3		6	1	2		8		2		2		2		3		1		P		4		3		P		5		45	46	5.6	39.7	43.4
Agropyron cristatum	crested wheatgrass																											P						0	0	0.0	0.0	0.0
Elymus lanceolatus	thickspike wheatgrass	1										P										P										P		1	1	0.1	0.9	0.9
Pascopyrum smithii	western wheatgrass			1																P														1	1	0.1	0.9	0.9
Subtotal		4		2		3		6	1	2		8		2		2		2		3		1		P		4		3		P		5		47	48	5.9	41.4	45.3
Grass: Perennial Desirable (Warm)																																				
Andropogon hallii	sand bluestem	P		P								1		P		1		1		P		1		P		P				P		P		4	4	0.5	3.4	3.8
Calamovilfa longifolia	prairie sandreed	P		3								3		P		7		2		1		P		3		P		2		2		P		23	23	2.9	19.8	21.7
Panicum virgatum	switchgrass			1								P										P										P		1	1	0.1	0.9	0.9
Schizachyrium scoparium	little bluestem																					P						P						0	0	0.0	0.0	0.0
Sporobolus cryptandrus	sand dropseed			P		P								1		P		P		1								2		P		P		4	4	0.5	3.4	3.8
Subtotal		P		4		P						4		1		8		3		2		1		3		P		4		2		P		32	32	4.0	27.6	30.2
Total Grass Cover		6	0	6	0	4	0	8	1	2	0	12	0	3	0	10	0	5	0	8	0	2	0	3	0	5	0	7	0	3	0	5	0	89	90	11.1	77.6	75.5
Forbs: Annual & Biennial Native																																				
Amaranthus retroflexus	redroot amaranth					P																												0	0	0.0	0.0	0.0
Argemone polyanthemos	crested pricklypoppy																													P				0	0	0.0	0.0	0.0
Descurainia pinnata	western tansymustard																											P						0	0	0.0	0.0	0.0
Eriogonum annuum	annual buckwheat			P																														0	0	0.0	0.0	0.0
Helianthus annuus	common sunflower	P		P		P		P		P		P		1		P		P		P		P		4		P		3		2		P		10	10	1.3	8.6	9.4
Machaeranthera bigelovii	Bigelow's tansyaster			P								P				P		P		1												P		1	1	0.1	0.9	0.9
Subtotal		P		P		P		P		P		P		1		P		P		1		P		4		P		3		2		P		11	11	1.4	9.5	10.4
Forbs: Annual & Biennial Introduced																																				
Dysphania botrys	Jerusalem oak goosefoot			P																										P				0	0	0.0	0.0	0.0
Lactuca serriola	prickly lettuce			P												P				P								P		P				0	0	0.0	0.0	0.0
Melilotus officinalis	sweetclover													P														P						0	0	0.0	0.0	0.0
Salsola tragus	prickly Russian thistle	P		P		1		5		1		P		P		2		P		1		P		P		2		2		P		P		14	14	1.8	12.1	13.2
Subtotal		P		P		1		5		1		P		P		2		P		1		P		P		2		2		P		P		14	14	1.8	12.1	13.2
Forbs: Perennial Desirable																																				
Cirsium flodmanii	Flodman's thistle																							P										0	0	0.0	0.0	0.0
Mentzelia nuda	bractless blazingstar					P																						P						0	0	0.0	0.0	0.0
Oenothera pallida	pale evening primrose																											1						1	1	0.1	0.9	0.9
Physalis hispida	prairie groundcherry																							P				P						0	0	0.0	0.0	0.0
Ratibida columnifera	upright prairie coneflower																											P						0	0	0.0	0.0	0.0
Subtotal						P																		P				1						1	1	0.1	0.9	0.9
Total Forb Cover		0	0	0	0	1	0	5	0	1	0	0	0	1	0	2	0	0	0	2	0	0	0	4	0	2	0	6	0	2	0	0	0	26	26	3.3	22.4	24.5

Reclamation Area 38 Vegetation Cover Data (continued)

Scientific Name	Common Name	1 1st	1 2nd	2 1st	2 2nd	3 1st	3 2nd	4 1st	4 2nd	5 1st	5 2nd	6 1st	6 2nd	7 1st	7 2nd	8 1st	8 2nd	9 1st	9 2nd	10 1st	10 2nd	11 1st	11 2nd	12 1st	12 2nd	13 1st	13 2nd	14 1st	14 2nd	15 1st	15 2nd	16 1st	16 2nd	Total Hits 1st	Total Hits All	Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
Subshrubs/Shrubs/Succulents: Perennial Native																																					
Artemisia filifolia	sand sagebrush																										P					0	0	0.0	0.0	0.0
Cylindropuntia whipplei	Whipple cholla													P																		0	0	0.0	0.0	0.0
Subtotal														P													P					0	0	0.0	0.0	0.0
Total Shrub Cover		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0.0**	**0.0**
Rock																																0	0	0.0		
Litter		15		9		26		27		25		23		20		14		21		21		12		22		24		9		6		22		296	296	37.0		
Bare Ground		29		35		19		10		22		15		26		24		24		19		36		21		19		28		39		23		389	389	48.6		
Total Hits		50	0	50	0	50	0	50	1	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	800	801	100.0		
Total Vegetation Cover		**12**	**0**	**12**	**0**	**10**	**0**	**26**	**2**	**6**	**0**	**24**	**0**	**8**	**0**	**24**	**0**	**10**	**0**	**20**	**0**	**4**	**0**	**14**	**0**	**14**	**0**	**26**	**0**	**10**	**0**	**10**	**0**			**14.4**	**100.0**	**100.0**
Non-Noxious Vegetation Cover		**8**	**0**	**12**	**0**	**8**	**0**	**22**	**2**	**6**	**0**	**24**	**0**	**8**	**0**	**24**	**0**	**10**	**0**	**14**	**0**	**4**	**0**	**14**	**0**	**12**	**0**	**26**	**0**	**8**	**0**	**10**	**0**			**13.1**		
Total Ground Cover		**42**		**30**		**62**		**80**		**56**		**70**		**48**		**52**		**52**		**62**		**28**		**58**		**62**		**44**		**22**		**54**				**51.4**		
Allowable Vegetation Cover		**6.2**		**10.2**		**6.2**		**20.2**		**4.2**		**22.2**		**6.2**		**22.2**		**8.2**		**12.2**		**2.2**		**12.2**		**10.2**		**24.2**		**6.2**		**8.2**				**11.3**		

Non-Noxious Annual Cover	3.1
Excess Annual Cover	1.8

Reclamation Area 42 Vegetation Cover Data

Scientific Name	Common Name	1 1st	1 2nd	2 1st	2 2nd	3 1st	3 2nd	4 1st	4 2nd	5 1st	5 2nd	6 1st	6 2nd	7 1st	7 2nd	8 1st	8 2nd	9 1st	9 2nd	10 1st	10 2nd	11 1st	11 2nd	12 1st	12 2nd	13 1st	13 2nd	14 1st	14 2nd	15 1st	15 2nd	Total Hits 1st	Total Hits All	Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
Grass: Annual Native																																			
Munroa squarrosa	false buffalograss	P				P		P				P				P		P						P						P		0	0	0.0	0.0	0.0
Subtotal		P				P		P				P				P		P						P						P		0	0	0.0	0.0	0.0
Grass: Annual Introduced																																			
Bromus tectorum	cheatgrass			12		P		8		8		2		P		4				11		5		2		5		P		2		59	59	7.9	50.4	
Eragrostis cilianensis	stinkgrass															P																0	0	0.0	0.0	0.0
Subtotal				12		P		8		8		2		P		4				11		5		2		5		P		2		59	59	7.9	50.4	0.0
Grass: Perennial Desirable (Cool)																																			
Achnatherum hymenoides	Indian ricegrass	3				4		P		P		P		1		1		4		P		2		P		P	1	4		P		19	20	2.5	17.1	34.5
Bromus inermis	smooth brome															P																0	0	0.0	0.0	0.0
Cyperus schweinitzii	Schweinitz's flatsedge																	P												P		0	0	0.0	0.0	0.0
Elymus lanceolatus	thickspike wheatgrass															P						P				P						0	0	0.0	0.0	0.0
Subtotal		3				4		P		P		P		1		1		4		P		2		P		P	1	4		P		19	20	2.5	17.1	34.5
Grass: Perennial Desirable (Warm)																																			
Andropogon hallii	sand bluestem	P						P																P								0	0	0.0	0.0	0.0
Bouteloua gracilis	blue grama							P																		P						0	0	0.0	0.0	0.0
Calamovilfa longifolia	prairie sandreed	1														P										2		2				5	5	0.7	4.3	8.6
Panicum virgatum	switchgrass					P										P										P						0	0	0.0	0.0	0.0
Schizachyrium scoparium	little bluestem							P																								0	0	0.0	0.0	0.0
Sporobolus cryptandrus	sand dropseed	P				P		P		1		P		P		P		2								2				P		5	5	0.7	4.3	8.6
Subtotal		1				P		P		1		P		P		P		2						P		4		2		P		10	10	1.3	8.5	17.2
Total Grass Cover		**4**	**0**	**12**	**0**	**4**	**0**	**8**	**0**	**9**	**0**	**2**	**0**	**1**	**0**	**5**	**0**	**6**	**0**	**11**	**0**	**7**	**0**	**2**	**0**	**9**	**1**	**6**	**0**	**2**	**0**	**88**	**89**	**11.7**	**76.1**	**51.7**
Forbs: Annual & Biennial Native																																			
Amaranthus retroflexus	redroot amaranth	P						P								P		P						P						P		0	0	0.0	0.0	0.0
Ambrosia acanthicarpa	flatspine bur ragweed	P				P		1		P								P						P								1	1	0.1	0.9	1.7
Argemone polyanthemos	crested pricklypoppy							P						P						2												2	2	0.3	1.7	3.4
Chamaesyce glyptosperma	ribseed sandmat	P																														0	0	0.0	0.0	0.0
Chenopodium leptophyllum	narrowleaf goosefoot	P				P		P																P								0	0	0.0	0.0	0.0
Cleome serrulata	Rocky Mountain beeplant																							P								0	0	0.0	0.0	0.0
Croton texensis	Texas croton											P						P														0	0	0.0	0.0	0.0
Helianthus annuus	common sunflower	P				4		P		1		P		1		P		2				P		3		P		2		P		13	13	1.7	11.1	22.4
Machaeranthera bigelovii	Bigelow's tansyaster	P						P				P		P								P				P		1		P		1	1	0.1	0.9	1.7
Verbena bracteata	bigbract verbena																					P										0	0	0.0	0.0	0.0
Subtotal		P				4		1		1		P		1		P		2		2		P		3		P		3		P		17	17	2.3	14.5	29.3

Reclamation Area 42 Vegetation Cover Data (continued)

Scientific Name	Common Name	1 1st	1 2nd	2 1st	2 2nd	3 1st	3 2nd	4 1st	4 2nd	5 1st	5 2nd	6 1st	6 2nd	7 1st	7 2nd	8 1st	8 2nd	9 1st	9 2nd	10 1st	10 2nd	11 1st	11 2nd	12 1st	12 2nd	13 1st	13 2nd	14 1st	14 2nd	15 1st	15 2nd	Total Hits 1st	Total Hits All	Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
Grass: Annual Native																																			
Forbs: Annual & Biennial Introduced																																			
Ambrosia artemisiifolia	annual ragweed													P																0	0	0.0	0.0	0.0
Bassia scoparia	burningbush													P															1	1	1	0.1	0.9	1.7
Dysphania botrys	Jerusalem oak goosefoot	P												P				P											P	0	0	0.0	0.0	0.0
Lactuca serriola	prickly lettuce									P						P								P				P	P	0	0	0.0	0.0	0.0
Melilotus officinalis	sweetclover																					P								0	0	0.0	0.0	0.0
Polygonum aviculare	prostrate knotweed																	P												0	0	0.0	0.0	0.0
Salsola tragus	prickly Russian thistle	1				P		P				P		P		P		1				1				1		4		1	9	9	1.2	7.7	15.5
Tragopogon dubius	yellow salsify													P																0	0	0.0	0.0	0.0
Subtotal		1				P		P		P		P		P		P		1				1		P		1		4		2	10	10	1.3	8.5	17.2
Forbs: Perennial Desirable																																			
Ambrosia psilostachya	Cuman ragweed	P														1														1	1	0.1	0.9	1.7
Cirsium flodmanii	Flodman's thistle																					P								0	0	0.0	0.0	0.0
Mentzelia nuda	bractless blazingstar																	P				P								0	0	0.0	0.0	0.0
Mirabilis linearis	narrowleaf four o'clock							P																						0	0	0.0	0.0	0.0
Oenothera pallida	pale evening primrose																	P												0	0	0.0	0.0	0.0
Physalis hispida	prairie groundcherry															P														0	0	0.0	0.0	0.0
Psoralidium lanceolatum	lemon scurfpea																			P				P						0	0	0.0	0.0	0.0
Ratibida columnifera	upright prairie coneflower					P																P				P				0	0	0.0	0.0	0.0
Subtotal		P				P		P								1		P		P		P		P		P				1	1	0.1	0.9	1.7
Total Forb Cover		1	0	0	0	4	0	1	0	1	0	0	0	1	0	1	0	3	0	2	0	1	0	3	0	1	0	7	0	2	0	28	28	3.7	23.9	48.3
Subshrubs/Shrubs/Succulents: Perennial Native																																			
Artemisia filifolia	sand sagebrush									P																				0	0	0.0	0.0	0.0
Cylindropuntia whipplei	Whipple cholla																	P												0	0	0.0	0.0	0.0
Opuntia polyacantha	hairspine pricklypear									P																				0	0	0.0	0.0	0.0
Subtotal										P								P												0	0	0.0	0.0	0.0
Total Shrub Cover		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Rock																														0	0	0.0			
Litter		14		36		19		30		33		17		12		34		12		31		26		16		34		24		24	362	362	48.3		
Bare Ground		31		2		23		11		7		31		36		10		29		6		16		29		6		13		22	272	272	36.3		
Total Hits		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	1	50	0	50	0	750	751	100.0		
Total Vegetation Cover		10	0	24	0	16	0	18	0	20	0	4	0	4	0	12	0	18	0	26	0	16	0	10	0	20	2	26	0	8	0			15.5	100.0	100.0
Non-Noxious Vegetation Cover		10	0	0	0	16	0	2	0	4	0	0	0	4	0	4	0	18	0	4	0	6	0	6	0	10	2	26	0	4	0			7.6		
Total Ground Cover		38		96		54		78		86		38		28		80		42		88		68		42		88		74		56				63.7		
Allowable Vegetation Cover		7.2		0.0		13.2		0.0		1.2		0.0		1.2		1.2		15.2		1.2		3.2		3.2		7.2		23.2		1.2				5.2		

Non-Noxious Annual Cover	3.6
Excess Annual Cover	2.8

Reclamation Area 43 Vegetation Cover Data

Scientific Name	Common Name	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		Total Hits		Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
		1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	All			
Grass: Annual Native																																		
Vulpia octoflora	sixweeks fescue			2		1		P				P																P				3	3	0.4	2.0	3.4
Subtotal				2		1		P				P																P				3	3	0.4	2.0	3.4
Grass: Annual Introduced																																		
Bromus tectorum	cheatgrass	2		3		1		P		4		3		2		P		8		12		1		7		11		3		9		66	66	8.8	43.1	
Subtotal		2		3		1		P		4		3		2		P		8		12		1		7		11		3		9		66	66	8.8	43.1	0.0
Grass: Perennial Desirable (Cool)																																		
Achnatherum hymenoides	Indian ricegrass																			P		P				P						0	0	0.0	0.0	0.0
Agropyron cristatum	crested wheatgrass															P																0	0	0.0	0.0	0.0
Cyperus schweinitzii	Schweinitz's flatsedge					P								P																		0	0	0.0	0.0	0.0
Hesperostipa comata	needle and thread			P																												0	0	0.0	0.0	0.0
Subtotal				P		P								P		P				P		P				P						0	0	0.0	0.0	0.0
Grass: Perennial Desirable (Warm)																																		
Andropogon hallii	sand bluestem													P																		0	0	0.0	0.0	0.0
Calamovilfa longifolia	prairie sandreed											P																				0	0	0.0	0.0	0.0
Panicum virgatum	switchgrass																	P						1						P		1	1	0.1	0.7	1.1
Schizachyrium scoparium	little bluestem																					1										1	1	0.1	0.7	1.1
Sorghastrum nutans	Indiangrass													P		P																0	0	0.0	0.0	0.0
Sporobolus cryptandrus	sand dropseed	P		4	2	P		4		2		3		1		1		1		1	2	1		4		4		2		1		29	33	3.9	21.6	37.9
Subtotal		P		4	2	P		4		2		3		1		1		1		1	2	2		5		4		2		1		31	35	4.1	22.9	40.2
Total Grass Cover		**2**	**0**	**9**	**2**	**2**	**0**	**4**	**0**	**6**	**0**	**6**	**0**	**3**	**0**	**1**	**0**	**9**	**0**	**13**	**2**	**3**	**0**	**12**	**0**	**15**	**0**	**5**	**0**	**10**	**0**	**100**	**104**	**13.3**	**68.0**	**43.7**
Forbs: Annual & Biennial Native																																		
Ambrosia acanthicarpa	flatspine bur ragweed	2		4		1		2		1		1		P		3						6						1				21	21	2.8	13.7	24.1
Argemone polyanthemos	crested pricklypoppy																											P				0	0	0.0	0.0	0.0
Chenopodium leptophyllum	narrowleaf goosefoot			P																												0	0	0.0	0.0	0.0
Conyza canadensis	Canadian horseweed																							P								0	0	0.0	0.0	0.0
Croton texensis	Texas croton											P																				0	0	0.0	0.0	0.0
Eriogonum annuum	annual buckwheat									P		P		P		P						P								P		0	0	0.0	0.0	0.0
Helianthus annuus	common sunflower	P		P				P				P		P								2						P				2	2	0.3	1.3	2.3
Machaeranthera bigelovii	Bigelow's tansyaster	P				5		P		2		1		P		2		P		P				P								10	10	1.3	6.5	11.5
Plantago patagonica	wooly plantain																					P										0	0	0.0	0.0	0.0
Subtotal		2		4		6		2		3		2		P		5		P		P		8		P				1		P		33	33	4.4	21.6	37.9
Forbs: Annual & Biennial Introduced																																		
Lactuca serriola	prickly lettuce																					P				P						0	0	0.0	0.0	0.0
Subtotal																						P				P						0	0	0.0	0.0	0.0

Reclamation Area 43 Vegetation Cover Data (continued)

Scientific Name	Common Name	1 1st	1 2nd	2 1st	2 2nd	3 1st	3 2nd	4 1st	4 2nd	5 1st	5 2nd	6 1st	6 2nd	7 1st	7 2nd	8 1st	8 2nd	9 1st	9 2nd	10 1st	10 2nd	11 1st	11 2nd	12 1st	12 2nd	13 1st	13 2nd	14 1st	14 2nd	15 1st	15 2nd	Total Hits 1st	Total Hits All	Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
Forbs: Perennial Desirable																																			
Ambrosia psilostachya	Cuman ragweed	P						P										5								2				2		9	9	1.2	5.9	10.3
Heterotheca villosa	hairy false goldenaster													P																		0	0	0.0	0.0	0.0
Mentzelia nuda	bractless blazingstar	P		1				P		1						2						P						1				5	5	0.7	3.3	5.7
Oenothera pallida	pale evening primrose									P						P													1			1	1	0.1	0.7	1.1
Physalis hispida	prairie groundcherry			P				P												P								P				0	0	0.0	0.0	0.0
Ratibida columnifera	upright prairie coneflower													P				P		P				P						P		0	0	0.0	0.0	0.0
Subtotal		P		1				P		1				P		2		5		P		P		P		2		1		3		15	15	2.0	9.8	17.2
Total Forb Cover		2	0	5	0	6	0	2	0	4	0	2	0	0	0	7	0	5	0	0	0	8	0	0	0	2	0	2	0	3	0	48	48	6.4	31.4	55.2
Subshrubs/Shrubs/Succulents: Perennial Native																																			
Opuntia phaeacantha	tulip pricklypear																	P		P				P								0	0	0.0	0.0	0.0
Opuntia polyacantha	hairspine pricklypear	P		P								P				P						1										1	1	0.1	0.7	1.1
Yucca glauca	soapweed yucca															P												P				0	0	0.0	0.0	0.0
Subtotal		P		P								P				P		P		P		1		P				P				1	1	0.1	0.7	1.1
Total Shrub Cover		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0.1	0.7	1.1
Rock						1																						1				2	2	0.3		
Litter		25		19		22		23		30		26		24		19		34		37		18		37		33		25		30		402	402	53.6		
Bare Ground		21		17		19		21		10		16		23		23		2				20		1				17		7		197	197	26.3		
Total Hits		50	0	50	2	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	2	50	0	50	0	50	0	50	0	50	0	750	754	100.0		
Total Vegetation Cover		8	0	28	4	16	0	12	0	20	0	16	0	6	0	16	0	28	0	26	4	24	0	24	0	34	0	14	0	26	0			19.9	100.0	100.0
Non-Noxious Vegetation Cover		4	0	22	4	14	0	12	0	12	0	10	0	2	0	16	0	12	0	2	4	22	0	10	0	12	0	8	0	8	0			11.1		
Total Ground Cover		58		66		62		58		80		68		54		54		96		100		60		98		100		66		86				73.7		
Allowable Vegetation Cover		0.3		18.3		10.3		8.3		8.3		6.3		0.0		12.3		8.3		0.0		18.3		6.3		8.3		4.3		4.3				7.6		

Non-Noxious Annual Cover	4.8
Excess Annual Cover	3.7

Reclamation Area 44 Vegetation Cover Data

Scientific Name	Common Name	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		Total Hits		Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
		1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	All			
Grass: Annual Native																																		
Munroa squarrosa	false buffalograss			P																										0	0	0.0	0.0	0.0
Subtotal				P																										0	0	0.0	0.0	0.0
Grass: Annual Introduced																																		
Bromus tectorum	cheatgrass	6		4		2		6		7		7		3		6		7		1		4		9		8		2		6		78	78	10.4	61.4	
Subtotal		6		4		2		6		7		7		3		6		7		1		4		9		8		2		6		78	78	10.4	61.4	0.0
Grass: Perennial Desirable (Cool)																																		
Achnatherum hymenoides	Indian ricegrass			P		P		P						P		P		P		P		1		P		P		1	1	P		2	3	0.3	2.4	6.1
Cyperus schweinitzii	Schweinitz's flatsedge													P						P						P		P				0	0	0.0	0.0	0.0
Elymus elymoides	squirreltail																					P								P		0	0	0.0	0.0	0.0
Elymus lanceolatus	thickspike wheatgrass	2																1										P				3	3	0.4	2.4	6.1
Elymus trachycaulus	slender wheatgrass																											P				0	0	0.0	0.0	0.0
Pseudoroegneria spicata	bluebunch wheatgrass																													P		0	0	0.0	0.0	0.0
Subtotal		2		P		P		P						P		P		1		P		1		P		P		1	1	P		5	6	0.7	4.7	12.2
Grass: Perennial Desirable (Warm)																																		
Andropogon hallii	sand bluestem	P																												0	0	0.0	0.0	0.0
Bouteloua gracilis	blue grama	P																								P		P				0	0	0.0	0.0	0.0
Calamovilfa longifolia	prairie sandreed	P								1		P						P		P		P				1		P				2	2	0.3	1.6	4.1
Schizachyrium scoparium	little bluestem	P		P																								P				0	0	0.0	0.0	0.0
Sorghastrum nutans	Indiangrass	P																								P						0	0	0.0	0.0	0.0
Sporobolus cryptandrus	sand dropseed	P		P		P		7		3		4		2		1	1	2		P		2		P		1		P		2		24	25	3.2	19.7	51.0
Subtotal		P		P		P		7		4		4		2		1	1	2		P		2		P		2		P		2		26	27	3.5	21.3	55.1
Total Grass Cover		**8**	**0**	**4**	**0**	**2**	**0**	**13**	**0**	**11**	**0**	**11**	**0**	**5**	**0**	**7**	**1**	**10**	**0**	**1**	**0**	**7**	**0**	**9**	**0**	**10**	**0**	**3**	**1**	**8**	**0**	**109**	**111**	**14.5**	**87.4**	**67.3**
Forbs: Annual & Biennial Native																																		
Ambrosia acanthicarpa	flatspine bur ragweed			1		P				P		P								4		P						1		1		7	7	0.9	5.5	14.3
Argemone polyanthemos	crested pricklypoppy			P																												0	0	0.0	0.0	0.0
Chenopodium leptophyllum	narrowleaf goosefoot					P								P						P												0	0	0.0	0.0	0.0
Cleome serrulata	Rocky Mountain beeplant					P																										0	0	0.0	0.0	0.0
Conyza canadensis	Canadian horseweed									P		P				P														P		0	0	0.0	0.0	0.0
Croton texensis	Texas croton															P												P				0	0	0.0	0.0	0.0
Eriogonum annuum	annual buckwheat											P																		P		0	0	0.0	0.0	0.0
Helianthus annuus	common sunflower			P		P								P		1		2		1		P		P				2				6	6	0.8	4.7	12.2
Machaeranthera bigelovii	Bigelow's tansyaster	P								P		P										P						P		P		0	0	0.0	0.0	0.0
Verbena bracteata	bigbract verbena															P																0	0	0.0	0.0	0.0
Subtotal		P		1		P				P		P		P		1		2		5		P		P				3		1		13	13	1.7	10.2	26.5

Reclamation Area 44 Vegetation Cover Data (continued)

Scientific Name	Common Name	1 1st	1 2nd	2 1st	2 2nd	3 1st	3 2nd	4 1st	4 2nd	5 1st	5 2nd	6 1st	6 2nd	7 1st	7 2nd	8 1st	8 2nd	9 1st	9 2nd	10 1st	10 2nd	11 1st	11 2nd	12 1st	12 2nd	13 1st	13 2nd	14 1st	14 2nd	15 1st	15 2nd	Total Hits 1st	Total Hits All	Average Absolute Cover (%)	Average Relative Cover (%)	Non-Noxious Relative Cover (%)
Forbs: Annual & Biennial Introduced																																			
Ambrosia artemisiifolia	annual ragweed					P								2																	2	2	0.3	1.6	4.1
Bassia scoparia	burningbush					P																									0	0	0.0	0.0	0.0
Chenopodium album	lambsquarters					P																									0	0	0.0	0.0	0.0
Dysphania botrys	Jerusalem oak goosefoot					P								P										P							0	0	0.0	0.0	0.0
Lactuca serriola	prickly lettuce					P														P											0	0	0.0	0.0	0.0
Polygonum aviculare	prostrate knotweed					P																									0	0	0.0	0.0	0.0
Salsola collina	slender Russian thistle			P										P				P		P											0	0	0.0	0.0	0.0
Salsola tragus	prickly Russian thistle					P		P				P		P														P			0	0	0.0	0.0	0.0
Sisymbrium altissimum	tall tumblemustard															P															0	0	0.0	0.0	0.0
Subtotal				P		P		P				P		2		P		P		P				P				P			2	2	0.3	1.6	4.1
Forbs: Perennial Desirable																																			
Ambrosia psilostachya	Cuman ragweed																	P										P			0	0	0.0	0.0	0.0
Erigeron bellidiastrum	western daisy fleabane																											P			0	0	0.0	0.0	0.0
Oenothera pallida	pale evening primrose	P		P												1												P			1	1	0.1	0.8	2.0
Physalis hispida	prairie groundcherry									P		P																			0	0	0.0	0.0	0.0
Ratibida columnifera	upright prairie coneflower																					P								P	0	0	0.0	0.0	0.0
Subtotal		P		P						P		P				1		P				P						P		P	1	1	0.1	0.8	2.0
Total Forb Cover		0	0	1	0	0	0	0	0	0	0	0	0	2	0	2	0	2	0	5	0	0	0	0	0	0	0	3	0	1	0	16	16	2.1	12.6	32.7
Subshrubs/Shrubs/Succulents: Perennial Native																																			
Cylindropuntia whipplei	Whipple cholla																							P							0	0	0.0	0.0	0.0
Opuntia polyacantha	hairspine pricklypear							P				P		P				P													0	0	0.0	0.0	0.0
Subtotal								P				P		P				P						P							0	0	0.0	0.0	0.0
Total Shrub Cover		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
Rock																															0	0	0.0		
Litter		26		25		28		26		28		25		17		24		19		12		30		30		23		22		28	363	363	48.4		
Bare Ground		16		20		20		11		11		14		26		17		19		32		13		11		17		22		13	262	262	34.9		
Total Hits		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	1	50	0	50	0	50	0	50	0	50	0	50	1	50	0	750	752	100.0		
Total Vegetation Cover		16	0	10	0	4	0	26	0	22	0	22	0	14	0	18	2	24	0	12	0	14	0	18	0	20	0	12	2	18	0			16.7	100.0	100.0
Non-Noxious Vegetation Cover		4	0	2	0	0	0	14	0	8	0	8	0	8	0	6	2	10	0	10	0	6	0	0	0	4	0	8	2	6	0			6.3		
Total Ground Cover		68		60		60		78		78		72		48		66		62		36		74		78		66		56		74				65.1		
Allowable Vegetation Cover		2.6		0.6		0.0		12.6		6.6		6.6		6.6		4.6		8.6		8.6		4.6		0.0		2.6		6.6		4.6				5.1		

Non-Noxious Annual Cover	2.0
Excess Annual Cover	1.4