

TABLE 2.7.2-3

SIMILARITY INDEX SUMMARY BY ECOLOGICAL SITE AND BY LANDOWNER WITHIN THE PERMIT BOUNDARY
SOUTH HEART LIGNITE MINE, STARK COUNTY, NORTH DAKOTA 2006-2007

| Tract Number | Landowner | Location | | | Acreage of Native Grassland by Tract ² | Percent Acreage of Native Grassland by Tract ² | Sample Site Number | Saline Lowland-Wet Land-Subirrigated | Loamy Overflow-Subirrigated-Wet Land | Wet Land-Wet Meadow | Riparian Woodland | Shallow Clayey | Shallow Loamy | Shallow Sandy | Claypan | Thin Claypan | Sandy | Clayey | Loamy | Loamy Overflow | Loamy Terrace | | | | | |
|--------------------------|-----------------------------------|----------|-------|---------|---|---|--------------------|--------------------------------------|--------------------------------------|---------------------|-------------------|----------------|---------------|---------------|-----------|--------------|-----------|-----------|-------|----------------|---------------|--|--|----|----|--|
| | | Township | Range | Section | | | | | | | | | | | | | | | | | | | | | | |
| S-1399809-F | Meduna, Gary L. and Barbara | 139N | 98W | 9 | 7.89 | 1.31 | SL-7 | 21 | | | | | | | | | | | | | | | | | | |
| | | | | | | | SL-8 | 16 | | | | | | | | | | | | | | | | | | |
| | | | | | | | SL-9 | 28 | | | | | | | | | | | | | | | | | | |
| | | | | | | | Mean | 22 | | | | | | | | | | | | | | | | | | |
| S-1399809-G ⁵ | Wagner, James and Lisa | 139N | 98W | 9 | 16.38 | 2.72 | | | | | | | | | | | | | | | | | | | | |
| S-1399814-A | Perdaems, James D. and Rosella J. | 139N | 98W | 14 | 3.98 | 0.66 | RW-24 | | | | 0 | | | | | | | | | | | | | | | |
| | | | | | | | Mean | | | 0 | | | | | | | | | | | | | | | | |
| S-1399814-C ⁵ | Perdaems, James D. and Rosella J. | 139N | 98W | 14 | 1.60 | 0.27 | | | | | | | | | | | | | | | | | | | | |
| S-1399815-A | Peters, Mary Louise et.al. | 139N | 98W | 15 | 0.00 | 0.00 | WL-8 | | | 5 | | | | | | | | | | | | | | | | |
| | | | | | | | Mean | | | 5 | | | | | | | | | | | | | | | | |
| S-1399816-A | Peters, Mary Louise et.al. | 139N | 98W | 16 | 16.22 | 2.69 | WL-7 | | | 15 | | | | | | | | | | | | | | | | |
| | | | | | | | SwCy-1 | | | | | 20 | | | | | | | | | | | | | | |
| | | | | | | | Mean | | | | | 15 | | | 20 | | | | | | | | | | | |
| S-1399816-B | Kuylen, Robert F. and Brenda K. | 139N | 98W | 16 | 93.45 | 15.50 | TCp-3 | | | | | | | | | 11 | | | | | | | | | | |
| | | | | | | | TCp-15 | | | | | | | | | | 10 | | | | | | | | | |
| | | | | | | | Mean | | | | | | | | | | 10 | | | | | | | | | |
| S-1399817-A | Kuylen, Robert F. and Brenda K. | 139N | 98W | 17 | 63.79 | 10.58 | SL-3 | 15 | | | | | | | | | | | | | | | | | | |
| | | | | | | | Cp-1 | | | | | | | | | | 13 | | | | | | | | | |
| | | | | | | | TCp-2 | | | | | | | | | | | | | 15 | | | | | | |
| | | | | | | | TCp-7 | | | | | | | | | | | | | 46 | | | | | | |
| | | | | | | | Mean | 15 | | | | | | | | | | | | 13 | 31 | | | | | |
| S-1399821-A | Kuylen, Robert F. and Brenda K. | 139 | 98 | 21 | 174.36 | 28.92 | SwLy-1 | | | | | | 28 | | | | | | | | | | | | | |
| | | | | | | | SwLy-3 | | | | | | 31 | | | | | | | | | | | | | |
| | | | | | | | SwLy-4 | | | | | | 31 | | | | | | | | | | | | | |
| | | | | | | | SwLy-5 | | | | | | 21 | | | | | | | | | | | | | |
| | | | | | | | SwLy-16 | | | | | | 54 | | | | | | | | | | | | | |
| | | | | | | | SwSy-2 | | | | | | | | | | | | 35 | | | | | | | |
| | | | | | | | TCp-4 | | | | | | | | | | | | | | 55 | | | | | |
| | | | | | | | TCp-11 | | | | | | | | | | | | | | 67 | | | | | |
| | | | | | | | TCp-12 | | | | | | | | | | | | | | 61 | | | | | |
| | | | | | | | TCp-13 | | | | | | | | | | | | | | 66 | | | | | |
| | | | | | | | TCp-16 | | | | | | | | | | | | | | 50 | | | | | |
| | | | | | | | Cy-1 | | | | | | | | | | | | | | | | | 38 | | |
| | | | | | | | Cy-5 | | | | | | | | | | | | | | | | | 28 | | |
| | | | | | | | Ly-2 | | | | | | | | | | | | | | | | | | 47 | |
| Mean | | | | | | | | | | | | 33 | 35 | | 60 | | 33 | 47 | | | | | | | | |
| S-1399822-A | Perdaems, James D. and Rosella J. | 139N | 98W | 22 | 10.58 | 1.76 | WL-12 | | | 43 | | | | | | | | | | | | | | | | |
| | | | | | | | RW-11 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | RW-12 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | RW-23 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | RW-30 | | | | | | | | | | | | | | | | | | | |
| Mean | | | | | | | | | 43 | 0 | | | | | | | | | | | | | | | | |
| S-1399822-B ⁵ | Perdaems, Jerry F. and Sandra M. | 139N | 98W | 22 | 0.03 | 0.00 | | | | | | | | | | | | | | | | | | | | |

TABLE 2.7.2-3

SIMILARITY INDEX SUMMARY BY ECOLOGICAL SITE AND BY LANDOWNER WITHIN THE PERMIT BOUNDARY
SOUTH HEART LIGNITE MINE, STARK COUNTY, NORTH DAKOTA 2006-2007

| Tract Number | Landowner | Location | | | Acreage of Native Grassland by Tract ² | Percent Acreage of Native Grassland by Tract ² | Sample Site Number | Saline Lowland-Wet Land-Subirrigated | Loamy Overflow-Subirrigated-Wet Land | Wet Land-Wet Meadow | Riparian Woodland | Shallow Clayey | Shallow Loamy | Shallow Sandy | Claypan | Thin Claypan | Sandy | Clayey | Loamy | Loamy Overflow | Loamy Terrace | | | | | | | |
|--------------------------|---|----------|-------|---------|---|---|--------------------|--------------------------------------|--------------------------------------|---------------------|-------------------|----------------|---------------|---------------|-----------|--------------|-----------|-----------|-----------|----------------|---------------|-----------|----------|-----------|--|--|----|----|
| | | Township | Range | Section | | | | | | | | | | | | | | | | | | | | | | | | |
| S-1399827-A | Kuylen, Patrick 80% Kuylen, Katherine R. 20% | 139N | 98W | 27 | 157.31 | 26.10 | WL-1 | | 2 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | WL-11 | | | 7 | | | | | | | | | | | | | | | | | | |
| | | | | | | | SwLy-2 | | | | | | | | | | | 37 | | | | | | | | | | |
| | | | | | | | SwLy-12 | | | | | | | | | | | 26 | | | | | | | | | | |
| | | | | | | | SwLy-13 | | | | | | | | | | | 35 | | | | | | | | | | |
| | | | | | | | TCp-1 | | | | | | | | | | | | | | 25 | | | | | | | |
| | | | | | | | Sy-1 | | | | | | | | | | | | | | | | 15 | | | | | |
| | | | | | | | Sy-2 | | | | | | | | | | | | | | | | 30 | | | | | |
| | | | | | | | Sy-3 | | | | | | | | | | | | | | | | 31 | | | | | |
| | | | | | | | Cy-2 | | | | | | | | | | | | | | | | | 41 | | | | |
| | | | | | | | Cy-3 | | | | | | | | | | | | | | | | | 41 | | | | |
| | | | | | | | Cy-4 | | | | | | | | | | | | | | | | | 49 | | | | |
| | | | | | | | Cy-6 | | | | | | | | | | | | | | | | | 31 | | | | |
| | | | | | | | Cy-7 | | | | | | | | | | | | | | | | | 44 | | | | |
| | | | | | | | Cy-8 | | | | | | | | | | | | | | | | | 48 | | | | |
| | | | | | | | LyT-5 | | | | | | | | | | | | | | | | | | | | 38 | |
| | | | | | | | LyT-7 | | | | | | | | | | | | | | | | | | | | | 40 |
| | | | | | | | LyT-8 | | | | | | | | | | | | | | | | | | | | | 38 |
| | | | | | | | LyT-9 | | | | | | | | | | | | | | | | | | | | | 23 |
| | | | | | | | LyT-12 | | | | | | | | | | | | | | | | | | | | | 20 |
| | | | | | | | LyT-13 | | | | | | | | | | | | | | | | | | | | | 28 |
| LyT-14 | | | | | | | | | | | | | | | | | | | | | 32 | | | | | | | |
| LyT-15 | | | | | | | | | | | | | | | | | | | | | 55 | | | | | | | |
| LyT-16 | | | | | | | | | | | | | | | | | | | | | 35 | | | | | | | |
| LyT-19 | | | | | | | | | | | | | | | | | | | | | 26 | | | | | | | |
| LyT-21 | | | | | | | | | | | | | | | | | | | | | 42 | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | 34 | | | | | | | |
| | | | | | | | | | 2 | 7 | | | 33 | | 25 | 25 | 42 | | | | | | | | | | | |
| S-1399828-A | Kuylen, P. and K. 71%; Kuylen, P. 29% | 139N | 98W | 28 | 56.38 | 9.35 | RW-15 | | | | 7 | | | | | | | | | | | | | | | | | |
| | | | | | | | Mean | | | | 7 | | | | | | | | | | | | | | | | | |
| S-1399828-B ⁵ | Kuylen, Patrick and Katherine | 139N | 98W | 28 | 0.85 | 0.14 | | | | | | | | | | | | | | | | | | | | | | |
| S-1399834-A | Emmil, Leocadia Family Trust | 139N | 98W | 34 | 0.00 | 0.00 | LyOv-1 | | | | | | | | | | | | | | 3 | | | | | | | |
| | | | | | | | Mean | | | | | | | | | | | | | | 3 | | | | | | | |
| | | | | | | | Permit Area Mean | | | | | | | | | | | | | | | | | | | | | |
| | | | | | Total | 602.82 | 100.00 | | | | 20 | 2 | 18 | 1 | 20 | 33 | 35 | 13 | 41 | 25 | 40 | 47 | 3 | 34 | | | | |

Notes:

¹ Similarity index values are derived from annual production data presented in Appendix C.

² Acreage calculations do not include riparian woodland or wetland ecological communities and are only for native grasslands within the permit area for each tract.

³ Most riparian woodland sites were unsuitable for clipping due to heavy grazing. Additional cover data are presented in Appendix B.

⁴ Common names for each vegetation species are provided in Appendix A.

⁵ No native grassland plots were selected in this tract due to limited availability.

| Rangeland Similarity Index | | | | | |
|--|-------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Saline Lowland | | Location: T139N, R98W, S9 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1361412.9, 446503.0 | | | |
| Pasture Name/No.: Tract S-1399809-F | | Sample ID: SL-7 | | Date: 9/8/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form ¹ | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Puccinellia nuttalliana | 67.7 | 489.01 | 375 | 375 |
| NPG | Distichlis spicata | 4.9 | 35.69 | 250 | 36 |
| NPF | Native Perennial Forb | 27.4 | 198.10 | 125 | 125 |
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| Totals: | | 100 | 722.80 | 750 | 536 |
| (G) Annual production for reference plant community from site description | | | | | 2,500 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 21 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 722.80 | Clipped² | x | Estimated |

¹NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

²Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.1

| Rangeland Similarity Index | | | | | |
|--|----------------------------|--|---|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Saline Lowland | | Location: T139N, R98W, S9 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1361505.6, 446380.5 | | | |
| Pasture Name/No.: Tract S-1399809-F | | Sample ID: SL-8 | | Date: 9/8/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Puccinellia nuttalliana | 70.0 | 305.18 | 375 | 305 |
| NPG | Distichlis spicata | 7.3 | 31.77 | 250 | 32 |
| IPG | Introduced Perennial Grass | 7.0 | 30.70 | 0 | 0 |
| NPF | Native Perennial Forb | 15.6 | 68.18 | 125 | 68 |
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| Totals: | | 100 | 435.82 | 750 | 405 |
| (G) Annual production for reference plant community from site description | | | | | 2,500 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 16 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 435.82 | Clipped² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb ² Clipped annual biomass is based on total production data presented in Appendix C. * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

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| Rangeland Similarity Index | | | | | |
|--|-------------------------|---|--|---|----------------------------------|
| Name: | | South Heart Lignite Mine | Planner: | | Ken Scow |
| Site Name: | | Saline Lowland | Location: | | T139N, R98W, S9 |
| Reference Plant Community: | | Historic Climax Plant Community (NRCS 2003) | GPS Location: | | 1361058.9, 446411.1 |
| Pasture Name/No. | | Tract S-1399809-F | Sample ID: | | SL-9 |
| MLRA / Vegetative Zone: | | MLRA 54 | Date: | | 9/8/06 |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Poa glaucifolia | 11.2 | 306.97 | 75 | 75 |
| NPG | Puccinellia nuttalliana | 51.3 | 1408.84 | 375 | 375 |
| NPG | Distichlis spicata | 37.5 | 1030.84 | 250 | 250 |
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| Totals: | | 100 | 2,746.65 | 700 | 700 |
| (G) Annual production for reference plant community from site description | | | | | 2,500 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 28 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 2,746.65 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

²Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.2

| Rangeland Similarity Index | | | | | |
|--|----------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Riparian Woodland - Loamy Terrace | | Location: T139N, R98W, S14 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1372997.4, 441272.7 | | | |
| Pasture Name/No.: Tract S-1399814-A | | Sample ID: RW-24 | | Date: 9/9/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| IPG | Introduced Perennial Grass | 100.0 | 2,935.47 | 0 | 0 |
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| Totals: | | 100 | 2,935.47 | 0 | 0 |
| (G) Annual production for reference plant community from site description | | | | | 2,900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 0 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 2,935.47 | Clipped ² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb
² Clipped annual biomass is based on total production data presented in Appendix C.
 * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

| Rangeland Similarity Index | | | | | | |
|---|-------------------|---|--|--|-------------------------------|--------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | | |
| Site Name: Wet Meadow | | Location: T139N, R98W, S15 | | | | |
| Reference Plant Community: | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1365325.6, 441433.0 | | |
| | | Pasture Name/No.: Tract S-1399815-A | | Sample ID: WL-8 | | Date: 9/5/06 |
| MLRA / Vegetative Zone: MLRA 54 | | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable | |
| NPG | Carex laeviconica | 100.0 | 4,364.31 | 225 | 225 | |
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| Totals: | | 100 | 4,364.31 | 225 | 225 | |
| (G) Annual production for reference plant community from site description | | | | | 4,500 | |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 5 | |
| (I) Total annual biomass*: (lbs/ac air dry) | | 4,364.31 | Clipped² | x | Estimated | |
| <p>¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb</p> <p>² Clipped annual biomass is based on total production data presented in Appendix C.</p> <p>* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.</p> | | | | | | |

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| Rangeland Similarity Index | | | | | |
|--|-------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Wet Meadow | | Location: T139N, R98W, S16 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1361833.6, 441520.7 | | | |
| Pasture Name/No. Tract S-1399816-A | | Sample ID: WL-7 | | Date: 8/23/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Carex laeviconica | 16.7 | 590.02 | 225 | 225 |
| NPG | Eleocharis xyridiformis | 47.7 | 1,687.97 | 225 | 225 |
| NPF | Native Perennial Forb | 35.6 | 1,259.28 | 225 | 225 |
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| Totals: | | 100 | 3,537.28 | 675 | 675 |
| (G) Annual production for reference plant community from site description | | | | | 4,500 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 15 |
| (I) Total annual biomass*: (lbs/ac air dry) | 3,537.28 | Clipped² | x | Estimated | |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb | | | | | |
| ² Clipped annual biomass is based on total production data presented in Appendix C. | | | | | |
| * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

E:\062212A\0400\0401\Rev1\CH2\2_7LandUseVeg\2_7_2Veg\0632212A_2_7_2_TBL2_7_2-3_R1_21SEP10.xlsx\TBL 2.7.2-3.4 S-1399816-A

| Rangeland Similarity Index | | | | | |
|--|----------------------------|---------------------------|-----------------------------------|----------------------------------|---------------------------|
| Name: South Heart Lignite Mine | | | Planner: Ken Scow | | |
| Site Name: Shallow Clayey | | | Location: T139N, R98W, S16 | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | | GPS Location: 1361868.0, 446116.8 | | |
| Pasture Name/No. Tract S-1399816-A | | | Sample ID: SwCy-1 | | Date: 9/8/06 |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) | (D) C x I | (E) | (F) |
| | | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable |
| NPG | Carex filifolia | 5.6 | 74.96 | 12 | 12 |
| NPG | Koeleria pyramidata | 0.4 | 5.71 | 36 | 6 |
| NPG | Bouteloua gracilis | 3.0 | 39.98 | 96 | 40 |
| NPG | Calamovilfa longifolia | 54.3 | 728.51 | 120 | 120 |
| IPG | Introduced Perennial Grass | 27.6 | 370.86 | 0 | 0 |
| NPF | Native Perennial Forb | 3.2 | 43.19 | 120 | 43 |
| Shrub | Rosa woodsii | 5.9 | 78.88 | 24 | 24 |
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| Totals: | | 100 | 1,342.09 | 408 | 245 |
| (G) Annual production for reference plant community from site description | | | | | 1,200 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 20 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,342.09 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

| Rangeland Similarity Index | | | | | |
|--|----------------------------|--|--------------------------------|----------------------------------|---------------------------|
| Name: | | South Heart Lignite Mine | Planner: | | Ken Scow |
| Site Name: | | Thin Claypan | Location: | | T139N, R98W, S16 |
| Reference Plant Community: | | Historic Climax Plant Community (NRCS 2003) | GPS Location: | | 1361281.6, 443262.0 |
| Pasture Name/No. | | Tract S-1399816-B | Sample ID: | | TCp-3 |
| MLRA / Vegetative Zone: | | MLRA 54 | | Date: 9/5/06 | |
| | | (C) | (D) C x I | (E) | (F) |
| (A) Plant Growth Form | (B) Plant Species | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable |
| NPG | Carex eleocharis | 0.3 | 1.78 | 45 | 2 |
| NPG | Stipa viridula | 0.9 | 5.35 | 18 | 5 |
| NPG | Bouteloua gracilis | 0.3 | 1.78 | 225 | 2 |
| NPG | Distichlis spicata | 51.5 | 324.46 | 45 | 45 |
| NPG | Schedonnardus paniculatus | 0.4 | 2.50 | 18 | 2 |
| IPG | Introduced Perennial Grass | 39.7 | 250.21 | 0 | 0 |
| NPF | Native Perennial Forb | 6.9 | 43.55 | 90 | 44 |
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| Totals: | | 100 | 629.64 | 441 | 100 |
| (G) Annual production for reference plant community from site description | | | | | 900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 11 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 629.64 | Clipped² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb ² Clipped annual biomass is based on total production data presented in Appendix C. * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

TABLE 2.7.2-3.5

| Rangeland Similarity Index | | | | | | |
|--|----------------------|---|--|--------------------------------------|-------------------------------|---------------------|
| Name: | | South Heart Lignite Mine | | Planner: | | Ken Scow |
| Site Name: | | Thin Claypan | | Location: | | T139N, R98W, S16 |
| Reference Plant Community: | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: | | 1360959.2, 442229.0 |
| Pasture Name/No. | | Tract S-1399816-B | Sample ID: | TCp-15 | Date: 9/5/06 | |
| MLRA / Vegetative Zone: | | MLRA 54 | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable | |
| NPG | Agropyron smithii | 6.7 | 27.13 | 270 | 27 | |
| NPG | Koeleria pyramidata | 0.8 | 3.21 | 45 | 3 | |
| NPG | Bouteloua gracilis | 2.9 | 11.78 | 225 | 12 | |
| NPG | Distichlis spicata | 82.5 | 334.81 | 45 | 45 | |
| ABF | Annual/Biennial Forb | 7.1 | 28.91 | 0 | 0 | |
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| Totals: | | 100 | 405.84 | 585 | 87 | |
| (G) Annual production for reference plant community from site description | | | | | 900 | |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 10 | |
| (I) Total annual biomass* (lbs/ac air dry) | | 405.84 | Clipped² | x | Estimated | |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb ² Clipped annual biomass is based on total production data presented in Appendix C. * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | | |

TABLE 2.7.2-3.6

| Rangeland Similarity Index | | | | | |
|---|--|---------------------------|--------------------------------|----------------------------------|---------------------------|
| Name: | South Heart Lignite Mine | | | Planner: | Ken Scow |
| Site Name: | Saline Lowland | | | Location: | T139N, R98W, S17 |
| Reference Plant Community: | Historic Climax Plant Community (NRCS 2003) | | | GPS Location: | 1358502.0, 443026.4 |
| Pasture Name/No. | Tract S-1399817-A | Sample ID: | SL-3 | Date: 8/23/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) | (D) C x I | (E) | (F) |
| | | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable |
| NPG | Puccinellia cusickii | 81.4 | 2,774.85 | 375 | 375 |
| ABF | Annual/Biennial Forb | 18.6 | 633.57 | 0 | 0 |
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| Totals: | | 100 | 3,408.42 | 375 | 375 |
| (G) Annual production for reference plant community from site description | | | | | 2,500 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 15 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 3,408.42 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb
² Clipped annual biomass is based on total production data presented in Appendix C.
 * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

| Rangeland Similarity Index | | | | | |
|--|-------------------------|-----------------------------------|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Claypan | | Location: T139N, R98W, S17 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1354993.9, 444575.2 | | | |
| Pasture Name/No. Tract S-1399817-A | | Sample ID: Cp-1 | | Date: 9/7/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Hordeum jubatum | 47.3 | 885.21 | 0 | 0 |
| NPG | Poa glaucifolia | 24.2 | 452.24 | 75 | 75 |
| NPG | Puccinellia nuttalliana | 6.4 | 119.93 | 75 | 75 |
| NPG | Distichlis spicata | 22.1 | 414.41 | 45 | 45 |
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| Totals: | | 100 | 1,871.79 | 195 | 195 |
| (G) Annual production for reference plant community from site description | | | | | 1,500 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 13 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,871.79 | Clipped² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb ² Clipped annual biomass is based on total production data presented in Appendix C. * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

TABLE 2.7.2-3.6

| Rangeland Similarity Index | | | | | |
|--|-------------------------|--|---|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Thin Claypan | | Location: T139N, R98W, S17 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1358426.9, 441716.1 | | | |
| Pasture Name/No.: Tract S-1399817-A | | Sample ID: TCp-2 | | Date: 8/23/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron trachycaulum | 65.9 | 153.13 | 90 | 90 |
| NPG | Puccinellia nuttalliana | 20.6 | 47.83 | 45 | 45 |
| ABF | Annual/Biennial Forb | 13.5 | 31.41 | 0 | 0 |
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| Totals: | | 100 | 232.37 | 135 | 135 |
| (G) Annual production for reference plant community from site description | | | | | 900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 15 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 232.37 | Clipped ² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb ² Clipped annual biomass is based on total production data presented in Appendix C. * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

TABLE 2.7.2-3.6

| Rangeland Similarity Index | | | | | |
|--|----------------------------|---|--|--|-------------------------------|
| Name: | | South Heart Lignite Mine | | Planner: Ken Scow | |
| Site Name: | | Thin Claypan | | Location: T139N, R98W, S17 | |
| Reference Plant Community: | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1358452.6, 442689.7 | |
| Pasture Name/No.: Tract S-1399817-A | | Sample ID: TCp-7 | | Date: 9/6/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 25.8 | 274.84 | 270 | 270 |
| NPG | Koeleria pyramidata | 0.7 | 7.85 | 45 | 8 |
| NPG | Stipa viridula | 36.5 | 389.06 | 18 | 18 |
| NPG | Buchloe dactyloides | 15.6 | 165.98 | 45 | 45 |
| IPG | Introduced Perennial Grass | 3.3 | 35.34 | 0 | 0 |
| NPF | Native Perennial Forb | 7.0 | 74.24 | 90 | 74 |
| IPF | Introduced Perennial Forb | 0.9 | 9.99 | 0 | 0 |
| ABF | Annual/Biennial Forb | 10.2 | 108.87 | 0 | 0 |
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| Totals: | | 100 | 1,066.18 | 468 | 415 |
| (G) Annual production for reference plant community from site description | | | | | 900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 46 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,066.18 | Clipped² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb | | | | | |
| ² Clipped annual biomass is based on total production data presented in Appendix C. | | | | | |
| * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

| Rangeland Similarity Index | | | | | |
|--|-----------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Shallow Loamy | | Location: T139N, R98W, S21 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1359148.2, 435892.3 | | | |
| Pasture Name/No.: Tract S-1399821-A | | Sample ID: SwLy-1 | | Date: 8/21/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 33.0 | 407.27 | 140 | 140 |
| NPG | Carex filifolia | 26.5 | 326.60 | 98 | 98 |
| NPG | Koeleria pyramidata | 2.2 | 27.13 | 28 | 27 |
| NPG | Stipa comata | 3.5 | 43.19 | 70 | 43 |
| NPG | Bouteloua gracilis | 33.0 | 407.63 | 70 | 70 |
| NPF | Native Perennial Forb | 1.4 | 16.78 | 140 | 17 |
| ABF | Annual/Biennial Forb | 0.5 | 6.07 | 0 | 0 |
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| Totals: | | 100 | 1,234.66 | 546 | 395 |
| (G) Annual production for reference plant community from site description | | | | | 1,400 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 28 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,234.66 | Clipped ² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb | | | | | |
| ² Clipped annual biomass is based on total production data presented in Appendix C. | | | | | |
| * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

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TABLE 2.7.2-3.7

| Rangeland Similarity Index | | | | | |
|---|---------------------------|--|---|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Shallow Loamy | | Location: T139N, R98W, S21 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1360261.5, 439245.9 | | | |
| Pasture Name/No.: Tract S-1399821-A | | Sample ID: SwLy-3 | | Date: 8/21/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 24.5 | 140.28 | 140 | 140 |
| NPG | Carex eleocharis | 0.5 | 2.86 | 14 | 3 |
| NPG | Koeleria pyramidata | 11.7 | 67.10 | 28 | 28 |
| NPG | Stipa viridula | 17.8 | 101.73 | 140 | 102 |
| NPG | Bouteloua gracilis | 23.2 | 132.78 | 70 | 70 |
| NPG | Buchloe dactyloides | 10.6 | 60.68 | 28 | 28 |
| NPF | Native Perennial Forb | 11.1 | 63.54 | 140 | 64 |
| IPF | Introduced Perennial Forb | 0.3 | 1.78 | 0 | 0 |
| ABF | Annual/Biennial Forb | 0.3 | 1.78 | 0 | 0 |
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| Totals: | | 100 | 572.53 | 560 | 434 |
| (G) Annual production for reference plant community from site description | | | | | 1,400 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 31 |
| (I) Total annual biomass* (lbs/ac air dry) | | 572.53 | Clipped² | x | Estimated |
| <p>¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb</p> <p>² Clipped annual biomass is based on total production data presented in Appendix C.</p> <p>* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.</p> | | | | | |

| Rangeland Similarity Index | | | | | | | | |
|--|---------------------------|-------------------------------|---|--------------------------------------|-------------------------------|------------------|--|---------------------|
| Name: | | South Heart Lignite Mine | | Planner: | | Ken Scow | | |
| Site Name: | | Shallow Loamy | | Location: | | T139N, R98W, S21 | | |
| Reference Plant Community: | | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: | | | 1359208.6, 436940.4 |
| Pasture Name/No. | | Tract S-1399821-A | | Sample ID: | | SwLy-4 | | |
| MLRA / Vegetative Zone: | | | MLRA 54 | | Date: | | | 8/21/06 |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable | | | |
| NPG | Agropyron smithii | 15.4 | 140.99 | 140 | 140 | | | |
| NPG | Calamagrostis montanensis | 5.9 | 53.90 | 14 | 14 | | | |
| NPG | Carex filifolia | 39.7 | 364.08 | 98 | 98 | | | |
| NPG | Koeleria pyramidata | 4.8 | 43.90 | 28 | 28 | | | |
| NPG | Stipa comata | 15.6 | 142.78 | 70 | 70 | | | |
| NPG | Bouteloua gracilis | 17.8 | 162.76 | 70 | 70 | | | |
| NPF | Native Perennial Forb | 0.9 | 8.57 | 140 | 9 | | | |
| Totals: | | 100 | 916.98 | 560 | 429 | | | |
| (G) Annual production for reference plant community from site description | | | | | 1,400 | | | |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 31 | | | |
| (I) Total annual biomass*: (lbs/ac air dry) | | 916.98 | Clipped ² | x | Estimated | | | |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.7

| Rangeland Similarity Index | | | | | | | |
|--|-----------------------|---|--|--------------------------------------|-------------------------------|---------------------|--|
| Name: | | South Heart Lignite Mine | | Planner: | | Ken Scow | |
| Site Name: | | Shallow Loamy | | Location: | | T139N, R98W, S21 | |
| Reference Plant Community: | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: | | 1359810.9, 435985.6 | |
| Pasture Name/No.: | | Tract S-1399821-A | | Sample ID: | | SwLy-5 | |
| MLRA / Vegetative Zone: | | MLRA 54 | | Date: | | 8/21/06 | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable | | |
| NPG | Agropyron smithii | 20.0 | 104.94 | 140 | 105 | | |
| NPG | Carex eleocharis | 1.2 | 6.07 | 14 | 6 | | |
| NPG | Carex filifolia | 2.0 | 10.35 | 98 | 10 | | |
| NPG | Koeleria pyramidata | 20.9 | 109.94 | 28 | 28 | | |
| NPG | Poa sandbergii | 0.5 | 2.50 | 14 | 2 | | |
| NPG | Bouteloua gracilis | 26.3 | 138.14 | 70 | 70 | | |
| NPG | Buchloe dactyloides | 18.2 | 95.66 | 28 | 28 | | |
| NPF | Native Perennial Forb | 7.6 | 39.98 | 140 | 40 | | |
| ABF | Annual/Biennial Forb | 3.3 | 17.49 | 0 | 0 | | |
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| Totals: | | 100 | 525.06 | 532 | 290 | | |
| (G) Annual production for reference plant community from site description | | | | | 1,400 | | |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 21 | | |
| (I) Total annual biomass*: (lbs/ac air dry) | | 525.06 | Clipped ² | x | Estimated | | |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

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TABLE 2.7.2-3.7

| Rangeland Similarity Index | | | | | |
|--|---------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Shallow Loamy | | Location: T139N, R98W, S21 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1360804.5, 437161.9 | | | |
| Pasture Name/No. Tract S-1399821-A | | Sample ID: SwLy-16 | | Date: 8/22/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron dasystachyum | 1.7 | 22.13 | 70 | 22 |
| NPG | Calamagrostis montanensis | 1.6 | 19.99 | 14 | 14 |
| NPG | Koeleria pyramidata | 12.8 | 162.76 | 28 | 28 |
| NPG | Stipa comata | 17.1 | 216.66 | 70 | 70 |
| NPG | Andropogon scoparius | 38.8 | 491.86 | 280 | 280 |
| NPG | Bouteloua gracilis | 6.8 | 86.38 | 70 | 70 |
| NPG | Muhlenbergia cuspidata | 13.8 | 175.26 | 210 | 175 |
| NPF | Native Perennial Forb | 7.2 | 91.73 | 140 | 92 |
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| Totals: | | 100 | 1,266.78 | 882 | 751 |
| (G) Annual production for reference plant community from site description | | | | | 1,400 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 54 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,266.78 | Clipped ² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

| Rangeland Similarity Index | | | | | | | |
|--|---------------------------|---|--------------------------------|----------------------------------|---------------------------|---------------------|--|
| Name: | | South Heart Lignite Mine | | Planner: | | Ken Scow | |
| Site Name: | | Shallow Sandy | | Location: | | T139N, R98W, S21 | |
| Reference Plant Community: | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: | | 1359448.0, 436532.3 | |
| Pasture Name/No. | | Tract S-1399821-A | | Sample ID: | | SwSy-2 | |
| MLRA / Vegetative Zone: | | MLRA 54 | | Date: | | 8/21/06 | |
| (A) Plant Growth Form | (B) Plant Species | (C) | (D) C x I | (E) | (F) | | |
| | | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable | | |
| NPG | Agropyron smithii | 21.2 | 247.72 | 56 | 56 | | |
| NPG | Calamagrostis montanensis | 2.6 | 29.98 | 14 | 14 | | |
| NPG | Carex eleocharis | 10.1 | 118.50 | 42 | 42 | | |
| NPG | Carex heliophila | 0.4 | 4.28 | 70 | 4 | | |
| NPG | Stipa comata | 46.4 | 542.19 | 154 | 154 | | |
| NPG | Bouteloua gracilis | 8.7 | 102.08 | 98 | 98 | | |
| NPG | Calamovilfa longifolia | 7.6 | 88.52 | 350 | 89 | | |
| NPF | Native Perennial Forb | 3.1 | 36.41 | 140 | 36 | | |
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| Totals: | | 100 | 1,169.69 | 924 | 493 | | |
| (G) Annual production for reference plant community from site description | | | | | | 1,400 | |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | | 35 | |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,169.69 | Clipped² | x | Estimated | | |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb
² Clipped annual biomass is based on total production data presented in Appendix C.
 * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

| Rangeland Similarity Index | | | | | |
|--|---------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Thin Claypan | | Location: T139N, R98W, S21 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1360216.3, 438459.8 | | | |
| Pasture Name/No.: Tract S-1399821-A | | Sample ID: TCp-4 | | Date: 8/22/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 28.5 | 205.95 | 270 | 206 |
| NPG | Calamagrostis montanensis | 1.9 | 13.56 | 18 | 14 |
| NPG | Koeleria pyramidata | 14.2 | 102.44 | 45 | 45 |
| NPG | Stipa viridula | 4.0 | 28.56 | 18 | 18 |
| NPG | Bouteloua gracilis | 11.3 | 81.74 | 225 | 82 |
| NPG | Muhlenbergia cuspidata | 22.9 | 165.26 | 45 | 45 |
| NPF | Native Perennial Forb | 17.3 | 125.29 | 90 | 90 |
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| Totals: | | 100 | 722.80 | 711 | 499 |
| (G) Annual production for reference plant community from site description | | | | | 900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 55 |
| (I) Total annual biomass* (lbs/ac air dry) | | 722.80 | Clipped² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb ² Clipped annual biomass is based on total production data presented in Appendix C. * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

TABLE 2.7.2-3.7

| Rangeland Similarity Index | | | | | |
|--|----------------------------|-----------------------------------|--|--|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | Site Name: Thin Claypan | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | Location: T139N, R98W, S21 | | GPS Location: 1359269.0, 437988.5 | |
| Pasture Name/No.: Tract S-1399821-A | | Sample ID: TCp-11 | | Date: 8/23/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 50.3 | 387.28 | 270 | 270 |
| NPG | Carex eleocharis | 1.8 | 13.92 | 45 | 14 |
| NPG | Poa sandbergii | 0.7 | 5.35 | 45 | 5 |
| NPG | Bouteloua gracilis | 23.5 | 180.97 | 225 | 181 |
| NPG | Buchloe dactyloides | 6.9 | 53.18 | 45 | 45 |
| IPG | Introduced Perennial Grass | 3.7 | 28.20 | 0 | 0 |
| NPF | Native Perennial Forb | 12.6 | 97.44 | 90 | 90 |
| ABF | Annual/Biennial Forb | 0.6 | 4.28 | 0 | 0 |
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| Totals: | | 100 | 770.63 | 720 | 605 |
| (G) Annual production for reference plant community from site description | | | | | 900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 67 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 770.63 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb
² Clipped annual biomass is based on total production data presented in Appendix C.
 * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.7

| Rangeland Similarity Index | | | | | |
|---|-----------------------|-------------------------------|---|--|-------------------------------|
| Name: | | South Heart Lignite Mine | | Planner: Ken Scow | |
| Site Name: | | Thin Claypan | | Location: T139N, R98W, S21 | |
| Reference Plant Community: | | | Historic Climax Plant Community (NRCS 2003) | GPS Location: 1359558.6, 437452.0 | |
| Pasture Name/No.: Tract S-1399821-A | | Sample ID: TCp-12 | | Date: 8/23/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 41.1 | 466.52 | 270 | 270 |
| NPG | Carex eleocharis | 8.7 | 98.87 | 45 | 45 |
| NPG | Koeleria pyramidata | 3.4 | 38.19 | 45 | 38 |
| NPG | Poa sandbergii | 1.4 | 16.42 | 45 | 16 |
| NPG | Stipa viridula | 16.9 | 192.39 | 18 | 18 |
| NPG | Bouteloua gracilis | 2.5 | 28.20 | 225 | 28 |
| NPG | Buchloe dactyloides | 18.1 | 205.24 | 45 | 45 |
| NPF | Native Perennial Forb | 7.6 | 86.02 | 90 | 86 |
| ABF | Annual/Biennial Forb | 0.3 | 3.21 | 0 | 0 |
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| Totals: | | 100 | 1,135.07 | 783 | 547 |
| (G) Annual production for reference plant community from site description | | | | | 900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 61 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,135.07 | Clipped² | x | Estimated |
| <p>¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb</p> <p>² Clipped annual biomass is based on total production data presented in Appendix C.</p> <p>* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.</p> | | | | | |

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| Rangeland Similarity Index | | | | | |
|--|---------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Thin Claypan | | Location: T139N, R98W, S21 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1359863.7, 436902.7 | | | |
| Pasture Name/No.: Tract S-1399821-A | | Sample ID: TCp-13 | | Date: 8/21/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 18.2 | 208.45 | 270 | 208 |
| NPG | Calamagrostis montanensis | 0.2 | 2.86 | 18 | 3 |
| NPG | Carex eleocharis | 13.0 | 148.13 | 45 | 45 |
| NPG | Koeleria pyramidata | 19.5 | 222.73 | 45 | 45 |
| NPG | Poa sandbergii | 1.3 | 14.63 | 45 | 15 |
| NPG | Stipa comata | 3.2 | 36.41 | 45 | 36 |
| NPG | Stipa viridula | 23.9 | 273.06 | 18 | 18 |
| NPF | Bouteloua gracilis | 11.6 | 132.78 | 225 | 133 |
| NPF | Native Perennial Forb | 9.1 | 104.23 | 90 | 90 |
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| Totals: | | 100 | 1,143.28 | 801 | 593 |
| (G) Annual production for reference plant community from site description | | | | | 900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 66 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,143.28 | Clipped² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb ² Clipped annual biomass is based on total production data presented in Appendix C. * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

TABLE 2.7.2-3.7

| Rangeland Similarity Index | | | | | |
|--|-----------------------|--|--------------------------------|----------------------------------|---------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Thin Claypan | | Location: T139N, R98W, S21 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1360324.6, 438059.2 | | | |
| Pasture Name/No.: Tract S-1399821-A | | Sample ID: TCp-16 | | Date: 8/22/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) | (D) C x I | (E) | (F) |
| | | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 51.3 | 505.07 | 270 | 270 |
| NPG | Carex eleocharis | 1.7 | 17.13 | 45 | 17 |
| NPG | Koeleria pyramidata | 2.4 | 23.56 | 45 | 24 |
| NPG | Buchloe dactyloides | 24.0 | 235.94 | 45 | 45 |
| NPF | Native Perennial Forb | 15.7 | 154.56 | 90 | 90 |
| ABF | Annual/Biennial Forb | 4.9 | 48.54 | 0 | 0 |
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| Totals: | | 100 | 984.80 | 495 | 446 |
| (G) Annual production for reference plant community from site description | | | | | 900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 50 |
| (I) Total annual biomass* (lbs/ac air dry) | | 984.80 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

| Rangeland Similarity Index | | | | | |
|--|-----------------------|---|--------------------------------|----------------------------------|---------------------------|
| Name: | | South Heart Lignite Mine | Planner: | | Ken Scow |
| Site Name: | | Clayey | Location: | | T139N, R98W, S21 |
| Reference Plant Community: | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: | 1359178.4, 436416.4 |
| Pasture Name/No. | | Tract S-1399821-A | Sample ID: | | Cy-1 |
| MLRA / Vegetative Zone: | | MLRA 54 | | Date: 8/21/06 | |
| (A) Plant Growth Form | (B) Plant Species | (C) | (D) C x I | (E) | (F) |
| | | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 45.1 | 459.38 | 840 | 459 |
| NPG | Carex eleocharis | 4.9 | 49.97 | 42 | 42 |
| NPG | Koeleria pyramidata | 0.8 | 8.57 | 63 | 9 |
| NPG | Poa sandbergii | 3.1 | 31.77 | 42 | 32 |
| NPG | Stipa viridula | 3.3 | 33.20 | 525 | 33 |
| NPG | Bouteloua gracilis | 3.3 | 33.55 | 210 | 34 |
| NPG | Buchloe dactyloides | 8.2 | 83.52 | 105 | 84 |
| NPF | Native Perennial Forb | 29.8 | 303.04 | 105 | 105 |
| ABF | Annual/Biennial Forb | 1.4 | 14.63 | 0 | 0 |
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| Totals: | | 100 | 1,017.64 | 1,932 | 797 |
| (G) Annual production for reference plant community from site description | | | | | 2,100 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 38 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,017.64 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

| Rangeland Similarity Index | | | | | |
|--|----------------------------|--|---|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Clayey | | Location: T139N, R98W, S21 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1360380.2, 436741.5 | | | |
| Pasture Name/No. Tract S-1399821-A | | Sample ID: Cy-5 | | Date: 8/21/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 32.6 | 346.95 | 840 | 347 |
| NPG | Carex eleocharis | 0.5 | 5.71 | 42 | 6 |
| NPG | Koeleria pyramidata | 4.1 | 43.90 | 63 | 44 |
| NPG | Poa sandbergii | 0.6 | 6.78 | 42 | 7 |
| NPG | Stipa comata | 0.6 | 6.78 | 105 | 7 |
| NPG | Bouteloua gracilis | 4.4 | 46.40 | 210 | 46 |
| NPG | Buchloe dactyloides | 26.3 | 280.55 | 105 | 105 |
| IPG | Introduced Perennial Grass | 10.0 | 106.73 | 0 | 0 |
| NPF | Native Perennial Forb | 1.8 | 18.92 | 105 | 19 |
| ABF | Annual/Biennial Forb | 19.0 | 202.03 | 0 | 0 |
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| Totals: | | 100 | 1,064.75 | 1,512 | 580 |
| (G) Annual production for reference plant community from site description | | | | | 2,100 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 28 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,064.75 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.7

| Rangeland Similarity Index | | | | | |
|---|------------------------|---------------------------|---|-----------------------------------|--|
| Name: | | South Heart Lignite Mine | | Planner: Ken Scow | |
| Site Name: | | Loamy | | Location: T139N, R98W, S21 | |
| Reference Plant Community: | | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1359160.6, 438389.1 |
| Pasture Name/No.: Tract S-1399821-A | | Sample ID: Ly-2 | | Date: 8/23/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) | (D) C x I | (E) | (F) |
| | | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 54.4 | 719.23 | 720 | 719 |
| NPG | Carex filifolia | 9.1 | 119.93 | 120 | 120 |
| NPG | Poa sandbergii | 0.6 | 8.57 | 120 | 9 |
| NPG | Stipa comata | 1.1 | 14.63 | 240 | 15 |
| NPG | Bouteloua gracilis | 32.1 | 424.40 | 240 | 240 |
| NPG | Muhlenbergia cuspidata | 1.3 | 17.49 | 72 | 17 |
| NPF | Native Perennial Forb | 0.9 | 11.78 | 240 | 12 |
| ABF | Annual/Biennial Forb | 0.4 | 5.35 | 0 | 0 |
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| Totals: | | 100 | 1,321.39 | 1,752 | 1,132 |
| (G) Annual production for reference plant community from site description | | | | | 2,400 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 47 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,321.39 | Clipped² | x | Estimated |
| <p>¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb</p> <p>² Clipped annual biomass is based on total production data presented in Appendix C.</p> <p>* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.</p> | | | | | |

| Rangeland Similarity Index | | | | | |
|--|-----------------------|--------------------------------------|---|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Wet Meadow | | Location: T139N, R98W, S22 | | | |
| | | GPS | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | Location: 1374636.6, 440129.1 | | | |
| Pasture Name/No. Tract S-1399822-A | | Sample ID: WL-12 | | Date: 9/8/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Carex lanuginosa | 4.0 | 349.44 | 360 | 349 |
| NPG | Spartina pectinata | 56.8 | 4,977.53 | 1,350 | 1,350 |
| NPF | Native Perennial Forb | 39.3 | 3,443.40 | 225 | 225 |
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| Totals: | | 100 | 8,770.37 | 1,935 | 1,924 |
| (G) Annual production for reference plant community from site description | | | | | 4,500 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 43 |
| (I) Total annual biomass*: | | 8,770.37 | Clipped² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb ² Clipped annual biomass is based on total production data presented in Appendix C. * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

| Rangeland Similarity Index | | | | | |
|--|----------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Riparian Woodland-Loamy Terrace | | Location: T139N, R98W, S22 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1370462.1, 438396.7 | | | |
| Pasture Name/No.: Tract S-1399822-A | | Sample ID: RW-11 | | Date: 9/6/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| IPG | Introduced Perennial Grass | 94.4 | 2,593.88 | 0 | 0 |
| ABF | Annual/Biennial Forb | 5.6 | 154.20 | 0 | 0 |
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| Totals: | | 100 | 2,748.08 | 0 | 0 |
| (G) Annual production for reference plant community from site description | | | | | 2,900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 0 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 2,748.08 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.8

| Rangeland Similarity Index | | | | | |
|---|----------------------------|--|--------------------------------|----------------------------------|---------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Riparian Woodland-Loamy Terrace | | Location: T139N, R98W, S22 | | | |
| | | GPS Location: 1370177.5, 438018.6 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | | | | |
| Pasture Name/No.: Tract S-1399822-A | | Sample ID: RW-12 | | Date: 9/6/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) | (D) C x I | (E) | (F) |
| | | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable |
| IPG | Introduced Perennial Grass | 100.0 | 2,906.92 | 0 | 0 |
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| Totals: | | 100 | 2,906.92 | 0 | 0 |
| (G) Annual production for reference plant community from site description | | | | | 2,900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 0 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 2,906.92 | Clipped² | x | Estimated |
| <p>¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb</p> <p>² Clipped annual biomass is based on total production data presented in Appendix C.</p> <p>* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.</p> | | | | | |

| Rangeland Similarity Index | | | | | |
|--|----------------------------|---------------------------------|---|--------------------------------------|--|
| Name: | | South Heart Lignite Mine | | Planner: Ken Scow | |
| Site Name: | | Riparian Woodland-Loamy Terrace | | Location: T139N, R98W, S22 | |
| Reference Plant Community: | | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1370971.9, 440337.8 |
| Pasture Name/No.: | | Tract S-1399822-A | Sample ID: RW-30 | | Date: 9/7/06 |
| MLRA / Vegetative Zone: | | | MLRA 54 | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| IPG | Introduced Perennial Grass | 96.5 | 3,004.72 | 0 | 0 |
| ABF | Annual/Biennial Forb | 3.5 | 110.29 | 0 | 0 |
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| Totals: | | | | | 100 |
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| (G) Annual production for reference plant community from site description | | | | | 2,900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 0 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 3,115.02 | Clipped ² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb ² Clipped annual biomass is based on total production data presented in Appendix C. * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

TABLE 2.7.2-3.9

| Rangeland Similarity Index | | | | | | |
|--|---|-------------------------------|--|--------------------------------------|-------------------------------|--|
| Name: | South Heart Lignite Mine | | Planner: | Ken Scow | | |
| Site Name: | Subirrigated | | Location: | T139N, R98W, S27 | | |
| Reference Plant Community: | Historic Climax Plant Community (NRCS 2003) | | GPS Location: | 1366798.9, 434380.2 | | |
| Pasture Name/No. | Tract S-1399827-A | Sample ID: | WL-1 | Date: | 9/10/06 | |
| MLRA / Vegetative Zone: | | | MLRA 54 | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable | |
| NPG | Carex aquatilis | 100.0 | 3,109.30 | 80 | 80 | |
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| Totals: | | 100 | 3,109.30 | 80 | 80 | |
| (G) Annual production for reference plant community from site description | | | | | 4,000 | |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 2 | |
| (I) Total annual biomass*: (lbs/ac air dry) | 3,109.30 | Clipped² | x | Estimated | | |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb | | | | | | |
| ² Clipped annual biomass is based on total production data presented in Appendix C. | | | | | | |
| * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | | |

TABLE 2.7.2-3.9

| Rangeland Similarity Index | | | | | |
|--|----------------------|--|--------------------------------|----------------------------------|---------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Wet Meadow | | Location: T139N, R98W, S27 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1367337.9, 430835.1 | | | |
| Pasture Name/No.: Tract S-1399827-A | | Sample ID: WL-11 | | Date: 9/10/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) | (D) C x I | (E) | (F) |
| | | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable |
| NPG | Carex laeviconica | 88.2 | 1,990.65 | 225 | 225 |
| NPG | Hordeum jubatum | 11.5 | 259.85 | 90 | 90 |
| ABF | Annual/Biennial Forb | 0.3 | 6.78 | 0 | 0 |
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| Totals: | | 100 | 2,257.29 | 315 | 315 |
| (G) Annual production for reference plant community from site description | | | | | 4,500 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 7 |
| (I) Total annual biomass*: | | 2,257.29 | Clipped ² | x | Estimated |

¹NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb
²Clipped annual biomass is based on total production data presented in Appendix C.
 * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.9

| Rangeland Similarity Index | | | | | |
|--|------------------------|-------------------------------|---|--------------------------------------|--|
| Name: | | South Heart Lignite Mine | | Planner: Ken Scow | |
| Site Name: | | Shallow Loamy | | Location: T139N, R98W, S27 | |
| Reference Plant Community: | | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1366359.5, 431007.6 |
| Pasture Name/No. | | Tract S-1399827-A | Sample ID: SwLy-2 | Date: 8/18/06 | |
| MLRA / Vegetative Zone: | | | MLRA 54 | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron dasystachyum | 3.8 | 34.62 | 70 | 35 |
| NPG | Agropyron smithii | 26.7 | 242.01 | 140 | 140 |
| NPG | Carex eleocharis | 3.6 | 32.84 | 14 | 14 |
| NPG | Koeleria pyramidata | 10.4 | 94.23 | 28 | 28 |
| NPG | Poa sandbergii | 0.2 | 1.78 | 14 | 2 |
| NPG | Stipa comata | 7.1 | 64.25 | 70 | 64 |
| NPG | Bouteloua gracilis | 7.3 | 66.39 | 70 | 66 |
| NPG | Buchloe dactyloides | 11.4 | 103.87 | 28 | 28 |
| NPF | Native Perennial Forb | 28.8 | 261.28 | 140 | 140 |
| ABF | Annual/Biennial Forb | 0.7 | 6.78 | 0 | 0 |
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| Totals: | | 100 | 908.06 | 574 | 517 |
| (G) Annual production for reference plant community from site description | | | | | 1,400 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 37 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 908.06 | Clipped² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb ² Clipped annual biomass is based on total production data presented in Appendix C. * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

TABLE 2.7.2-3.9

| Rangeland Similarity Index | | | | | |
|--|------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Shallow Loamy | | Location: T139N, R98W, S27 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1367853.5, 431841.7 | | | |
| Pasture Name/No. Tract S-1399827-A | | Sample ID: SwLy-12 | | Date: 8/18/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 42.1 | 313.75 | 140 | 140 |
| NPG | Koeleria pyramidata | 4.9 | 36.76 | 28 | 28 |
| NPG | Stipa comata | 2.3 | 17.13 | 70 | 17 |
| NPG | Bouteloua gracilis | 33.0 | 245.57 | 70 | 70 |
| NPG | Muhlenbergia cuspidata | 2.7 | 20.35 | 210 | 20 |
| AG | Annual Grass | 0.2 | 1.78 | 0 | 0 |
| NPF | Native Perennial Forb | 12.7 | 94.95 | 140 | 95 |
| ABF | Annual/Biennial Forb | 2.0 | 14.63 | 0 | 0 |
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| Totals: | | 100 | 744.93 | 658 | 370 |
| (G) Annual production for reference plant community from site description | | | | | 1,400 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 26 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 744.93 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.9

| Rangeland Similarity Index | | | | | |
|--|-----------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Shallow Loamy | | Location: T139N, R98W, S27 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1367946.8, 431179.1 | | | |
| Pasture Name/No. Tract S-1399827-A | | Sample ID: SwLy-13 | | Date: 8/18/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 35.0 | 483.30 | 140 | 140 |
| NPG | Carex eleocharis | 0.5 | 7.50 | 14 | 7 |
| NPG | Carex filifolia | 2.6 | 36.05 | 98 | 36 |
| NPG | Koeleria pyramidata | 8.5 | 117.79 | 28 | 28 |
| NPG | Stipa comata | 17.9 | 246.65 | 70 | 70 |
| NPG | Bouteloua gracilis | 17.7 | 244.50 | 70 | 70 |
| AG | Annual Grass | 0.4 | 6.07 | 0 | 0 |
| NPF | Native Perennial Forb | 15.6 | 215.23 | 140 | 140 |
| ABF | Annual/Biennial Forb | 1.8 | 24.27 | 0 | 0 |
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| Totals: | | 100 | 1,381.36 | 560 | 492 |
| (G) Annual production for reference plant community from site description | | | | | 1,400 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 35 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,381.36 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.9

| Rangeland Similarity Index | | | | | |
|--|----------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Sandy | | Location: T139N, R98W, S27 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1365159.8, 435283.1 | | | |
| | | | | | |
| Pasture Name/No.: Tract S-1399827-A | | Sample ID: Sy-1 | | Date: 8/20/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 9.7 | 93.16 | 144 | 93 |
| NPG | Carex eleocharis | 1.5 | 14.28 | 24 | 14 |
| NPG | Koeleria pyramidata | 11.5 | 110.29 | 48 | 48 |
| NPG | Stipa comata | 11.2 | 107.44 | 216 | 107 |
| NPG | Stipa viridula | 5.7 | 54.61 | 120 | 55 |
| NPG | Buchloe dactyloides | 38.7 | 370.15 | 48 | 48 |
| IPG | Introduced Perennial Grass | 21.6 | 207.03 | 0 | 0 |
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| Totals: | | 100 | 956.96 | 600 | 365 |
| (G) Annual production for reference plant community from site description | | | | | 2,400 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 15 |
| (I) Total annual biomass*: | (lbs/ac air dry) | 956.96 | Clipped² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb ² Clipped annual biomass is based on total production data presented in Appendix C. * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

| Rangeland Similarity Index | | | | | |
|--|---------------------------|--|--|--|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Sandy | | Location: T139N, R98W, S27 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1364497.2, 435189.8 | | | |
| Pasture Name/No.: Tract S-1399827-A | | Sample ID: Sy-2 | | Date: 8/20/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 0.6 | 5.00 | 144 | 5 |
| NPG | Calamagrostis montanensis | 3.2 | 27.48 | 48 | 27 |
| NPG | Carex filifolia | 8.9 | 76.03 | 144 | 76 |
| NPG | Carex heliophila | 1.7 | 14.63 | 72 | 15 |
| NPG | Stipa comata | 8.7 | 73.53 | 216 | 74 |
| NPG | Bouteloua gracilis | 9.2 | 77.81 | 192 | 78 |
| NPG | Calamovilfa longifolia | 23.3 | 197.74 | 600 | 198 |
| NPF | Native Perennial Forb | 44.4 | 377.64 | 240 | 240 |
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| Totals: | | 100 | 849.87 | 1656 | 712 |
| | | | | (G) Annual production for reference plant community from site description | 2400 |
| | | | | (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | 30 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 849.87 | Clipped² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb ² Clipped annual biomass is based on total production data presented in Appendix C. * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

| Rangeland Similarity Index | | | | | |
|---|---------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Sandy | | Location: T139N, R98W, S27 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1365006.2, 434897.6 | | | |
| Pasture Name/No.: Tract S-1399827-A | | Sample ID: Sy-3 | | Date: 8/20/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 1.7 | 27.84 | 144 | 28 |
| NPG | Calamagrostis montanensis | 1.5 | 24.27 | 48 | 24 |
| NPG | Carex eleocharis | 4.4 | 71.74 | 24 | 24 |
| NPG | Carex filifolia | 1.9 | 30.34 | 144 | 30 |
| NPG | Carex heliophila | 9.7 | 157.41 | 72 | 72 |
| NPG | Stipa comata | 36.7 | 594.66 | 216 | 216 |
| NPG | Stipa viridula | 0.1 | 1.43 | 120 | 1 |
| NPG | Bouteloua gracilis | 1.9 | 31.41 | 192 | 31 |
| NPG | Calamovilfa longifolia | 4.6 | 74.24 | 600 | 74 |
| NPF | Native Perennial Forb | 37.5 | 607.87 | 240 | 240 |
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| Totals: | | 100 | 1,621.22 | 1,800 | 742 |
| (G) Annual production for reference plant community from site description | | | | | 2,400 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 31 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,621.22 | Clipped ² | x | Estimated |
| <p>¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb</p> <p>² Clipped annual biomass is based on total production data presented in Appendix C.</p> <p>* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.</p> | | | | | |

TABLE 2.7.2-3.9

| Rangeland Similarity Index | | | | | | | | |
|--|---------------------------|---------------------------|---|----------------------------------|---------------------------|------------------|---------------------|-----|
| Name: | | South Heart Lignite Mine | | Planner: | | Ken Scow | | |
| Site Name: | | Clayey | | Location: | | T139N, R98W, S27 | | |
| Reference Plant Community: | | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: | | 1367344.5, 432134.0 | |
| Pasture Name/No. | | Tract S-1399827-A | Sample ID: | | Cy-2 | Date: | 8/19/06 | |
| MLRA / Vegetative Zone: | | | MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) | | | | (D) C x I | (E) | (F) |
| | | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable | | | |
| NPG | Agropyron smithii | 97.9 | 1,550.55 | 840 | 840 | | | |
| NPG | Poa sandbergii | 0.4 | 6.42 | 42 | 6 | | | |
| NPG | Stipa viridula | 0.6 | 9.28 | 525 | 9 | | | |
| NPG | Schedonnardus paniculatus | 0.9 | 13.92 | 105 | 14 | | | |
| IPF | Introduced Perennial Forb | 0.1 | 1.78 | 0 | 0 | | | |
| ABF | Annual/Biennial Forb | 0.1 | 1.78 | 0 | 0 | | | |
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| | | Totals: | 100 | 1,583.74 | 1,512 | 870 | | |
| (G) Annual production for reference plant community from site description | | | | | | 2,100 | | |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | | 41 | | |
| (I) Total annual biomass*: | | (lbs/ac air dry) | 1,583.74 | Clipped ² | x | Estimated | | |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

| Rangeland Similarity Index | | | | | |
|--|----------------------------|---------------------------|---|-----------------------------------|--|
| Name: | | South Heart Lignite Mine | | Planner: Ken Scow | |
| Site Name: | | Clayey | | Location: T139N, R98W, S27 | |
| Reference Plant Community: | | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1367770.5, 430400.6 |
| Pasture Name/No.: | | Tract S-1399827-A | Sample ID: Cy-3 | | Date: 8/18/06 |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) | (D) C x I | (E) | (F) |
| | | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 27.6 | 304.11 | 840 | 304 |
| NPG | Calamagrostis montanensis | 0.8 | 8.57 | 63 | 9 |
| NPG | Carex eleocharis | 5.4 | 59.97 | 42 | 42 |
| NPG | Koeleria pyramidata | 3.1 | 34.62 | 63 | 35 |
| NPG | Stipa comata | 10.3 | 113.51 | 105 | 105 |
| NPG | Stipa viridula | 22.2 | 244.15 | 525 | 244 |
| NPG | Schedonnardus paniculatus | 0.6 | 7.14 | 105 | 7 |
| IPG | Introduced Perennial Grass | 10.5 | 115.65 | 0 | 0 |
| NPF | Native Perennial Forb | 16.2 | 178.83 | 105 | 105 |
| IPF | Introduced Perennial Forb | 0.5 | 5.35 | 0 | 0 |
| ABF | Annual/Biennial Forb | 2.7 | 29.98 | 0 | 0 |
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| Totals: | | 100 | 1,101.87 | 1,848 | 851 |
| (G) Annual production for reference plant community from site description | | | | | 2,100 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 41 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,101.87 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

²Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.9

| Rangeland Similarity Index | | | | | |
|--|----------------------|--|---|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Clayey | | Location: T139N, R98W, S27 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1367568.8, 431463.8 | | | |
| Pasture Name/No.: Tract S-1399827-A | | Sample ID: Cy-4 | | Date: 8/19/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 86.9 | 1,351.73 | 840 | 840 |
| NPG | Poa sandbergii | 0.1 | 1.43 | 42 | 1 |
| NPG | Bouteloua gracilis | 4.9 | 76.74 | 210 | 77 |
| NPG | Buchloe dactyloides | 5.1 | 79.95 | 105 | 80 |
| ABF | Annual/Biennial Forb | 0.1 | 1.43 | 0 | 0 |
| Shrub | Artemisia cana | 2.9 | 44.97 | 21 | 21 |
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| Totals: | | 100 | 1,556.26 | 1,218 | 1,019 |
| (G) Annual production for reference plant community from site description | | | | | 2,100 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 49 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,556.26 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.9

| Rangeland Similarity Index | | | | | |
|--|-----------------------|--|---|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Clayey | | Location: T139N, R98W, S27 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1366382.1, 431400.7 | | | |
| Pasture Name/No. Tract S-1399827-A | | Sample ID: Cy-6 | | Date: 8/19/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 24.3 | 351.23 | 840 | 351 |
| NPG | Carex eleocharis | 0.8 | 11.78 | 42 | 12 |
| NPG | Koeleria pyramidata | 0.3 | 4.64 | 63 | 5 |
| NPG | Poa sandbergii | 1.6 | 22.49 | 42 | 22 |
| NPG | Bouteloua gracilis | 35.6 | 513.28 | 210 | 210 |
| NPG | Distichlis spicata | 33.7 | 486.51 | 21 | 21 |
| AG | Annual Grass | 0.1 | 1.78 | 0 | 0 |
| NPF | Native Perennial Forb | 0.6 | 8.57 | 105 | 9 |
| ABF | Annual/Biennial Forb | 1.8 | 25.70 | 0 | 0 |
| Shrub | Artemisia cana | 1.2 | 16.78 | 21 | 17 |
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| Totals: | | 100 | 1,442.75 | 1,344 | 646 |
| (G) Annual production for reference plant community from site description | | | | | 2,100 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 31 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,442.75 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb
² Clipped annual biomass is based on total production data presented in Appendix C.
* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.9

| Rangeland Similarity Index | | | | | |
|--|----------------------------|--|---|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Clayey | | Location: T139N, R98W, S27 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1366132.5, 433912.6 | | | |
| Pasture Name/No.: Tract S-1399827-A | | Sample ID: Cy-7 | | Date: 8/19/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 46.6 | 778.13 | 840 | 778 |
| NPG | Carex eleocharis | 0.4 | 7.50 | 42 | 7 |
| NPG | Bouteloua gracilis | 0.3 | 5.00 | 210 | 5 |
| IPG | Introduced Perennial Grass | 33.4 | 558.25 | 0 | 0 |
| NPF | Native Perennial Forb | 6.3 | 105.30 | 105 | 105 |
| ABF | Annual/Biennial Forb | 3.9 | 65.68 | 0 | 0 |
| Shrub | Artemisia cana | 9.0 | 150.27 | 21 | 21 |
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| Totals: | | 100 | 1,670.12 | 1,218 | 917 |
| (G) Annual production for reference plant community from site description | | | | | 2,100 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 44 |
| (I) Total annual biomass*: | | 1,670.12 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

²Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

| Rangeland Similarity Index | | | | | |
|--|----------------------------|---------------------------|---|-----------------------------------|--|
| Name: | | South Heart Lignite Mine | | Planner: Ken Scow | |
| Site Name: | | Loamy Terrace | | Location: T139N, R98W, S27 | |
| Reference Plant Community: | | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1367246.4, 430430.8 |
| Pasture Name/No. Tract S-1399827-A | | Sample ID: LyT-7 | | Date: 8/18/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) | (D) C x I | (E) | (F) |
| | | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable |
| NPG | Agropyron dasystachyum | 17.7 | 330.53 | 87 | 87 |
| NPG | Agropyron smithii | 26.0 | 484.37 | 580 | 484 |
| NPG | Carex eleocharis | 0.2 | 4.28 | 87 | 4 |
| NPG | Koeleria pyramidata | 1.3 | 23.91 | 87 | 24 |
| NPG | Poa sandbergii | 2.5 | 45.69 | 87 | 46 |
| NPG | Bouteloua gracilis | 32.5 | 606.08 | 232 | 232 |
| IPG | Introduced Perennial Grass | 1.0 | 18.56 | 0 | 0 |
| AG | Annual Grass | 0.2 | 3.57 | 0 | 0 |
| ABF | Annual/Biennial Forb | 0.3 | 5.71 | 0 | 0 |
| Shrub | Artemisia cana | 18.3 | 341.59 | 290 | 290 |
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| Totals: | | 100 | 1,864.30 | 1,450 | 1,167 |
| (G) Annual production for reference plant community from site description | | | | | 2,900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 40 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,864.30 | Clipped ² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb ² Clipped annual biomass is based on total production data presented in Appendix C. * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

| Rangeland Similarity Index | | | | | |
|--|----------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Loamy Terrace | | Location: T139N, R98W, S27 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1366876.0, 430846.4 | | | |
| Pasture Name/No.: Tract S-1399827-A | | Sample ID: LyT-8 | | Date: 8/19/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 33.1 | 399.77 | 580 | 400 |
| NPG | Carex eleocharis | 10.6 | 128.14 | 87 | 87 |
| NPG | Stipa comata | 10.1 | 122.43 | 145 | 122 |
| NPG | Bouteloua gracilis | 9.6 | 115.65 | 232 | 116 |
| IPG | Introduced Perennial Grass | 1.4 | 17.13 | 0 | 0 |
| NPF | Native Perennial Forb | 6.0 | 72.82 | 290 | 73 |
| Shrub | Artemisia cana | 29.2 | 353.37 | 290 | 290 |
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| Totals: | | 100 | 1,209.31 | 1,624 | 1,088 |
| (G) Annual production for reference plant community from site description | | | | | 2,900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 38 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,209.31 | Clipped ² | x | Estimated |
| ¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb ² Clipped annual biomass is based on total production data presented in Appendix C. * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence. | | | | | |

| Rangeland Similarity Index | | | | | | | |
|--|----------------------------|---|--------------------------------|----------------------------------|---------------------------|---------------------|--|
| Name: | | South Heart Lignite Mine | | Planner: | | Ken Scow | |
| Site Name: | | Loamy Terrace | | Location: | | T139N, R98W, S27 | |
| Reference Plant Community: | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: | | 1366019.3, 431947.4 | |
| Pasture Name/No.: | | Tract S-1399827-A | | Sample ID: | | LyT-9 | |
| MLRA / Vegetative Zone: | | MLRA 54 | | Date: | | 8/19/06 | |
| (A) Plant Growth Form | (B) Plant Species | (C) | (D) C x I | (E) | (F) | | |
| | | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable | | |
| NPG | Agropyron smithii | 93.8 | 2,250.86 | 580 | 580 | | |
| NPG | Carex eleocharis | 0.3 | 6.07 | 87 | 6 | | |
| NPG | Stipa viridula | 1.5 | 35.69 | 580 | 36 | | |
| IPG | Introduced Perennial Grass | 2.9 | 69.60 | 0 | 0 | | |
| NPF | Native Perennial Forb | 1.3 | 32.12 | 290 | 32 | | |
| ABF | Annual/Biennial Forb | 0.3 | 6.07 | 0 | 0 | | |
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| Totals: | | 100 | 2,400.42 | 1,537 | 654 | | |
| (G) Annual production for reference plant community from site description | | | | | 2,900 | | |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 23 | | |
| (I) Total annual biomass*: (lbs/ac air dry) | | 2,400.42 | Clipped² | x | Estimated | | |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

²Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.9

| Rangeland Similarity Index | | | | | |
|--|----------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Loamy Terrace | | Location: T139N, R98W, S27 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1366296.4, 432194.3 | | | |
| Pasture Name/No.: Tract S-1399827-A | | Sample ID: LyT-12 | | Date: 8/19/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 94.8 | 2,990.09 | 580 | 580 |
| NPG | Carex eleocharis | 0.1 | 3.93 | 87 | 4 |
| IPG | Introduced Perennial Grass | 5.1 | 159.55 | 0 | 0 |
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| Totals: | | 100 | 3,153.56 | 667 | 584 |
| (G) Annual production for reference plant community from site description | | | | | 2,900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 20 |
| (I) Total annual biomass*: (lbs/ac air dry) | 3,153.56 | Clipped² | x | Estimated | |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

| Rangeland Similarity Index | | | | | |
|--|----------------------|---------------------------|--|----------------------------------|---------------------------|
| Name: South Heart Lignite Mine | | | Planner: Ken Scow | | |
| Site Name: Loamy Terrace | | | Location: T139N, R98W, S27 | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | | GPS Location: 1366805.4, 431902.1 | | |
| Pasture Name/No.: Tract S-1399827-A | | Sample ID: LyT-13 | | Date: 8/19/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) | (D) C x I | (E) | (F) |
| | | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 74.8 | 661.05 | 580 | 580 |
| NPG | Carex eleocharis | 2.5 | 21.77 | 87 | 22 |
| NPG | Koeleria pyramidata | 3.2 | 27.84 | 87 | 28 |
| NPG | Poa sandbergii | 0.9 | 7.85 | 87 | 8 |
| NPG | Stipa viridula | 3.1 | 27.48 | 580 | 27 |
| NPG | Bouteloua gracilis | 15.4 | 135.99 | 232 | 136 |
| ABF | Annual/Biennial Forb | 0.2 | 1.78 | 0 | 0 |
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| Totals: | | 100 | 883.78 | 1,653 | 801 |
| (G) Annual production for reference plant community from site description | | | | | 2,900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 28 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 883.78 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

²Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

| Rangeland Similarity Index | | | | | |
|--|----------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Loamy Terrace | | Location: T139N, R98W, S27 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1367175.8, 431486.4 | | | |
| Pasture Name/No.: Tract S-1399827-A | | Sample ID: LyT-14 | | Date: 8/19/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 70.7 | 1,237.51 | 580 | 580 |
| NPG | Carex eleocharis | 3.5 | 61.75 | 87 | 62 |
| NPG | Poa sandbergii | 0.9 | 14.99 | 87 | 15 |
| NPG | Stipa comata | 2.3 | 39.62 | 145 | 40 |
| NPG | Bouteloua gracilis | 21.4 | 374.07 | 232 | 232 |
| IPG | Introduced Perennial Grass | 0.9 | 16.06 | 0 | 0 |
| NPF | Native Perennial Forb | 0.3 | 5.35 | 290 | 5 |
| ABF | Annual/Biennial Forb | 0.1 | 1.43 | 0 | 0 |
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| Totals: | | 100 | 1,750.79 | 1,421 | 934 |
| (G) Annual production for reference plant community from site description | | | | | 2,900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 32 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,750.79 | Clipped ² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb
²Clipped annual biomass is based on total production data presented in Appendix C.
 * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.9

| Rangeland Similarity Index | | | | | | | |
|---|----------------------------|-------------------------------|---|--------------------------------------|-------------------------------|------------------|----------------------|
| Name: | | South Heart Lignite Mine | | Planner: | | Ken Scow | |
| Site Name: | | Loamy Terrace | | Location: | | T139N, R98W, S27 | |
| Reference Plant Community: | | | Historic Climax Plant Community (NRCS 2003) | | GPS Location: | | 1367291.7, 431216.8 |
| Pasture Name/No. | | Tract S-1399827-A | | Sample ID: | | LyT-15 | Date: 8/19/06 |
| MLRA / Vegetative Zone: | | | MLRA 54 | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable | | |
| NPG | Agropyron smithii | 36.8 | 673.90 | 580 | 580 | | |
| NPG | Calamagrostis montanensis | 0.4 | 6.78 | 87 | 7 | | |
| NPG | Carex eleocharis | 5.4 | 98.52 | 87 | 87 | | |
| NPG | Koeleria pyramidata | 5.6 | 102.80 | 87 | 87 | | |
| NPG | Stipa viridula | 26.5 | 485.08 | 580 | 485 | | |
| NPG | Bouteloua gracilis | 13.5 | 246.65 | 232 | 232 | | |
| IPG | Introduced Perennial Grass | 5.1 | 94.23 | 0 | 0 | | |
| Shrub | Artemisia cana | 6.7 | 122.07 | 290 | 122 | | |
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| Totals: | | 100 | 1,830.03 | 1,943 | 1,600 | | |
| (G) Annual production for reference plant community from site description | | | | | 2,900 | | |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 55 | | |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,830.03 | Clipped ² | x | Estimated | | |
| <small>¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb</small> | | | | | | | |
| <small>²Clipped annual biomass is based on total production data presented in Appendix C.</small> | | | | | | | |
| <small>* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.</small> | | | | | | | |

TABLE 2.7.2-3.9

| Rangeland Similarity Index | | | | | |
|--|-----------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Loamy Terrace | | Location: T139N, R98W, S27 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1367523.5, 430677.7 | | | |
| Pasture Name/No.: Tract S-1399827-A | Sample ID: LyT-16 | Date: 8/20/06 | | | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 15.2 | 347.66 | 580 | 348 |
| NPG | Agropyron trachycaulum | 7.5 | 172.05 | 116 | 116 |
| NPG | Stipa viridula | 5.8 | 133.85 | 580 | 134 |
| NPG | Bouteloua gracilis | 0.2 | 4.28 | 232 | 4 |
| IPG | Introduced Perennial Grass | 33.9 | 777.77 | 0 | 0 |
| NPF | Native Perennial Forb | 29.4 | 675.33 | 290 | 290 |
| IPF | Introduced Perennial Forb | 0.1 | 1.78 | 0 | 0 |
| ABF | Annual/Biennial Forb | 2.9 | 65.68 | 0 | 0 |
| Shrub | Rosa woodsii | 1.4 | 31.05 | 58 | 31 |
| Shrub | Symphoricarpos occidentalis | 3.7 | 84.59 | 290 | 85 |
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| Totals: | | 100 | 2,294.05 | 2,146 | 1,007 |
| (G) Annual production for reference plant community from site description | | | | | 2,900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 35 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 2,294.05 | Clipped ² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.9

| Rangeland Similarity Index | | | | | |
|--|-----------------------------|--|--------------------------------|----------------------------------|---------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Loamy Terrace | | Location: T139N, R98W, S27 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1366225.8, 433250.0 | | | |
| Pasture Name/No.: Tract S-1399827-A | | Sample ID: LyT-21 | | | |
| MLRA / Vegetative Zone: MLRA 54 | | Date: 8/19/06 | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) | (D) $C \times I$ | (E) | (F) |
| | | Present Plant Community % | Present Plant Community lbs/ac | Reference Plant Community lbs/ac | Pounds Per Acre Allowable |
| NPG | Agropyron smithii | 28.1 | 396.20 | 580 | 396 |
| NPG | Carex eleocharis | 0.6 | 8.92 | 87 | 9 |
| NPG | Koeleria pyramidata | 1.4 | 19.99 | 87 | 20 |
| NPG | Stipa comata | 0.5 | 6.42 | 145 | 6 |
| NPG | Stipa viridula | 30.6 | 431.18 | 580 | 431 |
| IPG | Introduced Perennial Grass | 12.6 | 176.69 | 0 | 0 |
| NPF | Native Perennial Forb | 6.3 | 88.16 | 290 | 88 |
| Shrub | Artemisia cana | 15.7 | 220.59 | 290 | 221 |
| Shrub | Symphoricarpos occidentalis | 4.2 | 59.61 | 290 | 60 |
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| Totals: | | 100 | 1,407.77 | 2,349 | 1,231 |
| (G) Annual production for reference plant community from site description | | | | | 2,900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 42 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 1,407.77 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb
² Clipped annual biomass is based on total production data presented in Appendix C.
 * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

| Rangeland Similarity Index | | | | | |
|--|------------------------------------|--|---|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Riparian Woodland - Loamy Terrace | | Location: T139N, R98W, S28 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1362988.1, 434093.7 | | | |
| Pasture Name/No.: Tract S-1399828-A | | Sample ID: RW-15 | | Date: 9/10/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| IPG | Introduced Perennial Grass | 95.6 | 4,706.97 | 0 | 0 |
| NPF | Native Perennial Forb | 0.7 | 32.12 | 290 | 32 |
| Shrub | <i>Symphoricarpos occidentalis</i> | 3.7 | 182.04 | 290 | 182 |
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| Totals: | | 100 | 4,921.13 | 580 | 214 |
| (G) Annual production for reference plant community from site description | | | | | 2900 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 7 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 4,921.13 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb
² Clipped annual biomass is based on total production data presented in Appendix C.
 * Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

TABLE 2.7.2-3.11

| Rangeland Similarity Index | | | | | |
|--|-----------------------------|--|--|--------------------------------------|-------------------------------|
| Name: South Heart Lignite Mine | | Planner: Ken Scow | | | |
| Site Name: Loamy Overflow | | Location: T139N, R98W, S34 | | | |
| Reference Plant Community: Historic Climax Plant Community (NRCS 2003) | | GPS Location: 1367206.8, 430036.4 | | | |
| Pasture Name/No.: Tract S-1399834-A | | Sample ID: LyOv-1 | | Date: 9/10/06 | |
| MLRA / Vegetative Zone: MLRA 54 | | | | | |
| (A) Plant Growth Form | (B) Plant Species | (C) Present Plant Community % | (D) C x I Present Plant Community lbs/ac | (E) Reference Plant Community lbs/ac | (F) Pounds Per Acre Allowable |
| IPG | Introduced Perennial Grass | 74.8 | 4,521.72 | 0 | 0 |
| IPF | Introduced Perennial Forb | 4.0 | 239.51 | 0 | 0 |
| Shrub | Symphoricarpos occidentalis | 21.2 | 1,279.99 | 96 | 96 |
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| Totals: | | 100 | 6,041.21 | 96 | 96 |
| (G) Annual production for reference plant community from site description | | | | | 3,200 |
| (H) Similarity Index (%) = Total column F divided by (G) Annual Production x 100 | | | | | 3 |
| (I) Total annual biomass*: (lbs/ac air dry) | | 6,041.21 | Clipped² | x | Estimated |

¹ NPG - Native Perennial Grass, IPG - Introduced Perennial Grass, AG - Annual Grass, NPF - Native Perennial Forb, IPF - Introduced Perennial Forb, ABF - Annual/Biennial Forb

² Clipped annual biomass is based on total production data presented in Appendix C.

* Remember to adjust estimate or clipped weight to reflect growing season conditions, growth curve and amount of biomass removed by grazing animals, insects, or plant senescence.

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