

Complementary Rotation Grazing System – 1984

Dickinson Experiment Station

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The 1984 grazing season was the second year of the complementary rotation grazing system at the ranch headquarters of the Dickinson Experiment Station. The complementary rotation grazing system consists of a crested wheatgrass (Agropyron desertorum) pasture for spring grazing, a native range three pasture rotation with twice over on each pasture for summer grazing, and an altai wildrye (Elymus angustus) pasture for fall and early winter grazing. The trial compares animal performance and herbage production between two treatments. The east treatment will be interseeded with a pasture type alfalfa and the west treatment will not be interseeded and used as a control. The east treatment was interseeded in the spring of 1984 but the seedlings failed to become established because of the lack of precipitation in July. Pasture type alfalfas (Medicago falcata) are more difficult to establish and the seedlings are less tolerant of drought conditions than the hay type alfalfas (M. sativa). Within each treatment, the herbage data was compared between the effects of grazing and ungrazing. During the 1983 grazing season both treatments were untreated to establish baseline data.

The soils of the crested wheatgrass and altai wildrye pastures are primarily silt loams and loams. The soils of the native range pastures are primarily fine sandy loams, loams, silty clay loams, silt loams and silty clay.

The crested wheatgrass and altai wildrye pastures were treated as monoculture pastures. The crested wheatgrass pastures were seeded prior to the experiment station occupation. The altai wildrye was seeded into fallow soil in the spring of 1982 at a seeding rate of 8 pounds PLS per acre. Fifty pounds of nitrogen per acre was broadcast applied on each crested wheatgrass and altai wildrye pasture in the spring of 1984.

The native range pastures are on mixed grass prairie with four major range sites which are clayey, sandy, shallow and silty. The dominant graminoids are blue grama (Bouteloua gracilis), threadleaved sedge (Carex filifolia), western wheatgrass (Agropyron smithii) and prairie junegrass (Koeleria pyramidata).

The data that was collected from these pastures were above ground herbage production, species composition by ten pin point frame and 0.1 meter square quadrats, leaf height measurements and phenological phases of eight major graminoid species, and animal performance by weight changes.

Four samples sites were systematically selected for each of the tame grass pastures. Each of the native range pastures had a sample site on each of the four major sites. Each of the respective range site sample sites were selected for similar soil, slope, and aspect in each pasture.

The above ground herbage production was sampled by clipping the vegetation to ground level inside ¼ meter square quadrats both inside and outside enclosure cages. The herbage was separated into nine categories: cool short, warm short, cool mid, western wheatgrass, warm mid, warm tall, sedges, forbs, and shrubs. The samples were oven dried at 80°C. The average herbage production for each category and the total production for each site were determined for each clipping period.

Quantitative species composition data were collected by the ten pin point frame method (Levy and Madden 1933, Tinney, Aamodt, and Ahlgren 1937, Heady and Rader 1958, and Smith 1959). One thousand points were read for each sample site. Forb and shrub density data were collected with a 0.1 meter square quadrat. The forbs and shrubs that were rooted within the frame were counted by species in each of the 25 quadrats per sample site.

Monthly leaf height measurements and phenological development of the flower stalks were collected for nine dominant graminoid species: Agropyron desertorum, Elymus angustus, Agropyron smithii, Bouteloua gracilis, Calamovilfa longifolia, Koeleria pyramidata, Poa pratensis, Stipa comata and Carex filifolia. Twenty four plants of each species were selected at random on each sample site. All of the leaves of each plant were outstretched and measured to the nearest millimeter in sequence from the oldest to youngest. Along with the length measurements, the degree of dryness for the leaf blades were recorded. The categories of dryness used were: 0, 0.1-2, 2.1-25, 25.1-50, 50.1-75, 75.1-98 and 100 percent dry. The highest value of the category was used to record the percentage of dryness for each leaf blade.

If the flower stalks were present, the height was measured and the phenological stage of development was recorded. The categories used were: flower stalk developing, head emergence, anthesis, seeds developing and seeds being shed.

Alfalfa seedling densities per meter of row were collected on each range site of the east treatment both grazed and ungrazed in July and August.

Animal performance was determined by weight gains or losses. Cattle were weighed on and off each pasture during the scheduled rotation periods. These data were converted into mean weight gain in pounds per day per head and mean weight gain in pounds per day per acre for the calves, cows and bulls. Nineteen cow-calf pairs of commercial Hereford and Hereford X Angus were used on each treatment in 1984.

Figure 1 – Diagram of the Crested Wheatgrass, Native Range and Altai Wildrye Pastures of the West and East Systems for the Complementary Rotation Grazing System at the Ranch Headquarters of the Dickinson Experiment Station.

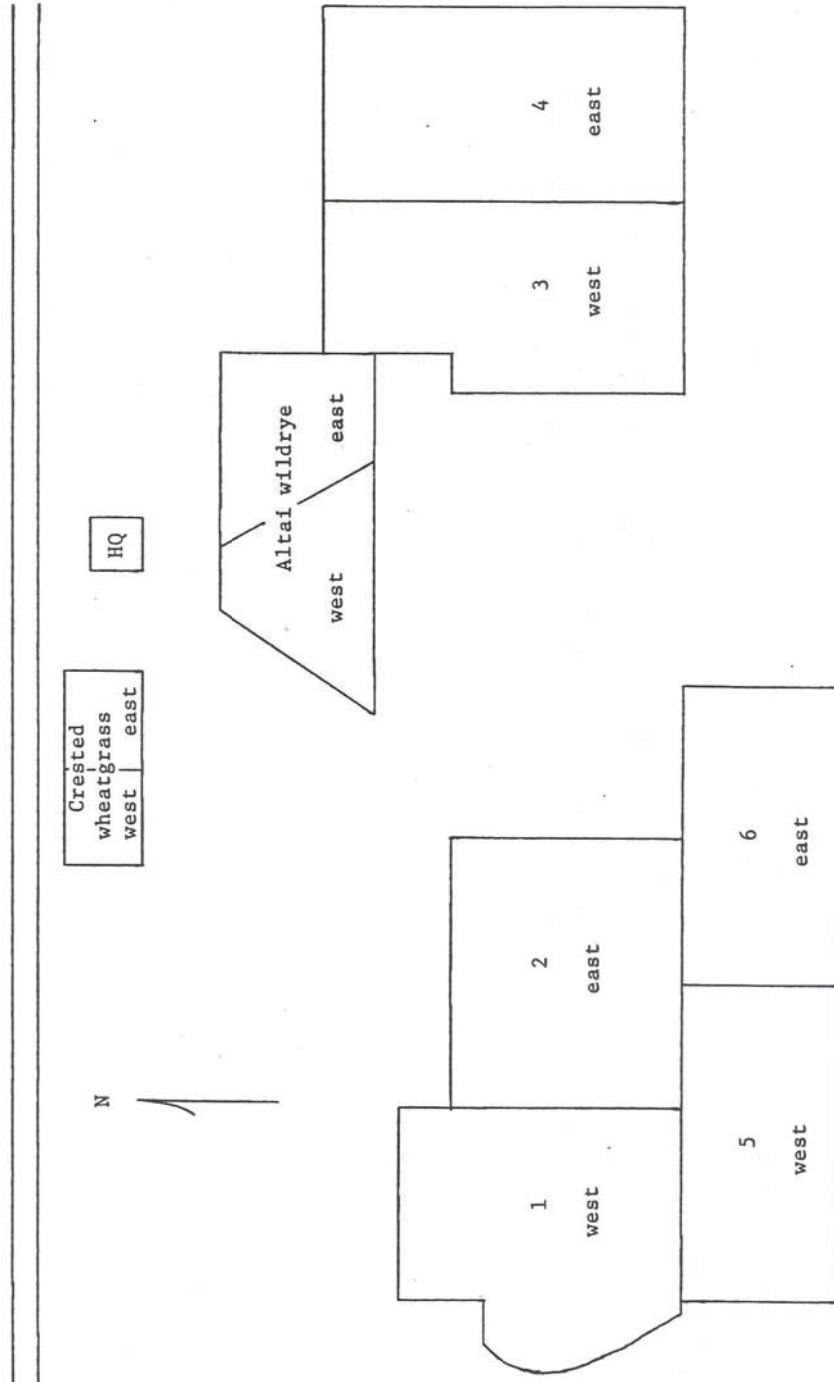


Figure 1. Diagram of the crested wheatgrass, native range and altai wildrye pastures of the west and east systems for the complementary rotation grazing system at the Ranch Headquarters of the Dickinson Experiment Station.

**Table 1. The Rotation Dates and Stocking Pressure Data for the Complementary Rotation Grazing System
At the Dickinson Experiment Station – 1984**

Treatment Pasture	Pasture Size in Acres	Dates Grazed	Days In Period	Total Days Grazed	Number of Head	Number of AUM's	Stocking Rate AUM/Acre
WEST SYSTEM:							
Untreated Crested Wheatgrass	13	10 May – 01 Jun	22	22	20 Cow/calf	14.43	1.11
Native Range							
5 (C)	80	01 Jun – 15 Jun 01 Aug – 31 Aug	14 30	44	19 Cow/calf 1 Bull 19 Cow/calf	27.87	0.35
3 (A)	75	15 Jun – 29 Jun 31 Aug – 01 Oct	14 31	45	19 Cow/calf 1 Bull 19 Cow/calf	28.49	0.38
1 (B)	85	29 Jun – 01 Aug 01 Oct – 16 Oct	33 15	48	19 Cow/calf 1 Bull 19 Cow/calf	30.98	0.36
Altai Wildrye							
	30	16 Oct – 03 Dec 03 Dec – 18 Dec 18 Dec – 31 Dec 16 Oct – 31 Dec	48 15 13	76	19 Cow/calf 19 Cow 19 Cow 19 Cow	29.90 9.34 8.10 47.34	1.00 0.31 0.27 1.58

**Table 2. The Rotation Dates and Stocking Pressure Data for the Complementary Rotation Grazing System
At the Dickinson Experiment Station – 1984**

Treatment Pasture	Pasture Size in Acres	Dates Grazed	Days In Period	Total Days Grazed	Number of Head	Number of AUM's	Stocking Rate AUM/Acre
EAST SYSTEM:							
Alfalfa interseeded Crested Wheatgrass	13	10 May – 01 Jun	22	22	20 Cow/calf	14.43	1.11
Native Range							
6 (C)	80	01 Jun – 15 Jun 01 Aug – 31 Aug	14 30	44	19 Cow/calf 1 Bull 19 Cow/calf	27.87	0.35
4 (A)	75	15 Jun – 29 Jun 31 Aug – 01 Oct	14 31	45	19 Cow/calf 1 Bull 19 Cow/calf	28.49	0.38
2 (B)	80	29 Jun – 01 Aug 01 Oct – 16 Oct	33 15	48	19 Calf/cow 1 Bull 19 Cow/calf	30.98	0.39
Altai Wildrye							
	30	16 Oct – 03 Dec 03 Dec – 18 Dec 18 Dec – 31 Dec 16 Oct – 31 Dec	48 15 13	76	19 Cow/calf 19 Cow 19 Cow 19 Cow	29.90 9.34 8.10 47.34	1.00 0.31 0.27 1.58

Table 3. Mean Daily Weight Gains for the Calves, Cows and Bulls on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

Treatment Animal Class	Crested Wheatgrass			Native Range			Altai Wildrye	
	<u>C</u> 5	<u>A</u> 3	<u>B</u> 1	<u>C</u> 5	<u>A</u> 3	<u>B</u> 1	<u>C</u> 5	<u>B</u> 1
WEST SYSTEM:								
Calf								
Gain/day/head	2.09	1.73	1.61	2.35	1.73	1.61	2.35	1.09
Gain/day/acre	3.22	0.44	0.36	0.56	0.44	0.36	0.56	0.69
Cow								
Gain/day/head	3.29	1.16	-0.86	0.54	1.16	-0.86	0.54	-0.12
Gain/day/acre	5.07	0.29	-0.19	0.13	0.29	-0.19	0.13	-0.07
Bull								
Gain/day/head	0.86	2.86	0.73	0.86	2.86	0.73	0.86	0.73
Gain/day/acre	0.01	0.04	0.01	0.01	0.04	0.01	0.01	0.01
EAST SYSTEM:								
Calf								
Gain/day/head	2.19	1.65	1.88	2.53	1.65	1.88	2.53	1.14
Gain/day/acre	3.36	0.42	0.45	0.60	0.42	0.45	0.60	0.72
Cow								
Gain/day/head	2.93	0.73	-0.80	0.55	0.73	-0.80	0.55	0.00
Gain/day/acre	4.50	0.18	-0.19	0.13	0.18	-0.19	0.13	0.00
Bull								
Gain/day/head	-6.64	2.57	3.24	-6.64	2.57	3.24	-6.64	3.24
Gain/day/acre	-0.08	0.03	0.04	-0.08	0.03	0.04	-0.08	0.04

Table 4. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Crested Wheatgrass on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – WEST											
Ungrazed:											
Crested whtig.	790.3	1049.9	1284.5	1625.7	2036.0	2281.7	2208.6	1950.4	1697.0		
Other grasses	0.0	13.4	35.2	24.1	96.8	3.6	8.0	19.6	53.5		
Grass Total	790.3	1063.3	1319.7	1649.8	2132.8	2285.3	2216.6	1970.0	1750.6		
Forbs	1.8	9.8	4.0	8.5	51.7	9.8	6.2	5.8	17.0		
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total	792.1	1073.1	1323.7	1658.2	2184.5	2295.1	2222.9	1975.8	1767.5		
Grazed:											
Crested whtig.	1049.9	1049.9	490.2	663.7	891.6	1202.9	944.2	807.7	747.5		
Other grasses	13.4	13.4	40.1	22.3	53.5	26.3	44.2	33.9	24.5		
Grass Total	1063.3	1063.3	530.3	686.0	945.1	1229.2	988.3	841.6	772.0		
Forbs	9.8	9.8	8.9	15.6	36.6	16.5	12.0	95.9	6.7		
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total	1073.1	1073.1	539.2	701.6	981.6	1245.7	1000.4	937.5	778.7		

Table 5. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Crested Wheatgrass on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – EAST											
Ungrazed:											
Crested whtg.	790.3	1068.6	829.6	1372.3	1560.1	2260.3	2805.0	2288.0	1826.4		
Other grasses	0.0	0.0	6.2	22.3	14.3	9.4	12.0	19.6	0.0		
Grass Total	790.3	1068.6	835.8	1394.6	1574.4	2269.7	2817.0	2307.6	1826.4		
Forbs	1.8	16.1	0.0	12.0	25.0	5.8	169.9	37.9	15.2		
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total	792.1	1084.7	835.8	1406.7	1599.4	2275.5	2986.9	2345.5	1841.5		
Grazed:											
Crested whtg.	1068.6	508.0	706.9	727.4	1028.9	1019.6	1109.7	783.6			
Other grasses	0.0	20.1	17.8	15.6	21.4	56.2	44.2	3.1			
Grass Total	1068.6	528.1	724.8	743.0	1050.3	1075.8	1153.8	786.7			
Forbs	16.1	11.2	10.7	29.0	17.8	15.2	25.4	32.6			
Shrubs	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0			
Total	1084.7	539.2	737.2	772.0	1068.2	1090.9	1179.2	819.3			

Table 6. Mean Above Ground Herbage Production in Lbs./Acre for the Crested Wheatgrass on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – West	I-----I										
Ungrazed	792.1	1073.1	1323.7	1658.2	2184.5	2295.1	2222.9	1975.8	1767.5		
Grazed		1073.1	539.2	701.6	981.6	1245.7	1000.4	937.5	778.7		
System – East											
Ungrazed	792.1	1084.7	835.8	1406.7	1599.4	2275.5	2986.9	2345.5	1841.5		
Grazed		1084.7	539.2	737.2	772.0	1068.2	1090.9	1179.2	819.3		

Table 7. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – West	I-----I										
Pasture – 1	I-----I										
Site -Clayey	I-----I										
Ungrazed:											
Cool Short	190.2	168.8	64.2	128.5	233.7	124.9	92.8				
Warm Short	145.6	621.9	366.8	167.7	483.5	542.3	584.1				
Cool Mid	154.5	150.9	121.3	454.9	80.3	371.1	213.0				
Western whtg.	142.7	292.6	306.1	303.3	390.7	324.7	253.3				
Warm Mid	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Sedge	118.8	17.8	8.9	0.0	0.0	17.8	7.1				
Grass Total	751.8	1252.0	867.4	1054.4	1188.1	1380.8	1150.3	1848.2	2251.4		
Forbs	109.9	174.1	317.6	410.3	631.5	446.0	792.1	529.8	927.7		
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total	861.7	1426.1	1184.9	1464.7	1819.7	1826.8	1942.4	2378.0	3179.1		
Grazed:											
Cool Short	64.2	106.0	10.7	41.8	17.8						
Warm Short	366.8	315.1	745.7	566.2	395.0						
Cool Mid	121.3	188.0	202.3	205.9	123.8						
Western whtg.	306.1	227.3	295.1	78.5	129.5						
Warm Mid	0.0	184.5	0.0	0.0	0.0						
Warm Tall	0.0	0.0	0.0	0.0	0.0						
Sedge	8.9	0.0	0.0	0.0	0.0						
Grass Total	867.4	1020.8	1253.8	892.4	666.2	1550.3	1279.1				
Forbs	317.6	443.5	569.8	171.3	362.9	174.8	231.9				
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total	1184.9	1464.3	1823.6	1063.6	1029.0	1725.1	1511.1				

Table 8. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	15 Oct	
System – West	I-----I										
Pasture – 1	I-----I										
Site - Sandy	I-----I										
Ungrazed:											
Cool Short	160.6	10.0	7.9	5.4	62.4	25.0	11.8				
Warm Short	29.6	94.6	7.9	1.8	119.5	78.5	92.8				
Cool Mid	64.2	422.1	277.6	337.2	249.8	208.0	205.9				
Western whtg.	17.8	4.6	13.6	0.0	35.7	9.6	18.9				
Warm Mid	0.0	11.8	2.9	5.4	0.0	0.0	0.0				
Warm Tall	148.1	315.8	477.4	738.6	838.5	502.0	768.2				
Sedge	392.5	622.6	344.0	401.4	422.8	304.4	230.9				
Grass Total	812.8	1481.4	1131.1	1489.6	1728.7	1127.5	1328.4	1423.6	2044.5		
Forbs	41.0	84.9	97.8	92.8	66.0	38.2	8.2	173.1	28.5		
Shrubs	80.3	68.9	26.4	169.5	98.1	59.6	117.7	74.9	60.7		
Total	934.1	1635.2	1255.2	1751.9	1892.8	1225.3	1454.3	1671.6	2133.7		
Grazed:											
Cool Short	7.9	18.9	76.0	7.1	42.8						
Warm Short	7.9	31.0	59.6	107.0	39.3						
Cool Mid	277.6	334.3	418.5	241.6	256.9						
Western whtg.	13.6	8.2	40.3	8.2	0.0						
Warm Mid	2.9	9.6	136.7	0.0	38.2						
Warm Tall	477.4	422.1	650.5	211.6	304.4						
Sedge	344.0	411.4	218.7	335.4	147.4						
Grass Total	1131.1	1235.6	1600.3	910.9	828.9	895.6	1971.3				
Forbs	97.8	118.8	206.9	102.4	67.8	26.8					
Shrubs	26.4	20.3	56.0	96.3	14.3	105.3					
Total	1255.2	1374.7	1863.2	1109.7	884.9	977.7	2103.3				

Table 9. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – West	I-----I										
Pasture – 1	I-----I										
Site - Shallow	I-----I										
Ungrazed:											
Cool Short	135.6	89.2	110.6	126.7	169.5	56.0	79.6				
Warm Short	12.5	185.5	79.6	108.8	55.3	139.2	98.8				
Cool Mid	17.1	198.0	243.7	421.0	276.5	399.6	240.1				
Western whtg.	0.0	0.0	1.1	10.7	32.1	42.8	0.0				
Warm Mid	0.0	0.0	26.8	0.0	219.4	53.5	74.9				
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Sedge	324.0	192.7	198.0	255.1	124.9	135.6	64.2				
Grass Total	489.2	665.4	659.7	922.3	877.7	826.7	557.7	1066.8	512.0		
Forbs	165.2	115.3	51.7	117.7	160.6	183.0	234.4	130.2	44.6		
Shrubs	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0		
Total	654.4	780.7	711.5	1040.1	1088.2	1009.8	792.1	1197.0	556.6		
Grazed:											
Cool Short	110.6	81.0	97.4	82.1	51.0						
Warm Short	79.6	59.6	141.7	116.7	140.2						
Cool Mid	243.7	516.3	384.3	229.4	148.8						
Western whtg.	1.1	6.1	0.0	0.0	13.2						
Warm Mid	26.8	26.1	50.0	17.8	74.9						
Warm Tall	0.0	0.0	0.0	0.0	0.0						
Sedge	198.0	155.9	206.9	57.1	67.8						
Grass Total	659.7	844.9	880.2	503.1	496.0	635.1	433.5				
Forbs	51.7	135.6	115.3	170.2	138.1	60.7	46.4				
Shrubs	0.0	0.0	23.9	0.0	20.3	10.7	0.0				
Total	711.5	980.5	1019.4	673.3	654.4	706.5	479.9				

Table 10. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	15 Oct	
System – West	I-----I										
Pasture – 1	I-----I										
Site – Silty	I-----I										
Ungrazed:											
Cool Short			29.6	38.5	72.4	1.8	0.0	47.5	6.1		
Warm Short			171.3	373.9	516.7	708.3	715.4	616.2	547.0		
Cool Mid			147.4	561.3	246.2	351.5	519.1	630.5	857.4		
Western whtg.			137.4	155.2	182.0	130.2	107.0	102.4	78.5		
Warm Mid			0.0	14.3	12.5	0.0	0.0	265.1	0.0		
Warm Tall			0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Sedge			151.6	142.7	85.6	3.6	14.3	21.4	33.2		
Grass Total			637.2	1285.9	1115.4	1195.3	1355.8	1683.0	1522.1	3300.4	2481.5
Forbs			171.3	126.0	86.7	383.6	472.8	167.7	235.5	110.6	119.5
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total			808.5	1411.8	1202.1	1578.8	1828.6	1850.7	1757.6	3411.0	2601.1
Grazed:											
Cool Short					72.4	54.6	21.4	26.1	0.0		
Warm Short					516.7	745.7	407.8	531.6	275.8		
Cool Mid					246.2	418.5	331.8	321.1	252.3		
Western whtg.					182.0	178.4	215.2	103.5	97.4		
Warm Mid					12.5	0.0	56.0	157.0	102.4		
Warm Tall					0.0	0.0	0.0	0.0	0.0		
Sedge					85.6	9.6	25.0	31.0	25.0		
Grass Total					1115.4	1406.9	1057.2	1170.3	752.9	2378.1	1737.6
Forbs					86.7	247.3	396.1	97.4	133.1	210.5	151.6
Shrubs					0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total					1202.1	1654.1	1453.3	1267.7	886.0	2588.6	1889.3

Table 11. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – East	I-----I										
Pasture – 2	I-----I										
Site – Clayey	I-----I										
Ungrazed:											
Cool Short	10.7	106.3	106.3	173.1	146.3	121.3	60.7				
Warm Short	155.2	181.3	293.7	296.1	205.2	413.9	348.6				
Cool Mid	137.4	281.9	344.3	223.0	326.5	260.5	349.7				
Western whtg.	63.5	206.9	163.4	356.8	273.0	198.7	174.8				
Warm Mid	6.4	0.0	0.0	0.0	0.0	0.0	0.0				
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Sedge	20.7	18.9	8.9	10.7	62.4	6.1	9.6				
Grass Total	393.9	795.3	916.6	1059.7	1013.3	1000.5	943.4	1305.9	1263.1		
Forbs	165.9	376.4	270.5	351.5	1288.1	386.4	529.1	381.8	429.9		
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total	559.8	1171.7	1187.1	1411.1	2301.4	1386.9	1472.5	1687.7	1693.0		
Grazed:											
Cool Short	106.3	71.4	77.4	15.3	63.2						
Warm Short	293.7	216.6	418.5	285.4	291.5						
Cool Mid	344.3	444.9	339.0	100.0	175.9						
Western whtg.	163.4	198.7	255.8	120.2	107.0						
Warm Mid	0.0	0.0	0.0	0.0	0.0						
Warm Tall	0.0	0.0	0.0	0.0	0.0						
Sedge	8.9	0.0	28.5	0.0	10.7						
Grass Total	916.6	931.6	1119.3	520.9	648.3	1191.7	8.5				
Forbs	270.5	368.6	599.4	472.1	318.6	139.2	344.3				
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Total	1187.1	1300.2	1718.7	993.0	966.9	1330.9	1197.1				

Table 12. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – East	I-----I										
Pasture – 2	I-----I										
Site – Sandy	I-----I										
Ungrazed:											
Cool Short	135.6	185.5	28.5	155.2	74.9	46.4	50.0	46.4	50.0		
Warm Short	27.8	26.1	63.5	14.3	46.4	41.8	113.1	41.8	113.1		
Cool Mid	6.4	281.2	183.8	645.8	92.8	120.2	174.8	120.2	174.8		
Western whtg.	14.3	55.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Warm Mid	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0		
Warm Tall	98.1	198.0	202.7	492.4	1102.5	417.5	509.2	417.5	509.2		
Sedge	735.0	373.9	401.4	421.0	187.3	353.2	361.4	353.2	361.4		
Grass Total	1017.2	1120.0	881.6	1728.7	1503.9	979.1	1208.0	979.1	1208.0	1930.3	2098.0
Forbs	50.0	54.6	71.4	41.0	267.6	86.7	51.0	86.7	51.0	87.4	1.8
Shrubs	22.5	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1089.7	1174.6	978.0	1769.7	1771.5	1065.8	1259.1	1065.8	1259.1	2017.7	2099.8
Grazed:											
Cool Short	28.5	74.9	127.4	70.3	15.3						
Warm Short	63.5	107.0	59.6	93.8	60.7						
Cool Mid	183.8	273.7	267.6	233.0	149.9						
Western whtg.	0.0	0.0	0.0	0.0	0.0						
Warm Mid	1.8	11.8	424.6	0.0	0.0						
Warm Tall	202.7	198.7	695.8	272.2	286.5						
Sedge	401.4	224.8	0.0	233.0	362.9						
Grass Total	881.6	890.9	1574.9	902.3	875.2	1851.9	1420.1	902.3	875.2	1851.9	1420.1
Forbs	71.4	39.3	155.9	79.6	8.9	1.8		79.6	31.0	8.9	1.8
Shrubs	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	978.0	930.2	1730.8	981.8	906.3	1860.8	1421.8	981.8	906.3	1860.8	1421.8

Table 13. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – East	I-----I										
Pasture – 2	I-----I										
Site - Shallow	I-----I										
Ungrazed:											
Cool Short	108.1	161.6	145.6	165.9	153.4	111.7	60.7				
Warm Short	56.4	35.0	67.8	66.0	123.1	159.5	150.9				
Cool Mid	126.7	443.5	324.0	494.2	496.0	373.6	500.6				
Western whtg.	5.4	2.9	1.1	3.6	0.0	0.0	0.0				
Warm Mid	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Sedge	274.7	270.5	213.4	173.1	215.9	204.5	147.4				
Grass Total	571.2	913.4	751.8	902.7	988.3	849.2	859.5	936.4			936.6
Forbs	142.7	71.4	144.5	160.6	176.6	214.1	132.0	67.8			140.9
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0
Total	714.0	984.8	896.3	1063.3	1165.0	1063.3	991.6	1006.2			1077.5
Grazed:											
Cool Short			145.6	73.9	115.3	46.4	18.9				
Warm Short			67.8	77.4	129.5	155.9	86.7				
Cool Mid			324.0	388.9	377.1	160.6	222.3				
Western whtg.			1.1	0.0	0.0	0.0	0.0				
Warm Mid			0.0	0.0	0.0	18.9	4.6				
Warm Tall			0.0	0.0	0.0	0.0	0.0				
Sedge			213.4	171.3	209.4	186.6	72.4				
Grass Total			751.8	711.5	831.4	568.4	405.0	694.0			506.7
Forbs			144.5	129.5	220.2	154.5	104.5	66.0			53.5
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0			0.0
Total			896.3	841.0	1051.5	722.9	509.5	760.0			560.2

Table 14. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – East	-----										
Pasture – 2	-----										
Site – Silty	-----										
Ungrazed:											
Cool Short			0.0	56.4	83.9	30.3	16.1	27.5	17.8		
Warm Short			349.7	384.6	297.9	786.7	1015.1	455.6	468.5		
Cool Mid			26.1	263.3	343.6	0.0	545.9	161.6	146.3		
Western whtg.			190.2	175.9	140.9	119.5	319.3	147.4	77.4		
Warm Mid			0.0	0.0	1.8	0.0	333.6	38.2	85.6		
Warm Tall			0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Sedge			193.7	349.0	264.0	55.3	110.6	152.4	111.7		
Grass Total			759.6	1228.7	1132.1	991.9	2340.6	982.5	907.4	1880.3	1657.3
Forbs			187.3	92.1	233.7	294.4	465.6	342.5	564.8	128.5	3.6
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total			946.9	1320.8	1365.8	1286.3	2806.2	1325.1	1472.2	2008.8	1661.1
Grazed:											
Cool Short					83.9	16.8	109.5	26.1	3.6		
Warm Short					297.9	337.9	502.0	356.8	336.5		
Cool Mid					343.6	430.7	214.1	254.4	67.8		
Western whtg.					140.9	200.9	124.9	66.7	45.3		
Warm Mid					1.8	7.1	38.2	74.9	0.0		
Warm Tall					0.0	0.0	0.0	0.0	0.0		
Sedge					264.0	157.0	67.8	180.9	193.7		
Grass Total					1132.1	1150.3	1056.5	959.8	646.9	1625.2	974.1
Forbs					233.7	79.6	152.4	195.2	322.2	37.5	46.4
Shrubs					0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total					1365.8	1229.9	1208.8	1155.0	969.1	1662.7	1020.4

Table 15. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	15 Oct
System – West	I-----I									
Pasture – 3	I-----I									
Site - Clayey	I-----I									
Ungrazed:										
Cool Short		95.6	187.3	319.3	296.1	157.0	141.7	135.6		
Warm Short		194.5	340.7	276.5	299.7	852.8	384.3	327.2		
Cool Mid		18.9	258.0	198.0	219.4	139.2	129.5	139.2		
Western whtg.		53.5	169.5	80.3	117.7	187.3	231.9	101.0		
Warm Mid		25.0	0.0	0.0	0.0	0.0	0.0	0.0		
Warm Tall		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Sedge		177.7	17.8	80.3	0.0	69.6	25.0	32.1		
Grass Total		565.2	973.4	954.4	933.0	1405.8	912.3	735.0	1040.1	1316.6
Forbs		150.9	217.7	117.7	112.4	182.0	31.0	268.7	410.3	183.8
Shrubs		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total		716.1	1191.0	1072.2	1045.4	1587.8	943.4	1003.7	1450.4	1500.3
Grazed:										
Cool Short		187.3	243.7	91.7	78.5	118.8	64.2			
Warm Short		340.7	189.1	132.0	399.6	404.3	346.1			
Cool Mid		258.0	211.6	325.8	240.1	73.9	122.4			
Western whtg.		169.5	132.0	95.3	57.1	158.1	36.8			
Warm Mid		0.0	0.0	18.9	41.8	0.0	0.0			
Warm Tall		0.0	0.0	0.0	0.0	0.0	0.0			
Sedge		17.8	31.0	54.6	122.4	33.2	63.2			
Grass Total		973.4	807.4	718.3	939.5	788.2	632.6	761.8	727.9	
Forbs		217.7	98.8	54.6	199.8	222.3	157.0	235.5	76.7	
Shrubs		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total		1191.0	906.3	844.2	1139.3	1010.5	789.6	997.3	804.6	

Table 16. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – West	I-----I										
Pasture – 3	I-----I										
Site - Sandy	I-----I										
Ungrazed:											
Cool Short		127.7	17.8	142.7	17.8	67.8	41.8	29.6			
Warm Short		85.6	26.1	119.5	17.8	42.8	56.0	45.3			
Cool Mid		84.9	204.5	795.7	185.5	485.3	285.4	188.0			
Western whtg.		0.0	29.6	30.3	19.6	0.0	8.2	7.1			
Warm Mid		0.0	0.0	0.0	0.0	0.0	8.2	0.0			
Warm Tall		129.5	310.4	233.7	412.1	572.7	315.1	582.7			
Sedge		579.8	702.2	547.7	356.8	155.2	520.9	247.3			
Grass Total		1007.6	1290.6	1869.6	1009.7	1323.7	1235.6	1100.0	1926.7	1639.5	
Forbs		74.2	95.6	62.4	171.3	153.4	300.8	117.7	39.3	1.8	
Shrubs		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total		1081.8	1386.2	1932.1	1181.0	1477.2	1536.4	1217.7	1966.0	1641.3	
Grazed:											
Cool Short		17.8	90.3	6.1	41.8	28.5	14.3				
Warm Short		26.1	58.2	13.2	63.2	61.7	132.0				
Cool Mid		204.5	646.9	239.1	222.3	314.0	159.5				
Western whtg.		29.6	7.1	0.0	10.7	0.0	0.0				
Warm Mid		0.0	0.0	0.0	0.0	18.9	0.0				
Warm Tall		310.4	221.2	614.8	382.9	217.7	413.9				
Sedge		702.2	335.4	527.0	353.2	185.5	359.3				
Grass Total		1290.6	1359.1	1400.1	1074.0	826.4	1079.0	1625.2	1000.8		
Forbs		95.6	54.6	63.2	84.6	238.0	73.9	64.2	69.6		
Shrubs		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total		1386.2	1413.7	1463.2	1058.5	1064.3	1152.8	1689.4	1070.4		

Table 17. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	15 Oct
System – West	I-----I									
Pasture – 3	I-----I									
Site - Shallow	I-----I									
Ungrazed:										
Cool Short	173.1	134.9	228.4	276.5	153.4	252.3	145.2			
Warm Short	76.0	131.3	233.7	14.3	171.3	190.2	134.5			
Cool Mid	397.8	411.4	454.9	479.9	367.5	605.5	384.3			
Western whtg.	7.1	8.2	7.2	0.0	26.8	7.1	2.5			
Warm Mid	0.0	7.1	0.0	50.0	0.0	0.0	0.0			
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Sedge	61.7	53.5	23.2	58.9	42.8	4.6	79.6			
Grass Total	715.8	746.4	947.4	879.5	761.8	1059.7	746.1	1325.5	1446.8	
Forbs	36.8	78.5	37.5	100.0	223.0	71.4	138.1	55.3	53.5	
Shrubs	8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	761.4	824.9	984.8	979.4	984.8	1131.1	884.2	1380.8	1500.3	
Grazed:										
Cool Short	134.9	143.8	74.9	83.1	138.1	126.0				
Warm Short	131.3	345.0	143.8	405.7	150.9	127.4				
Cool Mid	411.4	478.1	607.6	252.3	359.3	379.3				
Western whtg.	8.2	0.0	0.0	0.0	0.0	7.1				
Warm Mid	7.1	0.0	0.0	0.0	0.0	0.0				
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0				
Sedge	53.5	27.5	81.0	20.3	113.1	6.1				
Grass Total	746.4	994.4	907.3	761.4	645.8	859.9	783.2			
Forbs	78.5	45.3	118.8	123.8	73.9	208.0	17.8	60.7		
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	824.9	1039.7	1026.2	885.2	835.3	853.8	877.7	843.8		

Table 18. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – West	I-----I										
Pasture – 3	I-----I										
Site - Silty	I-----I										
Ungrazed:											
Cool Short	12.5	322.2	253.3	0.0	137.4	518.4	86.7				
Warm Short	118.8	67.8	0.0	160.6	83.9	0.0	202.3				
Cool Mid	222.3	297.9	1882.1	1213.1	626.9	536.3					
Western whtg.	79.6	126.0	153.4	60.7	165.9	89.2	88.1				
Warm Mid	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Sedge	263.3	72.4	19.6	0.0	7.1	17.8	10.7				
Grass Total	696.5	886.3	2103.3	1607.4	1252.4	924.1	1541.4	1696.6			
Forbs	114.2	55.3	92.8	94.6	135.6	143.8	255.7	67.8			
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total	810.7	941.6	1065.0	2197.9	1762.6	1388.0	1067.9	1797.1	1764.4		
Grazed:											
Cool Short	322.2	90.3	26.1	175.9	16.8	68.9					
Warm short	67.8	73.9	328.3	51.0	46.4	247.3					
Cool Mid	297.9	579.1	464.9	944.5	714.7	377.1					
Western whtg.	126.0	108.1	155.9	36.8	52.5	85.6					
Warm Mid	0.0	0.0	0.0	507.7	0.0	0.0					
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0					
Sedge	72.4	2.5	1.1	18.9	46.4	0.0					
Grass Total	886.3	853.8	976.2	1734.8	876.7	778.9	1302.3	1177.4			
Forbs	55.3	98.8	39.3	41.8	129.5	33.2	330.0	10.7			
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total	941.6	952.7	1015.5	1776.5	1006.2	812.1	1632.3	1188.1			

Table 19. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – East	I-----I										
Pasture - 4	I-----I										
Site - Clayey	I-----I										
Ungrazed:											
Cool Short	38.5	203.4	123.1	198.0	130.2	72.4	129.5				
Warm Short	126.7	176.6	223.0	287.2	335.4	425.7	228.4				
Cool Mid	161.6	235.5	119.5	242.6	105.3	50.0	148.8				
Western whtg.	22.5	33.9	139.2	96.3	57.1	228.4	74.9				
Warm Mid	0.0	0.0	0.0	0.0	64.2	67.8	46.4				
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Sedge	133.1	42.8	101.7	198.0	198.0	54.6	85.6				
Grass Total	482.4	692.2	706.5	1022.2	890.2	878.8	713.6	1411.1	849.2		
Forbs	105.3	214.1	331.8	749.3	160.6	452.1	275.8	415.7	116.0		
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total	587.7	906.3	1038.3	1771.5	1050.8	1350.8	989.4	1826.8	965.1		
Grazed:											
Cool Short	203.4	124.9	89.2	21.4	89.2	21.4	98.8				
Warm Short	176.6	224.8	320.1	381.8	235.5	292.6					
Cool Mid	235.5	218.7	73.9	172.3	77.4	103.5					
Western whtg.	33.9	61.7	52.5	82.1	78.5	58.2					
Warm Mid	0.0	20.3	46.4	21.4	16.8						
Warm Tall	0.0	0.0	4.6	0.0	185.5	0.0					
Sedge	42.8	6.1	11.8	139.2	33.2	13.2					
Grass Total	692.2	636.2	572.3	843.1	720.8	583.0	429.9				
Forbs	214.1	171.3	502.0	215.2	439.9	103.5	112.4	169.5			
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total	906.3	807.4	1074.3	1058.3	1160.7	686.5	694.0	599.4			

Table 20. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	15 Oct
System – East	I-----I									
Pasture – 4	I-----I									
Site - Sandy	I-----I									
Ungrazed:										
Cool Short	31.4	32.1	103.5	10.7	103.5	103.5	103.5	9.6	36.8	
Warm Short	140.9	117.0	187.3	153.4	206.9	206.9	152.4	177.3		
Cool Mid	26.1	33.2	124.9	499.5	251.5	251.5	132.0	59.6		
Western whtg.	8.9	1.8	0.0	0.0	0.0	0.0	8.2	38.2		
Warm Mid	0.0	108.8	0.0	17.8	0.0	0.0	0.0	0.0		
Warm Tall	79.6	230.1	469.2	428.2	1065.1	1065.1	769.6	816.0		
Sedge	401.4	308.6	153.4	319.3	224.8	224.8	330.8	412.8		
Grass Total	688.3	831.7	1038.3	1429.0	1851.8	1851.8	1402.6	1540.7	2374.5	1987.4
Forbs	59.9	69.6	51.7	126.7	146.3	146.3	36.8	45.3	91.0	35.7
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	748.2	901.3	1090.0	1555.6	1998.1	1998.1	1439.3	1586.0	2465.5	2023.1
Grazed:										
Cool Short	32.1	7.1	20.3	21.4	10.7	10.7	10.7	34.6		
Warm Short	117.0	115.3	174.8	222.3	177.3	177.3	177.3	184.5		
Cool Mid	33.2	84.6	153.4	83.1	89.2	89.2	89.2	116.7		
Western whtg.	1.8	15.3	3.6	13.2	0.0	0.0	0.0	8.2		
Warm Mid	108.8	0.0	32.1	11.8	11.8	11.8	11.8	0.0		
Warm Tall	230.1	189.1	417.5	384.3	343.6	343.6	554.1			
Sedge	308.6	292.6	377.1	295.1	215.2	215.2	115.3			
Grass Total	831.7	704.0	1178.9	1019.4	847.8	847.8	1013.3	1908.9	1643.1	
Forbs	69.6	92.8	185.5	132.0	53.5	53.5	110.6	123.1	17.8	
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	901.3	776.7	1364.4	1151.4	901.3	901.3	1123.9	2032.0	1660.9	

Table 21. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	15 Oct
System – East	I-----I									
Pasture – 4	I-----I									
Site - Shallow	I-----I									
Ungrazed:										
Cool Short	66.0	59.9	39.3	87.4	105.3	34.6	4.6			
Warm Short	46.4	104.5	146.3	158.8	160.6	214.1	157.0			
Cool Mid	26.8	239.1	347.9	522.7	314.0	334.3	296.1			
Western whtg.	1.1	1.8	8.9	0.0	17.8	18.9	17.8			
Warm Mid	0.0	49.2	0.0	0.0	0.0	26.1	0.0			
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Sedge	809.9	613.7	289.0	367.5	296.1	260.5	228.4			
Grass Total	950.2	1068.3	831.4	1136.4	893.8	888.4	704.0	1132.8	911.6	
Forbs	90.3	128.5	196.2	80.3	64.2	188.0	22.5	16.1	17.8	
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1040.4	1196.7	1027.6	1216.7	958.0	1076.5	726.4	1148.9	929.5	
Grazed:										
Cool Short	59.9	135.6	66.7	149.9	59.6	0.0				
Warm Short	104.5	215.2	95.3	186.6	140.2	141.7				
Cool Mid	239.1	447.1	434.2	335.4	252.3	378.2				
Western whtg.	1.8	0.0	3.6	10.7	39.3	0.0				
Warm Mid	49.2	0.0	0.0	0.0	11.8	0.0				
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0				
Sedge	613.7	320.1	293.7	434.2	196.2	153.4				
Grass Total	1068.3	1117.9	893.4	1116.8	699.3	673.3	811.7	581.6		
Forbs	128.5	133.1	48.9	106.0	83.1	36.8	7.1	25.0		
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1196.7	1250.9	942.3	1222.8	782.5	710.0	818.9	606.6		

Table 22. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – East	I-----I										
Pasture – 4	I-----I										
Site - Silty	I-----I										
Ungrazed:											
Cool Short		11.8	110.6	83.9	66.0	19.6	45.3	57.1			
Warm short		322.2	366.8	503.1	155.2	788.5	463.8	314.0			
Cool Mid		47.5	105.3	192.7	528.1	233.7	203.4	170.2			
Western whtg.		51.7	255.1	162.3	83.9	231.9	183.0	79.6			
Warm Mid		1.1	1.1	0.0	0.0	8.9	0.0	0.0			
Warm Tall		36.8	0.0	0.0	0.0	0.0	0.0	0.0			
Sedge		339.0	341.8	322.9	531.6	462.1	134.5	118.8			
Grass Total		809.9	1180.7	1264.9	1364.8	1744.8	1030.1	739.6	1880.3	1677.0	
Forbs		169.5	127.7	91.0	269.4	253.3	554.1	293.7	83.9	280.1	
Shrubs		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total		979.4	1308.4	1355.8	1634.1	1998.1	1584.2	1033.3	1964.2	1957.1	
Grazed:											
Cool Short		110.6	76.0	31.0	32.1	38.2	38.2				
Warm Short		366.8	305.8	279.4	467.4	239.1	388.9				
Cool Mid		105.3	131.0	149.9	177.3	109.5	97.4				
Western whtg.		255.1	59.6	0.0	152.4	74.9	53.5				
Warm Mid		1.1	0.0	26.1	6.1	0.0	0.0				
Warm Tall		0.0	0.0	0.0	0.0	0.0	0.0				
Sedge		341.8	279.4	291.5	390.0	146.3	184.5				
Grass Total		1180.7	851.7	882.4	1225.3	608.0	762.5	1084.7	774.3		
Forbs		127.7	52.5	146.3	310.4	299.7	172.3	55.3	133.8		
Shrubs		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total		1308.4	904.1	1028.7	1535.7	907.7	934.8	1140.0	908.1		

Table 23. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – West	I-----I										
Pasture – 5	I-----I										
Site – Sandy	I-----I										
Ungrazed:											
Cool Short	183.8	28.5	89.2	23.2	160.6	36.8	2.5				
Warm short	37.5	16.1	128.5	7.1	46.4	38.2	58.2				
Cool Mid	49.2	394.3	208.7	128.5	126.7	208.0	50.0				
Western whtg.	0.0	0.0	0.0	14.3	0.0	6.1	2.5				
Warm Mid	0.0	0.0	0.0	12.5	10.7	0.0	0.0				
Warm Tall	162.3	221.2	269.4	686.8	652.9	361.4	795.6				
Sedge	628.0	271.2	481.7	253.3	422.8	188.0	280.8				
Grass Total	1060.8	931.3	1177.4	1125.7	1420.1	838.5	1189.5	1700.2	1473.6		
Forbs	133.1	431.7	19.6	158.8	224.8	295.1	329.3	73.1	35.7		
Shrubs	0.0	26.8	0.0	0.0	58.9	0.0	45.3	0.0	0.0		
Total	1193.8	1389.7	1197.1	1284.5	1703.7	1133.6	1564.1	1773.3	1509.3		
Grazed:											
Cool Short	183.8	3.6	0.0	26.1	129.5	36.8	0.0				
Warm Short	37.5	57.1	33.2	42.8	51.0	68.9	86.7				
Cool Mid	49.2	127.4	183.0	224.8	170.2	155.9	120.2				
Western whtg.	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Warm Mid	0.0	25.0	1.1	0.0	0.0	8.2	0.0				
Warm Tall	162.3	109.5	323.6	373.6	836.0	143.8	422.1				
Sedge	628.0	619.8	661.2	499.5	304.4	205.9	355.7				
Grass Total	1060.8	942.3	1202.1	1166.7	1491.1	619.4	984.8	1104.3	999.0		
Forbs	133.1	90.3	34.6	59.6	170.2	190.2	79.6	139.2	0.0		
Shrubs	0.0	0.0	18.9	9.6	0.0	0.0	0.0	0.0	0.0		
Total	1193.8	1040.8	1255.6	1236.0	1661.3	809.6	1064.3	1243.5	999.0		

Table 25. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – West	I-----I										
Pasture – 5	I-----I										
Site – Silty	I-----I										
Ungrazed:											
Cool Short	93.8	128.5	187.3	119.5	83.9	124.9	89.2				
Warm Short	188.4	274.7	162.3	173.1	73.1	247.3	341.5				
Cool Mid	13.6	433.5	255.1	479.9	547.7	203.4	211.6				
Western whtg.	248.0	278.3	474.5	180.2	196.2	150.9	117.7				
Warm Mid	0.0	1.7	0.0	0.0	205.2	0.0	0.0				
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Sedge	374.6	60.7	42.8	64.2	255.1	356.8	39.3				
Grass Total	918.4	1177.4	1122.1	1016.9	1361.2	1083.3	799.2	1967.8	1286.3		
Forbs	156.3	153.4	319.3	380.0	305.1	199.8	235.5	246.2	121.3		
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1074.7	1330.9	1441.5	1396.9	1666.3	1283.1	1034.7	2214.0	1407.6		
Grazed:											
Cool Short	93.8	142.7	108.1	81.0	103.5	67.8	43.9				
Warm Short	188.4	161.6	173.8	109.5	324.7	372.1	292.6				
Cool Mid	13.6	195.2	203.4	290.1	609.1	230.9	108.1				
Western whtg.	248.0	193.7	264.0	93.8	152.4	71.4	155.9				
Warm Mid	0.0	39.3	0.0	0.0	7.1	0.0	0.0				
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Sedge	374.6	70.3	127.4	104.5	243.7	115.3	70.3				
Grass Total	918.4	802.8	876.7	679.0	1440.4	857.4	670.8	1302.3	890.2		
Forbs	156.8	66.7	299.7	243.7	193.7	152.4	54.6	92.8	123.1		
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1074.7	869.5	1176.4	922.7	1634.1	1009.7	725.4	1395.1	1013.3		

Table 26. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – East	I-----I										
Pasture – 6	I-----I										
Site - Sandy	I-----I										
Ungrazed:											
Cool Short	4.6	1.8	14.3	1.8	53.5	7.1	57.1				
Warm Short	37.5	55.3	107.0	112.4	228.4	0.0	0.0				
Cool Mid	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Western whtg.	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Warm Mid	110.6	219.4	265.8	285.4	588.8	567.3	538.8				
Warm Tall	786.0	827.8	494.2	517.4	362.2	579.1	366.4				
Sedge	1004.0	1229.2	1113.2	1090.0	1227.4	1429.3	1071.8				
Grass Total	76.0	26.8	123.1	182.0	73.1	159.5	85.6				
Forbs	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Total	1080.0	1255.9	1236.3	1272.0	1300.6	1588.8	1157.5	2092.6	1883.9		
Grazed:											
Cool Short	4.6	2.5	7.1	31.0	60.7	1.1	0.0				
Warm Short	37.5	32.1	20.3	35.7	85.6	43.9	64.2				
Cool Mid	65.3	204.5	163.1	117.7	136.7	241.6	25.0				
Western whtg.	0.0	17.8	0.0	0.0	13.2	0.0	1.1				
Warm Mid	110.6	127.4	352.2	224.8	471.0	261.5	254.4				
Warm Tall	786.0	881.3	800.3	436.4	623.3	352.2	260.5				
Sedge	1004.0	1265.6	1343.0	853.8	1390.5	900.2	605.1	1418.3	1027.6		
Grass Total	76.0	32.1	52.5	111.7	174.8	53.5	32.1	92.8	0.0		
Forbs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total	1080.0	1297.7	1395.5	965.5	1565.3	953.7	637.2	1511.1	1027.6		

Table 27. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – East	I-----I										
Pasture – 6	I-----I										
Site – Shallow	I-----I										
Ungrazed:											
Cool Short	60.7	149.9	144.5	28.5	144.5	28.5	144.5	110.6	28.5		
Warm Short	63.5	149.9	83.9	233.7	206.9	228.4	177.3				
Cool Mid	28.5	140.9	201.6	96.3	162.3	110.6	211.6				
Western whtg.	16.1	19.6	3.5	41.0	37.5	28.5	29.6				
Warm Mid	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Warm Tall	1.8	0.0	0.0	0.0	0.0	0.0	0.0				
Sedge	271.2	103.5	121.3	240.8	74.9	76.0	159.5				
Grass Total	441.7	563.8	554.8	640.5	626.2	554.1	606.6			974.1	856.3
Forbs	97.4	192.7	201.6	91.0	264.0	154.5	40.3			105.3	108.8
Shrubs	11.8	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total	550.9	756.4	756.4	731.4	890.2	708.6	646.9			1079.4	965.1
Grazed:											
Cool Short	60.7	136.7	145.2	51.0	78.5	71.4	14.3				
Warm Short	63.5	216.6	204.5	115.3	291.5	135.6	115.3				
Cool Mid	28.5	85.6	233.0	220.2	108.1	148.8	160.6				
Western whtg.	16.1	11.8	17.8	15.3	61.7	26.1	27.5				
Warm Mid	0.0	0.0	0.0	9.6	0.0	0.0	0.0				
Warm Tall	1.8	0.0	0.0	0.0	0.0	0.0	0.0				
Sedge	271.2	293.6	185.5	321.1	185.5	83.1	139.2				
Grass Total	441.7	744.3	786.0	732.5	725.4	464.9	456.7			858.1	419.2
Forbs	97.4	120.2	146.3	273.7	136.7	47.5	31.0			71.4	7.1
Shrubs	11.8	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total	550.9	864.5	932.3	1006.2	862.0	512.4	487.7			929.5	426.4

Table 28. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – East	I-----I										
Pasture – 6	I-----I										
Site - Silty	I-----I										
Ungrazed:											
Cool Short	78.5	58.9	58.9	44.6	41.0	68.9	90.3	184.5	2076.6	1514.6	139.2
Warm Short	54.6	164.1	321.1	114.2	356.8	563.7	184.5	2076.6	1514.6	139.2	0.0
Cool Mid	130.2	123.1	281.9	462.1	346.1	208.0	398.6	214.1	0.0	0.0	0.0
Western whtg.	150.9	157.0	399.6	155.2	205.2	402.1	214.1	0.0	0.0	0.0	0.0
Warm Mid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sedge	527.4	444.2	37.5	570.9	410.3	224.8	159.5	2076.6	1514.6	139.2	0.0
Grass Total	941.6	947.3	1098.9	1346.9	1359.4	1467.5	1046.9	2076.6	1514.6	139.2	0.0
Forbs	223.0	171.3	474.5	324.7	399.6	184.5	291.5	317.6	0.0	0.0	0.0
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1164.6	1118.6	1573.5	1671.6	1759.0	1652.0	1338.4	2094.2	1653.8	0.0	0.0
Grazed:											
Cool Short	78.5	104.5	28.5	38.2	39.3	35.7	14.3	132.0	801.0	933.0	121.3
Warm Short	54.6	330.8	317.6	172.3	280.8	456.7	132.0	801.0	933.0	121.3	0.0
Cool Mid	130.2	165.2	63.2	197.3	441.4	136.7	31.0	135.6	0.0	0.0	0.0
Western whtg.	150.9	88.1	204.5	178.4	179.5	131.0	135.6	0.0	0.0	0.0	0.0
Warm Mid	0.0	0.0	10.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sedge	527.4	282.9	135.6	357.9	331.8	225.9	102.4	801.0	933.0	121.3	0.0
Grass Total	941.6	971.6	760.0	944.1	1272.7	985.8	415.3	801.0	933.0	121.3	0.0
Forbs	223.0	142.7	164.1	198.7	172.3	74.9	120.2	66.0	0.0	0.0	0.0
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1164.6	1114.3	924.1	1142.8	1445.0	1060.8	535.6	867.0	1054.3	0.0	0.0

Table 29. Mean Total above Ground Herbage Production in Lbs. /Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – WEST	I-----I										
Pasture – 1	I-----I										
Site – Clayey	I-----I										
Ungrazed	860.8	1425.4	1184.6	1464.7	1819.7	1826.8	1942.2	2378.1	3179.1		
Grazed			1184.6	1465.3	1845.9	1063.3	1725.1	1511.1			
Site – Sandy	I-----I										
Ungrazed	933.9	1634.2	1255.2	1751.9	1892.8	1225.0	1454.6	1671.6	2133.7		
Grazed			1255.2	1374.9	1863.7	1109.7	884.9	979.4	2103.3		
Site – Shallow	I-----I										
Ungrazed	653.8	780.5	710.9	1040.1	1088.2	1009.7	792.1	1197.1	556.6		
Grazed			710.9	980.0	1019.2	673.2	654.1	706.5	479.9		
Site – Silty	I-----I										
Ungrazed	808.2	1411.1	1201.5	1578.8	1828.6	1850.6	1757.8	3411.0	2601.1		
Grazed			1201.5	1654.4	1453.4	1267.8	886.1	2588.6	1889.3		
System - EAST	I-----I										
Pasture - 2	I-----I										
Site – Clayey	I-----I										
Ungrazed	559.3	1171.2	1186.4	1411.2	2301.4	1386.8	1472.4	1687.7	1693.0		
Grazed			1186.4	1299.9	1718.6	993.1	966.9	1330.9	1197.1		
Site – Sandy	I-----I										
Ungrazed	1089.1	1173.9	975.9	1769.7	1771.5	1065.7	1259.5	2017.7	2099.8		
Grazed			975.9	930.1	1730.5	975.3	906.3	1860.7	1421.9		
Site – Shallow	I-----I										
Ungrazed	713.6	983.9	895.6	1063.3	1165.0	1063.3	991.9	1006.2	1077.5		
Grazed			895.6	840.9	1051.4	723.1	510.2	760.0	560.2		
Site – Silty	I-----I										
Ungrazed	946.4	1320.2	1365.7	1286.3	2806.2	1324.9	1472.4	2008.8	1660.9		
Grazed			1365.7	1229.8	1208.4	1154.8	969.3	1662.7	1020.5		

Table 30. Mean Total above Ground Herbage Production in Lbs. /Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct
System – WEST	I-----I										
Pasture – 3											
Site – Clayey											
Ungrazed		1190.8	1072.2	1045.4	1587.8	943.1	1003.8	1450.4	1500.4		
Grazed		1190.8	906.3	844.4	1139.4	1010.9	789.7	997.3	804.6		
Site – Sandy											
Ungrazed		1385.3	1932.1	1181.0	1477.2	1536.6	1217.9	1966.0	1641.3		
Grazed		1385.3	1414.1	1462.9	1158.4	1064.5	1152.5	1689.5	1070.4		
Site – Shallow											
Ungrazed		824.2	984.8	979.4	984.8	1131.1	883.7	1380.8	1500.4		
Grazed		824.2	1039.5	1027.6	884.9	834.9	853.9	877.7	843.8		
Site – Silty											
Ungrazed		941.1	1065.1	2197.9	1762.6	1388.0	1068.0	1796.5	1764.4		
Grazed		941.1	952.7	1015.7	1776.5	1006.2	812.3	1632.4	1188.2		
System – EAST	I-----I										
Pasture – 4											
Site – Clayey											
Ungrazed		906.3	1038.3	1771.5	1050.8	1351.1	989.5	1826.8	965.2		
Grazed		906.3	807.6	1075.0	1058.5	1160.8	686.2	694.0	599.4		
Site – Sandy											
Ungrazed		900.9	1090.0	1555.7	1998.1	1439.1	1585.4	2465.5	2023.1		
Grazed		900.9	796.9	1364.2	1151.3	901.5	1123.9	2032.0	1660.9		
Site – Shallow											
Ungrazed		1196.2	1027.6	1216.7	958.0	1076.4	726.7	1148.9	929.5		
Grazed		1196.2	1251.2	942.0	1222.6	782.6	710.0	818.9	606.6		
Site – Silty											
Ungrazed		1308.6	1355.8	1634.2	1998.1	1584.2	1033.5	1964.2	1957.1		
Grazed		1308.6	903.9	1028.8	1535.4	907.5	934.8	1139.5	908.1		

Table 31. Mean Total above Ground Herbage Production in Lbs./Acre for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	
System – WEST	I-----I											
Pasture - 5												
Site – Clayey												
Ungrazed												
Grazed												
Site – Sandy												
Ungrazed												
Grazed	1191.7	1389.7	1197.1	1284.5	1703.7	1133.4	1564.0	1773.3	1509.3			
Site – Shallow												
Ungrazed												
Grazed	1191.7	1040.7	1255.9	1235.7	1661.5	809.9	1064.5	1243.5	999.0			
Site – Silty												
Ungrazed												
Grazed	545.0	868.8	920.6	922.3	1445.0	993.1	553.0	804.6	701.1			
System – EAST	I-----I											
Pasture - 6												
Site – Clayey												
Ungrazed												
Grazed												
Site – Sandy												
Ungrazed												
Grazed	1079.3	1255.9	1236.3	1272.0	1300.5	1589.0	1157.2	2092.6	1883.9			
Site – Shallow												
Ungrazed												
Grazed	1079.3	1297.7	1395.1	965.7	1565.2	953.8	637.5	1511.1	1027.6			
Site – Silty												
Ungrazed												
Grazed	550.4	756.4	756.4	731.4	890.2	708.8	647.0	1079.3	965.2			
System – WEST	I-----I											
Pasture - 5												
Site – Clayey												
Ungrazed												
Grazed												
Site – Sandy												
Ungrazed												
Grazed	1164.1	1118.6	1573.7	1671.6	1759.0	1652.0	1338.0	2394.1	1653.8			
Site – Silty												
Ungrazed												
Grazed	1164.1	1114.3	924.1	1143.0	1445.0	1060.9	535.2	867.0	1054.4			

Table 32. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Altai Wildrye on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	15 Oct	14 Jan
System – WEST	I-----I										
Ungrazed:											
Altai Wildrye			2513.2	4201.3	3894.0	6864.7	5762.2	6477.9	3404.2	6318.4	
Other Grasses			21.0	42.8	68.7	22.3	11.6	2.7	26.8	0.0	
Grass Total			2534.2	4244.1	3962.7	6887.0	5773.8	6480.6	3431.0	6318.4	
Forbs			58.0	191.3	226.1	61.1	90.1	34.3	339.4	616.4	
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total			2592.2	4435.5	4188.8	6948.1	5863.9	6514.9	3770.4	6934.8	
Grazed:											
Altai Wildrye										6318.4	2761.1
Other Grasses											33.9
Grass Total										6318.4	2795.0
Forbs										616.4	145.4
Shrubs											
Total										6934.8	2940.4

Table 33. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Altai Wildrye on the Complementary Rotation Grazing System at the Dickinson Experiment Station - 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	15 Oct	14 Jan
System – EAST											
Ungrazed:											
Altai Wildrye			3002.9	5295.4	4134.0	4912.6	5067.8	6135.8	2839.6	5784.1	
Other Grasses			0.0	32.1	40.3	42.4	2.7	1.3	24.1	0.0	
Grass Total			3002.9	5327.5	4174.2	4955.0	5070.5	6137.1	2863.7	5784.1	
Forbs			37.0	202.5	85.2	305.5	87.9	31.2	108.4	698.4	
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total			3039.9	5530.0	4259.4	5260.5	5158.4	6168.4	2972.1	6482.5	
Grazed:											
Altai Wildrye									5784.1	1890.5	
Other Grasses										0.9	
Grass Total									5784.1	1891.4	
Forbs									698.4	290.8	
Shrubs									0.0	0.0	
Total									6482.5	2182.2	

Table 34. Mean Above Ground Herbage Production by Category in Lbs./Acre for the Altai Wildrye on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	15 Oct	14 Jan
System – WEST										I----- I	
Ungrazed			2592.2	4435.5	4188.8	6948.1	5863.9	6514.9	3770.4	6934.8	
Grazed										6934.8	2940.4
System – EAST											
Ungrazed			3039.9	5530.0	4259.4	5260.5	5158.4	6168.4	2972.1	6482.5	
Grazed										6482.5	2182.2

Table 35. Mean Percentage of Utilization for the Crested Wheatgrass on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	14 Jan
System – WEST												
	I-----I											
Crested whtg.			61.8	59.2	56.2	47.3	57.2	58.6	56.0			
Other Grasses			-13.9	7.4	44.7	-637.0	-449.8	-72.8	54.2			
Grass Total			59.8	58.4	55.7	46.2	55.4	57.3	55.9			
Forbs			-122.4	-84.3	29.3	-67.9	-92.9	-1533.3	60.5			
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total			59.3	57.7	55.1	45.7	55.0	52.6	55.9			
System – EAST												
	I-----I											
Crested whtg.			38.8	48.5	53.4	54.5	63.7	51.5	57.1			
Other Grasses			-221.6	20.0	-9.4	-128.5	-366.8	-125.0	-100.0			
Grass Total			36.8	48.0	52.8	53.7	61.8	50.0	56.9			
Forbs			-100.0	11.1	-16.1	-207.6	91.1	32.9	-114.8			
Shrubs			0.0	-100.0	0.0	0.0	0.0	0.0	0.0			
Total			35.5	47.6	51.7	53.1	63.5	49.7	55.5			

Table 36. Mean Percentage of Utilization for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	14 Jan
System – WEST	I-----I											
Pasture – 1	I-----I											
Site - Clayey												
Cool Short				17.5	95.4	66.6	80.8					
Warm Short				-87.9	-54.2	-4.4	32.4					
Cool Mid				58.7	-152.0	44.5	41.9					
Western whtg.				25.1	24.5	75.8	48.9					
Warm Mid				-100.0	0.0	0.0	0.0					
Warm Tall				0.0	0.0	0.0	0.0					
Sedge				0.0	0.0	100.0	100.0					
Grass Total				3.2	-5.5	35.4	42.1	16.1	43.2			
Forbs				-8.1	9.8	61.6	54.2	67.0	75.0			
Shrubs				0.0	0.0	0.0	0.0	0.0	0.0			
Total				0.1	-0.2	41.8	47.0	27.5	52.5			
System – WEST												
Pasture – 1												
Site – Sandy												
Cool Short				-253.5	21.7	71.4	-263.8					
Warm Short				-1643.8	50.2	-36.4	57.7					
Cool Mid				0.9	-67.6	-16.1	-24.8					
Western whtg.				-100.0	-13.0	14.8	100.0					
Warm Mid				-80.0	0.0	-100.0	-100.0					
Warm Tall				42.9	22.4	57.9	60.4					
Sedge				-2.5	48.3	-102.0	36.2					
Grass Total				17.1	7.4	19.2	37.6	37.1	3.6			
Forbs				-28.1	-213.5	-168.2	-291.1	60.8	6.2			
Shrubs				88.0	42.9	-61.7	79.7	81.0	-73.5			
Total				21.5	1.6	9.4	39.2	41.5	1.4			

Table 36. (Cont.) Mean Percentage of Utilization for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station –1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	14 Jan
System – WEST	I-----I											
Pasture – 1	I-----I											
Site - Shallow												
Cool Short				36.1	42.5	46.5	35.9					
Warm Short				45.2	156.2	16.2	-41.9					
Cool Mid				-22.6	-39.0	43.0	38.0					
Western whtg.				43.3	100.0	100.0	-100.0					
Warm Mid				-100.0	77.2	66.7	0.0					
Warm Tall				0.0	0.0	0.0	0.0					
Sedge				38.9	-65.7	57.9	-5.6					
Grass Total				8.4	-0.3	39.2	11.1	40.5	15.3			
Forbs				-15.2	28.2	7.0	41.1	53.4	-4.0			
Shrubs				0.0	52.1	0.0	0.0	0.0	0.0			
Total				5.7	6.3	33.3	17.4	41.0	13.8			
System – WEST												
Pasture – 1												
Site – Silty												
Cool Short				-2966.9	-100.0	45.1	-100.0					
Warm Short				-5.3	43.0	13.7	49.6					
Cool Mid				-19.1	36.1	49.1	70.6					
Western whtg.				-37.0	-101.0	1.0	-24.1					
Warm Mid				-100.0	-100.0	40.8	-100.0					
Warm Tall				0.0	0.0	0.0	0.0					
Sedge				-169.8	-75.1	-45.0	24.7					
Grass Total				-17.7	22.0	30.5	50.5	28.0	30.0			
Forbs				11.4	16.2	41.9	43.5	-90.3	-26.9			
Shrubs				0.0	0.0	0.0	0.0	0.0	0.0			
Total				-4.8	20.5	31.5	49.6	24.1	27.4			

Table 37. Mean Percentage of Utilization for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	14 Jan
System – EAST	I-----I											
Pasture – 2	I-----I											
Site - Clayey												
Cool Short						58.8	47.1	87.4	4.1			
Warm Short						26.9	-104.0	31.0	16.4			
Cool Mid						-99.5	-3.8	61.6	49.7			
Western whtg.						44.3	6.3	39.5	38.8			
Warm Mid						0.0	0.0	0.0	0.0			
Warm Tall						0.0	0.0	0.0	0.0			
Sedge						100.0	54.3	100.0	-11.1			
Grass Total						12.1	-10.5	47.9	31.3	8.7	32.5	
Forbs						-4.9	53.5	22.2	39.8	63.6	26.9	
Shrubs						0.0	0.0	0.0	0.0	0.0	0.0	
Total						7.9	25.3	28.4	34.3	21.1	29.3	
System – EAST	I-----I											
Pasture – 2	I-----I											
Site – Sandy												
Cool Short						51.7	-70.0	-51.5	69.3			
Warm Short						-650.1	-28.5	-124.8	46.4			
Cool Mid						57.6	-188.5	-93.8	14.3			
Western whtg.						0.0	0.0	0.0	0.0			
Warm Mid						-100.0	0.0	0.0	0.0			
Warm Tall						59.6	36.9	34.8	43.7			
Sedge						46.6	-126.7	34.0	-0.4			
Grass Total						48.5	-4.7	7.8	27.6	4.1	32.3	
Forbs						4.3	41.7	8.2	89.8	89.8	0.0	
Shrubs						0.0	0.0	0.0	0.0	0.0	0.0	
Total						47.4	2.3	16.3	28.0	7.8	32.3	

Table 37. (Cont.) Mean Percentage of Utilization for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	14 Jan
System – EAST	I-----I											
Pasture – 2	I-----I											
Site – Shallow												
Cool Short				55.5	24.9	58.5	68.8					
Warm Short				-17.3	-5.2	2.2	42.6					
Cool Mid				21.3	24.0	57.0	55.6					
Western whtig.				100.0	0.0	0.0	0.0					
Warm Mid				0.0	0.0	-100.0	-100.0					
Warm Tall				0.0	0.0	0.0	0.0					
Sedge				20.7	3.0	8.7	50.9					
Grass Total				21.2	15.9	33.1	52.9				26.0	45.9
Forbs				19.3	-24.7	27.8	20.8				2.6	52.0
Shrubs				0.0	0.0	0.0	0.0				0.0	0.0
Total				20.9	9.7	32.0	49.4				24.5	48.0
System – EAST	I-----I											
Pasture – 2	I-----I											
Site – Silty												
Cool Short				44.7	-582.1	5.2	80.0					
Warm Short				57.1	50.5	21.7	28.2					
Cool Mid				-100.0	60.8	-57.4	53.7					
Western whtig.				-68.1	60.9	54.7	41.5					
Warm Mid				-100.0	88.6	-96.3	100.0					
Warm Tall				0.0	0.0	0.0	0.0					
Sedge				-183.9	38.7	-18.7	73.5					
Grass Total				-16.0	54.9	2.3	28.7				13.6	41.2
Forbs				73.0	67.3	43.0	43.0				70.8	-1199.2
Shrubs				0.0	0.0	0.0	0.0				0.0	0.0
Total				4.4	56.9	12.8	34.2				17.2	38.6

Table 38. Mean Percentage of Utilization for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	14 Jan
System – WEST Pasture – 3	I-----I											
Site - Clayey												
Cool Short			23.7	69.0	50.0	16.1	52.6					
Warm Short			31.6	56.0	53.1	-5.2	-5.8					
Cool Mid			-6.9	-48.5	43.0	12.1						
Western whtg.			-64.5	19.1	69.5	31.9	63.6					
Warm Mid			0.0	-100.0	0.0	0.0						
Warm Tall			0.0	0.0	0.0	0.0						
Sedge			61.3	-100.0	-75.9	-32.8	-96.7					
Grass Total			15.4	23.0	33.2	13.6	13.9	26.8	44.7			
Forbs			16.1	51.4	-9.8	-616.1	41.6	42.6	58.3			
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total			15.5	19.3	28.3	-7.1	21.3	31.2	46.4			
System - WEST Pasture – 3												
Site – Sandy												
Cool Short			36.8	66.0	38.4	31.6	51.8					
Warm Short			51.3	26.0	-47.5	-47.9	-191.4					
Cool Mid			18.7	-28.9	54.2	-10.0	15.2					
Western whtg.			76.5	100.0	-100.0	100.0	100.0					
Warm Mid			0.0	0.0	0.0	-130.3	0.0					
Warm Tall			5.3	-49.2	33.2	30.9	29.0					
Sedge			38.8	-47.7	-127.6	64.4	-45.3					
Grass Total			27.3	-38.7	-18.9	33.1	1.9	15.7	39.0			
Forbs			12.6	63.1	44.9	20.9	37.3	-63.6	-38.1			
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total			26.8	-23.9	28.3	30.7	5.3	14.1	34.8			

Table 38. (Cont.) Mean Percentage of Utilization for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	14 Jan
System – WEST	I-----I											
Pasture – 3	I-----I											
Site - Shallow												
Cool Short			37.0	72.9	45.8	45.3	13.3					
Warm Short			-47.6	-907.6	-136.9	20.6	5.3					
Cool Mid			-5.1	-26.6	31.4	40.7	1.3					
Western whtg.			100.0	0.0	100.0	100.0	-185.6					
Warm Mid			0.0	100.0	0.0	0.0	0.0					
Warm Tall			0.0	0.0	0.0	0.0	0.0					
Sedge			-18.5	-37.6	52.5	-2343.0	92.4					
Grass Total			-5.0	-3.2	-0.1	28.2	13.4	35.1	45.9			
Forbs			-21.0	-18.9	44.5	-3.5	67.7	-13.3				
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total			-5.6	-4.8	10.1	26.2	3.4	36.4	43.8			
System – WEST												
Pasture – 3												
Site – Silty												
Cool Short			64.4	-100.0	-28.1	96.8	20.6					
Warm Short			-100.0	-104.5	39.2	-100.0	-22.2					
Cool Mid			-6.1	75.3	22.2	-14.0	29.7					
Western whtg.			29.5	-157.0	77.9	41.2	2.8					
Warm Mid			0.0	0.0	-100.0	0.0	0.0					
Warm Tall			0.0	0.0	0.0	0.0	0.0					
Sedge			87.3	-100.0	-164.9	-160.0	100.0					
Grass Total			12.2	53.6	-7.9	30.0	15.7	15.5	30.6			
Forbs			-6.5	58.5	-26.9	4.5	76.9	-29.1	84.2			
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total			10.6	53.8	-0.8	27.5	24.0	9.2	32.7			

Table 39. Mean Percentage of Utilization for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	14 Jan
System – EAST	I-----I											
Pasture – 4	I-----I											
Site – Clayey												
Cool Short			-1.5	55.0	83.6	23.2	23.7					
Warm Short			-0.8	-11.4	-13.8	44.7	-28.1					
Cool Mid			-83.0	69.6	-63.7	-55.0	30.5					
Western whtg.			55.6	45.6	-43.7	65.6	22.4					
Warm Mid			0.0	-100.0	27.8	68.4	63.8					
Warm Tall			0.0	0.0	0.0	0.0	0.0					
Sedge			94.0	94.1	29.7	39.2	84.6					
Grass Total			10.0	44.0	5.3	19.8	18.3	58.8	49.4			
Forbs			48.4	33.0	-34.0	2.7	62.5	73.0	-46.2			
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total			22.2	39.4	-0.7	14.1	30.6	62.0	37.9			
System – EAST	I-----I											
Pasture – 4	I-----I											
Site – Sandy												
Cool Short			93.1	-90.1	79.3	-11.1	5.8					
Warm Short			38.5	-14.0	-7.4	-16.4	-4.0					
Cool Mid			32.3	69.3	67.0	32.4	-95.8					
Western whtg.			-100.0	-100.0	-100.0	100.0	78.5					
Warm Mid			0.0	-80.0	0.0	-100.0	0.0					
Warm Tall			59.7	2.5	63.9	55.4	32.1					
Sedge			-90.7	-18.1	-31.3	35.0	72.1					
Grass Total			32.2	45.0	45.0	39.6	34.2	19.6	17.3			
Forbs			-79.3	-46.5	9.7	-45.6	-144.1	-35.3	50.0			
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total			26.9	12.3	42.4	37.4	29.1	17.6	17.9			

Table 39. (Cont.) Mean Percentage of Utilization for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	14 Jan
System – EAST	I-----I											
Pasture – 4	I-----I											
Site - Shallow												
Cool Short			-245.4	23.7	-42.4	-72.2	100.0					
Warm Short			47.1	40.0	-16.2	34.5	9.8					
Cool Mid			-28.5	16.9	-6.8	24.6	-27.7					
Western whtg.			100.0	-100.0	40.0	-107.6	100.0					
Warm Mid			0.0	0.0	0.0	54.8	0.0					
Warm Tall			0.0	0.0	0.0	0.0	0.0					
Sedge			-10.7	20.1	-46.6	24.7	23.8					
Grass Total			-34.5	21.4	-25.0	21.3	4.4	28.3	36.2			
Forbs			32.2	39.1	-65.0	55.8	-63.5	55.5	-40.0			
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total			-21.7	22.6	-27.6	27.3	2.3	28.7	34.7			
System – EAST												
Pasture – 4												
Site – Silty												
Cool Short			9.4	53.0	-63.7	15.7	33.1					
Warm Short			39.2	-80.0	40.7	48.5	-23.9					
Cool Mid			32.0	71.6	24.1	46.1	42.8					
Western whtg.			63.3	-24.7	34.3	59.1	32.7					
Warm Mid			0.0	-100.0	32.0	0.0	0.0					
Warm Tall			0.0	0.0	0.0	0.0	0.0					
Sedge			13.5	45.2	15.6	-8.8	-55.3					
Grass Total			32.7	35.4	29.8	41.0	-3.1	42.3	53.8			
Forbs			42.4	45.7	-22.5	45.9	41.3	34.1	52.2			
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total			33.3	37.1	23.1	42.7	9.5	42.0	53.6			

Table 40. Mean Percentage of Utilization for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	14 Jan
System – WEST	I-----I											
Pasture – 5	I-----I											
Site – Sandy												
Cool Short		87.5	100.0	-12.3	19.3	100.0	100.0	100.0	100.0			
Warm Short		-255.5	74.2	-499.7	-10.0	-80.4	-49.1					
Cool Mid		67.7	12.3	-75.0	-34.4	25.0	-140.7					
Western whtg.		0.0	0.0	100.0	0.0	100.0	100.0					
Warm Mid		-100.0	-100.0	100.0	100.0	0.0	0.0					
Warm Tall		50.5	-20.1	45.6	-28.0	60.2	46.9					
Sedge		-128.6	-37.3	-97.2	28.0	-9.5	-26.7					
Grass Total		-1.2	-2.1	89.6	-5.0	26.1	17.2	35.1	32.2			
Forbs		79.1	-76.4	62.5	24.3	35.6	75.8	-90.3	100.0			
Shrubs		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total		25.1	-4.9	3.8	2.5	28.6	32.0	29.9	33.8			
System – WEST												
Pasture – 5												
Site – Shallow												
Cool Short		25.0	16.7	50.1	-41.3	74.5	54.6					
Warm Short		30.4	21.8	13.4	-0.6	7.3	50.7					
Cool Mid		-71.2	33.4	-62.5	-52.7	51.5	-20.1					
Western whtg.		0.0	0.0	0.0	0.0	0.0	-100.0					
Warm Mid		0.0	98.1	70.4	100.0	76.4	100.0					
Warm Tall		0.0	0.0	0.0	0.0	0.0	0.0					
Sedge		3.8	-21.1	13.7	26.4	14.7	11.2					
Grass Total		9.8	8.3	11.2	1.1	42.9	26.4	33.7	36.8			
Forbs		50.5	34.9	34.1	21.2	48.1	53.1	54.5	5.4			
Shrubs		0.0	0.0	0.0	0.0	0.0	0.0	23.7	0.0			
Total		17.9	15.3	13.1	12.9	45.8	32.0	5.9	33.8			

Table 40. (Cont.) Mean Percentage of Utilization for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	14 Jan
System – WEST	I-----I											
Pasture – 5	I-----I											
Site – Silty												
Cool Short		-11.1	42.3	32.2	-23.4	50.8						
Warm Short		41.2	-7.0	36.7	-313.9	14.3						
Cool Mid		55.0	20.3	40.0	-11.2	48.9						
Western whtg.		30.4	44.4	47.9	22.4	52.7						
Warm Mid		-2105.1	0.0	0.0	96.5	0.0						
Warm Tall		0.0	0.0	0.0	0.0	0.0						
Sedge		-15.9	-197.5	-62.8	4.5	67.7						
Grass Total		31.8	21.9	33.2	-5.8	20.9				33.8	30.8	
Forbs		56.5	6.2	35.9	36.5	23.8				62.3	-1.5	
Shrubs		0.0	0.0	0.0	0.0	0.0				0.0	0.0	
Total		34.7	18.4	34.0	1.9	21.3				37.0	28.0	

Table 41. Mean Percentage of Utilization for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	14 Jan
System – EAST	I-----I											
Pasture – 6	I-----I											
Site – Sandy												
Cool Short	-40.5	50.0	-1643.8	-13.3	85.0	100.0						
Warm Short	41.9	74.1	66.7	23.8	7.5	18.2						
Cool Mid	-63.7	37.4	-8.2	-19.1	-5.8	-100.0						
Western whtg.	-100.0	0.0	100.0	-100.0	0.0	-100.0						
Warm Mid	0.0	0.0	0.0	0.0	0.0	0.0						
Warm Tall	42.0	-32.5	21.3	20.0	53.9	52.8						
Sedge	-6.5	-62.0	15.7	72.1	39.2	28.9						
Grass Total	-3.0	-20.6	21.7	-13.3	37.0	43.5	25.1	45.2				
Forbs	-20.0	57.4	38.6	-139.0	66.4	62.5	53.2	100.0				
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Total	-3.3	-12.9	24.1	-20.4	40.0	44.9	27.8	45.5				
System – EAST												
Pasture – 6												
Site – Shallow												
Cool Short	8.8	-0.5	-78.8	45.7	35.5	50.0						
Warm Short	-44.5	-143.8	50.7	-40.9	40.6	35.0						
Cool Mid	39.2	-15.6	-128.5	33.4	-34.5	24.1						
Western whtg.	40.0	-399.7	62.6	-64.8	8.7	7.2						
Warm Mid	0.0	0.0	-100.0	0.0	0.0	0.0						
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0						
Sedge	-183.8	-53.0	-33.3	-147.6	-9.4	12.8						
Grass Total	32.0	-41.7	-14.4	-15.9	16.1	24.7	11.9	51.0				
Forbs	37.6	-27.4	-200.8	48.2	69.3	32.2	93.4					
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Total	-14.3	-23.3	-37.6	3.2	27.7	24.6	13.9	55.8				

Table 41. (Cont.) Mean Percentage of Utilization for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	14 Jan
System – EAST	I-----I											
Pasture – 6	I-----I											
Site – Silty	I-----I											
Cool Short			-77.6	51.5	14.4	4.3	48.2	84.2				
Warm Short			-101.5	1.1	-50.9	21.3	19.0	28.4				
Cool Mid			-34.2	77.6	57.3	-27.5	34.3	92.2				
Western whtg.			43.9	48.8	-14.9	12.5	67.4	36.7				
Warm Mid			0.0	-100.0	0.0	0.0	0.0	0.0				
Warm Tall			0.0	0.0	0.0	0.0	0.0	0.0				
Sedge			36.3	-261.9	37.3	19.1	-0.5	35.8				
Grass Total			-2.6	30.8	29.9	6.4	32.8	60.3	61.4	38.4		
Forbs			16.7	65.4	38.8	56.9	59.4	58.8	79.2	12.8		
Shrubs			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total			0.4	41.3	31.6	17.9	35.8	60.0	58.6	36.3		

Table 42. Mean Percentage of Utilization of Total Herbage for the Native Range on the Complementary Rotation Grazing System at the Dickinson Experiment Station – 1984

	25 Apr	15 May	30 May	15 Jun	30 Jun	15 Jul	31 Jul	15 Aug	30 Aug	2 Oct	15 Oct	14 Jan
System – WEST												
Pasture – 1												
Clayey						0.1	-0.2	41.8	47.0	27.5	52.5	
Sandy						21.5	1.6	9.4	39.2	41.5	1.4	
Shallow						5.7	6.3	33.3	17.4	41.0	13.8	
Silty						-4.8	20.5	31.5	49.6	24.1	27.4	
Pasture – 3												
Clayey					15.5	19.3	28.3	-7.1	21.3	31.2	46.4	
Sandy					26.8	-23.9	28.3	30.7	5.3	14.1	34.8	
Shallow					-5.6	-4.8	10.1	26.2	3.4	36.4	43.8	
Silty					10.6	53.8	-0.8	27.5	24.0	9.2	32.7	
Pasture – 5												
Clayey												
Sandy						25.1	2.5	28.6	32.0	29.9	33.8	
Shallow					17.9	13.1	12.9	45.8	32.0	35.9	33.8	
Silty					34.7	18.4	34.0	21.3	29.9	37.0	28.0	
System – EAST												
Pasture – 2												
Clayey												
Sandy						7.9	25.3	28.4	34.3	21.1	29.3	
Shallow						47.4	2.3	16.3	28.0	7.8	32.3	
Silty						20.9	9.7	32.0	49.4	24.5	48.0	
Pasture – 4												
Clayey												
Sandy					22.2	39.4	-0.7	14.1	30.6	62.0	37.9	
Shallow					26.9	12.3	42.4	37.4	29.1	17.6	17.9	
Silty					-21.7	22.6	-27.6	27.3	2.3	28.7	34.7	
Pasture – 6												
Clayey												
Sandy						-3.3	-20.4	40.0	44.9	27.8	45.5	
Shallow					-14.3	-23.3	3.2	27.7	24.6	13.9	55.8	
Silty					0.4	41.3	17.9	35.8	60.0	58.6	36.3	

Table 43. Points Analysis of the Ungrazed West Pasture on the Crested Wheatgrass for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal Cover		Relative Basal Cover		Percent Frequency		Relative Percent Frequency		Importance Value
	Basal Cover	Basal Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Relative Percent Frequency	Relative Percent Frequency	
<i>Agropyron desertorum</i>	23.20	83.45	83.45	95.50	73.75	157.20			157.20
<i>Agropyron smithii</i>	0.05	0.18	0.18	0.50	0.39	0.57			0.57
<i>Bouteloua gracilis</i>	1.95	7.01	7.01	13.00	10.04	17.05			17.05
<i>Koeleria pyramidata</i>	0.35	1.26	1.26	3.00	2.32	3.58			3.58
<i>Schedonnardus paniculatus</i>	0.50	1.80	1.80	2.50	1.93	3.73			3.73
<i>Stipa comata</i>	0.10	0.36	0.36	1.00	0.77	1.13			1.13
<i>Carex filifolia</i>	0.20	0.72	0.72	1.50	1.16	1.88			1.88
<i>Carex heliophila</i>	0.45	1.62	1.62	4.00	3.09	4.71			4.71
<i>Hedeoma hispida</i>	0.45	1.62	1.62	4.50	3.47	5.09			5.09
<i>Opuntia fragilis</i>	0.35	1.26	1.26	2.00	1.54	2.80			2.80
<i>Sphaeralcea coccinea</i>	0.10	0.36	0.36	1.00	0.77	1.13			1.13
Lichen spp.	0.10	0.36	0.36	1.00	0.77	1.13			1.13
Litter	71.15			100.00					
Rock	0.00			0.00					
Soil	1.05			5.50					

Table 44. Points Analysis of the Grazed West Pasture on the Crested Wheatgrass for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal Cover		Relative Basal Cover		Percent Frequency		Relative Percent Frequency		Importance Value
	Basal Cover	24.70	Basal Cover	75.65	Percent Frequency	95.00	Percent Frequency	63.33	
Agropyron desertorum	0.10	0.31	0.31	0.31	1.00	1.00	0.67	0.67	138.98
Agropyron smithii	2.90	8.88	8.88	8.88	14.00	14.00	9.33	9.33	0.98
Bouteloua gracilis	0.50	1.53	1.53	1.53	4.50	4.50	3.00	3.00	18.21
Koeleria pyramidata	1.10	3.37	3.37	3.37	5.00	5.00	3.33	3.33	4.53
Schedonnardus paniculatus	0.35	1.07	1.07	1.07	2.50	2.50	1.67	1.67	6.70
Stipa comate	0.30	0.92	0.92	0.92	2.50	2.50	1.67	1.67	2.74
Carex heliophila	0.20	0.61	0.61	0.61	2.00	2.00	1.33	1.33	2.59
Coryza canadensis	0.85	2.60	2.60	2.60	7.50	7.50	5.00	5.00	1.94
Hedeoma hispida	0.15	0.46	0.46	0.46	1.50	1.50	1.00	1.00	7.60
Lepidium densiflorum	0.10	0.31	0.31	0.31	1.00	1.00	0.67	0.67	1.46
Opuntia fragilis	0.05	0.15	0.15	0.15	0.50	0.50	0.33	0.33	0.98
Phlox hoodii	0.40	1.23	1.23	1.23	4.00	4.00	2.67	2.67	0.48
Plantago purshii	0.05	0.15	0.15	0.15	0.50	0.50	0.33	0.33	3.90
Ratibida columnifera	0.60	1.84	1.84	1.84	6.00	6.00	4.00	4.00	0.48
Sphaeralcea coccinea	0.30	0.92	0.92	0.92	2.50	2.50	1.67	1.67	5.84
Lichen spp.	66.20	100.00	100.00	100.00	100.00	100.00			2.59
Litter	0.00	0.00	0.00	0.00	0.00	0.00			
Rock	1.15	8.50	8.50	8.50					
Soil									

Table 45. Points Analysis of the Ungrazed East Pasture on the Crested Wheatgrass for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal Cover		Relative Basal Cover		Percent Frequency		Relative Percent Frequency		Importance Value
	Basal Cover	Basal Cover	Basal Cover	Relative Basal Cover	Percent Frequency	Percent Frequency	Relative Percent Frequency	Relative Percent Frequency	
<i>Agropyron desertorum</i>	25.00	90.58	90.58	98.50	82.77	173.35			
<i>Agropyron smithii</i>	0.15	0.54	0.54	1.50	1.26	1.80			
<i>Bouteloua gracilis</i>	0.90	3.26	3.26	5.00	4.20	7.46			
<i>Koeleria pyramidata</i>	0.25	0.91	0.91	2.00	1.68	2.59			
<i>Stipa comate</i>	0.35	1.27	1.27	2.50	2.10	3.37			
<i>Carex heliophila</i>	0.15	0.54	0.54	1.50	1.26	1.80			
<i>Achillea millefolium</i>	0.05	0.18	0.18	0.50	0.42	0.60			
<i>Coryza canadensis</i>	0.10	0.36	0.36	1.00	0.84	1.20			
<i>Lygodesmia juncea</i>	0.20	0.72	0.72	2.00	1.68	2.40			
<i>Potentilla pensylvanica</i>	0.15	0.54	0.54	1.50	1.26	1.80			
<i>Sphaeralcea coccinea</i>	0.05	0.18	0.18	0.50	0.42	0.60			
Lichen spp.	0.25	0.91	0.91	2.50	2.10	3.01			
Litter	71.20			100.00					
Rock	0.00			0.00					
Soil	1.15			9.50					

Table 46. Points Analysis of the Grazed East Pasture on the Crested Wheatgrass for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Agropyron desertorum</i>	26.20	89.57	83.50	79.90	169.47		
<i>Agropyron smithii</i>	0.10	0.34	1.00	0.96	1.30		
<i>Bouteloua gracilis</i>	1.20	4.10	6.00	5.74	9.84		
<i>Koeleria pyramidata</i>	0.30	1.03	2.00	1.91	2.94		
<i>Stipa comata</i>	0.35	1.20	2.50	2.39	3.59		
<i>Achillea millefolium</i>	0.05	0.17	0.50	0.48	0.65		
<i>Antennaria parvifolia</i>	0.10	0.34	0.50	0.48	0.82		
<i>Artemisia frigida</i>	0.35	1.20	2.50	2.39	3.59		
<i>Cirsium undulatum</i>	0.05	0.17	0.50	0.48	0.65		
<i>Commandra umbellata</i>	0.05	0.17	0.50	0.48	0.65		
<i>Lepidium densiflorum</i>	0.05	0.17	0.50	0.48	0.65		
<i>Lygodesmia juncea</i>	0.25	0.85	2.50	2.39	3.24		
<i>Phlox hoodii</i>	0.05	0.17	0.50	0.48	0.65		
<i>Potentilla pensylvanica</i>	0.10	0.34	1.00	0.96	1.30		
Lichen spp.	0.05	0.17	0.50	0.48	0.65		
Litter	68.55		100.00				
Rock	0.00		0.00				
Soil	2.15		8.50				

Table 47. Points Analysis of the Ungrazed Clayey Range Site on the Native Range, Pasture 1, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative Basal		Relative Percent		Importance Value
	Cover	Cover	Cover	Frequency	Frequency	Frequency	
<i>Agropyron smithii</i>	2.50	7.51	21.00	11.11	18.62		
<i>Bouteloua gracilis</i>	23.10	69.37	96.00	50.79	120.16		
<i>Koeleria pyramidata</i>	0.70	2.10	7.00	3.70	5.80		
<i>Poa pratensis</i>	0.10	0.30	1.00	0.53	0.83		
<i>Stipa comate</i>	1.30	3.90	13.00	6.88	10.78		
<i>Stipa viridula</i>	2.20	6.61	18.00	9.52	16.13		
<i>Carex heliophila</i>	0.40	1.20	4.00	2.12	3.32		
<i>Achillea millefolium</i>	0.50	1.50	4.00	2.12	3.62		
<i>Androsace occidentalis</i>	0.10	0.30	1.00	0.53	0.83		
<i>Artemisia frigida</i>	0.30	0.90	3.00	1.59	2.49		
<i>Conyza canadensis</i>	0.20	0.60	2.00	1.06	1.66		
<i>Grindelia squarrosa</i>	0.20	0.60	2.00	1.06	1.66		
<i>Phlox hoodia</i>	0.50	1.50	5.00	2.65	4.15		
<i>Potentilla pensylvanica</i>	0.20	0.60	2.00	1.06	1.66		
<i>Psoralea esculenta</i>	0.10	0.30	1.00	0.53	0.83		
<i>Ratibida columnifera</i>	0.80	2.40	8.00	4.23	6.63		
Lichen spp.	0.10	0.30	1.00	0.53	0.83		
Litter	66.40		100.00				
Rock	0.00		0.00				
Soil	0.30		3.00				

Table 48. Points Analysis of the Grazed Clayey Range Site on the Native Range, Pasture 1, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal Cover		Relative Basal Cover		Relative Percent Frequency		Importance Value
	Basal Cover	Basal Cover	Basal Cover	Relative Basal Cover	Relative Percent Frequency	Relative Percent Frequency	
<i>Agropyron smithii</i>	1.60	5.05	16.00	8.84	13.89		
<i>Bouteloua gracilis</i>	22.00	69.40	90.00	49.72	119.12		
<i>Koeleria pyramidata</i>	1.70	5.36	15.00	8.29	13.65		
<i>Poa pratensis</i>	0.20	0.63	2.00	1.10	1.73		
<i>Stipa comata</i>	1.70	5.36	16.00	8.84	14.20		
<i>Stipa viridula</i>	1.90	5.99	18.00	9.94	15.93		
<i>Carex heliophila</i>	0.70	2.21	6.00	3.31	5.52		
<i>Achillea millefolium</i>	0.20	0.63	2.00	1.10	1.73		
<i>Artemisia frigida</i>	0.50	1.58	5.00	2.76	4.34		
<i>Grindelia squarrosa</i>	0.50	1.58	4.00	2.21	3.79		
<i>Opuntia fragilis</i>	0.10	0.32	1.00	0.55	0.87		
<i>Phlox hoodii</i>	0.10	0.32	1.00	0.55	0.87		
<i>Ratibida columnifera</i>	0.40	1.26	4.00	2.21	3.47		
<i>Sphaeralcea coccinea</i>	0.10	0.32	1.00	0.55	0.87		
Litter	67.70		100.00				
Rock	0.00		0.00				
Soil	0.60		5.00				

Table 49. Points Analysis of the Ungrazed Sandy Range Site on the Native Range, Pasture 1, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Cover	Basal Cover	Percent Frequency	Percent Frequency	Percent Frequency	
<i>Agropyron smithii</i>	0.10	0.26	0.26	1.00	0.46	0.46	0.72
<i>Bouteloua gracilis</i>	2.90	7.46	7.46	17.00	7.76	7.76	15.22
<i>Calamovilfa longifolia</i>	5.50	14.14	14.14	42.00	19.18	19.18	33.32
<i>Koeleria pyramidata</i>	0.20	0.51	0.51	2.00	0.91	0.91	1.42
<i>Muhlenbergia cuspidata</i>	0.10	0.26	0.26	1.00	0.46	0.46	0.72
<i>Stipa comata</i>	2.60	6.68	6.68	20.00	9.13	9.13	15.81
<i>Stipa viridula</i>	0.40	1.03	1.03	4.00	1.83	1.83	2.86
<i>Carex filifolia</i>	17.60	45.24	45.24	68.00	31.05	31.05	76.29
<i>Carex heliophila</i>	7.70	19.79	19.79	48.00	21.92	21.92	41.71
<i>Artemisia dracunculoides</i>	0.10	0.26	0.26	1.00	0.46	0.46	0.72
<i>Asclepias verticillata</i>	0.50	1.29	1.29	5.00	2.28	2.28	3.57
<i>Chrysopsis villosa</i>	0.10	0.26	0.26	1.00	0.46	0.46	0.72
<i>Lygodesmia juncea</i>	0.40	1.03	1.03	4.00	1.83	1.83	2.86
<i>Opuntia fragilis</i>	0.30	0.77	0.77	1.00	0.46	0.46	1.23
<i>Potentilla pensylvanica</i>	0.10	0.26	0.26	1.00	0.46	0.46	0.72
<i>Psoralea argophylla</i>	0.10	0.26	0.26	1.00	0.46	0.46	0.72
<i>Rosa arkansana</i>	0.20	0.51	0.51	2.00	0.91	0.91	1.42
Litter	61.10			100.00			
Rock	0.00			0.00			
Soil	0.00			0.00			

Table 50. Points Analysis of the Grazed Sandy Range Site on the Native Range, Pasture 1, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Agropyron smithii</i>	0.20	0.49	2.00	0.80	1.29		
<i>Bouteloua gracilis</i>	4.50	10.92	30.00	12.00	22.92		
<i>Calamovilfa longifolia</i>	6.60	16.02	46.00	18.40	34.42		
<i>Koeleria pyramidata</i>	1.30	3.16	12.00	4.80	7.96		
<i>Stipa comata</i>	1.10	2.67	10.00	4.00	6.67		
<i>Stipa viridula</i>	0.60	1.46	6.00	2.40	3.86		
<i>Carex filifolia</i>	8.90	21.60	52.00	20.80	42.40		
<i>Carex heliophila</i>	16.80	40.78	81.00	32.40	73.18		
<i>Artemisia ludoviciana</i>	0.10	0.24	1.00	0.40	0.64		
<i>Asclepias verticillata</i>	0.20	0.49	2.00	0.80	1.29		
<i>Liatris punctata</i>	0.10	0.24	1.00	0.40	0.64		
<i>Lygodesmia juncea</i>	0.40	0.97	3.00	1.20	2.17		
<i>Rosa arkansana</i>	0.40	0.97	4.00	1.60	2.57		
Litter	58.80		100.00				
Rock	0.00		0.00				
Soil	0.00		0.00				

Table 51. Points Analysis of the Ungrazed Shallow Range Site on the Native Range, Pasture 1, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Andropogon scoparius</i>	0.10	0.30	0.30	1.00	0.39	0.69	0.69
<i>Aristida longiseta</i>	0.10	0.30	0.30	1.00	0.39	0.69	0.69
<i>Bouteloua gracilis</i>	12.60	37.28	75.00	29.41	14.12	26.84	66.69
<i>Koeleria pyramidata</i>	3.40	10.06	28.00	10.98	12.16	22.81	21.04
<i>Muhlenbergia cuspidata</i>	3.60	10.65	31.00	12.16			22.81
<i>Carex filifolia</i>	5.60	16.57	47.00	18.43			35.00
<i>Carex heliophila</i>	0.10	0.30	1.00	0.39			0.69
<i>Antennaria parvifolia</i>	0.40	1.18	2.00	0.78			1.96
<i>Artemisia frigida</i>	0.10	0.30	1.00	0.39			0.69
<i>Aster ericoides</i>	0.10	0.30	1.00	0.39			0.69
<i>Commandra umbellata</i>	0.10	0.30	1.00	0.39			0.69
<i>Conyza canadensis</i>	0.10	0.30	1.00	0.39			0.69
<i>Echinacea angustifolia</i>	0.20	0.59	2.00	0.78			1.37
<i>Hedeoma hispida</i>	0.10	0.30	1.00	0.39			0.69
<i>Liatris punctata</i>	0.50	1.48	5.00	1.96			3.44
<i>Linum rigidum</i>	0.10	0.30	1.00	0.39			0.69
<i>Lotus americanus</i>	0.10	0.30	1.00	0.39			0.69
<i>Phlox hoodii</i>	1.10	3.25	9.00	3.53			6.78
<i>Polygala alba</i>	0.20	0.59	2.00	0.78			1.37
<i>Psoralea argophylla</i>	0.10	0.30	1.00	0.39			0.69
Lichen spp.	0.80	2.37	7.00	2.75			5.12
Litter	65.90		100.00				
Rock	0.00		0.00				
Soil	0.30		2.00				

Table 52. Point Analysis of the Grazed Shallow Range Site on the Native Range, Pasture 1, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative Basal Cover		Relative Percent Frequency		Importance Value
	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	
<i>Agropyron smithii</i>	0.10	0.27	1.00	0.41	0.68
<i>Andropogon scoparius</i>	0.10	0.27	1.00	0.41	0.68
<i>Bouteloua gracilis</i>	17.90	48.91	90.00	36.89	85.80
<i>Koeleria pyramidata</i>	1.90	5.19	15.00	6.15	11.34
<i>Muhlenbergia cuspidata</i>	2.80	7.65	23.00	9.43	17.08
<i>Munroa squarrosa</i>	0.20	0.55	2.00	0.82	1.37
<i>Stipa comata</i>	3.70	10.11	33.00	13.52	23.63
<i>Stipa viridula</i>	0.20	0.55	2.00	0.82	1.37
<i>Carex filifolia</i>	6.50	17.76	47.00	19.26	37.02
<i>Carex heliophila</i>	0.60	1.64	6.00	2.46	4.10
<i>Antennaria parvifolia</i>	0.10	0.27	1.00	0.41	0.68
<i>Artemisia dracunculul</i>	0.20	0.55	2.00	0.82	1.37
<i>Artemisia frigida</i>	0.40	1.09	4.00	1.64	2.73
<i>Aster ericoides</i>	0.20	0.55	2.00	0.82	1.37
<i>Comandra umbellata</i>	0.10	0.27	1.00	0.41	0.68
<i>Echinacea angustifolia</i>	0.10	0.27	1.00	0.41	0.68
<i>Haplopappus spinulosus</i>	0.10	0.27	1.00	0.41	0.68
<i>Liatis punctata</i>	0.20	0.55	2.00	0.82	1.37
<i>Phlox hoodii</i>	1.20	3.28	10.00	4.10	7.38
Litter	61.40		100.00		
Rock	0.00		0.00		
Soil	2.00		16.00		

Table 53. Points Analysis of the Ungrazed Silty Range Site on the Native Range, Pasture 1, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal Cover		Relative Basal Cover		Percent Frequency		Relative Percent Frequency		Importance Value
	Basal Cover	Basal Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Relative Percent Frequency	Relative Percent Frequency	
<i>Agropyron smithii</i>	4.00	9.93	34.00	13.44	23.37				
<i>Bouteloua gracilis</i>	21.40	53.10	93.00	36.76	89.86				
<i>Muhlenbergia cuspidata</i>	0.10	0.25	1.00	0.40	0.65				
<i>Stipa comata</i>	2.60	6.45	22.00	8.70	15.15				
<i>Stipa viridula</i>	5.20	12.90	42.00	16.60	29.50				
<i>Carex filifolia</i>	1.00	2.48	6.00	2.37	4.85				
<i>Carex heliophila</i>	1.30	3.23	12.00	4.74	7.97				
<i>Achillea millefolium</i>	0.80	1.99	8.00	3.16	5.15				
<i>Artemisia frigida</i>	2.10	5.21	19.00	7.51	12.72				
<i>Cirsium undulatum</i>	0.10	0.25	1.00	0.40	0.65				
<i>Conyza canadensis</i>	0.30	0.74	3.00	1.19	1.93				
<i>Grindelia squarrosa</i>	0.30	0.74	2.00	0.79	1.53				
<i>Opuntia fragilis</i>	0.40	0.99	3.00	1.19	2.18				
<i>Ratibida columnifera</i>	0.40	0.99	4.00	1.58	2.57				
<i>Sphaeralcea coccinea</i>	0.30	0.74	3.00	1.19	1.93				
Litter	59.70		100.00						
Rock	0.00		0.00						
Soil	0.00		0.00						

Table 54. Points Analysis of the Grazed Silty Range Site on the Native Range, Pasture 1, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Cover	Basal Cover	Percent Frequency	Basal Cover	Percent Frequency	
<i>Agropyron smithii</i>	5.80	15.18	48.00	20.78	35.96		
<i>Bouteloua gracilis</i>	20.80	54.45	89.00	38.53	92.98		
<i>Muhlenbergia cuspidata</i>	0.40	1.05	3.00	1.30	2.35		
<i>Munroa squarrosa</i>	0.10	0.26	1.00	0.43	0.69		
<i>Stipa comata</i>	3.50	9.16	24.00	10.39	19.55		
<i>Stipa viridula</i>	4.10	10.73	32.00	13.85	24.58		
<i>Carex heliophila</i>	1.30	3.40	12.00	5.19	8.59		
<i>Achillea millefolium</i>	0.40	1.05	4.00	1.73	2.78		
<i>Artemisia frigida</i>	1.10	2.88	11.00	4.76	7.64		
<i>Grindelia squarrosa</i>	0.20	0.52	2.00	0.87	1.39		
<i>Hedeoma hispida</i>	0.10	0.26	1.00	0.43	0.69		
<i>Opuntia fragilis</i>	0.20	0.52	2.00	0.87	1.39		
<i>Potentilla pensylvanica</i>	0.10	0.26	1.00	0.43	0.69		
Lichen spp.	0.10	0.26	1.00	0.43	0.69		
Litter	61.80		100.00				
Rock	0.00		0.00				
Soil	0.00		0.00				

Table 55. Points Analysis of the Ungrazed Clayey Range Site on the Native Range, Pasture 2, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Agropyron smithii</i>	3.00	8.82	25.00	10.12	18.94		
<i>Bouteloua gracilis</i>	14.50	42.65	75.00	30.36	73.01		
<i>Koeleria pyramidata</i>	2.80	8.24	22.00	8.91	17.15		
<i>Munroa squarrosa</i>	0.10	0.29	1.00	0.40	0.69		
<i>Stipa comata</i>	1.20	3.53	11.00	4.45	7.98		
<i>Stipa viridula</i>	3.00	8.82	27.00	10.93	19.75		
<i>Carex filifolia</i>	1.00	2.94	8.00	3.24	6.18		
<i>Carex heliophila</i>	1.30	3.82	13.00	5.26	9.08		
<i>Achillea millefolium</i>	2.10	6.18	19.00	7.69	13.87		
<i>Antennaria parvifolia</i>	0.50	1.47	4.00	1.62	3.09		
<i>Artemisia dracunculus</i>	0.10	0.29	1.00	0.40	0.69		
<i>Artemisia frigida</i>	1.70	5.00	17.00	6.88	11.88		
<i>Aster ericoides</i>	0.30	0.88	2.00	0.81	1.69		
<i>Coryza canadensis</i>	0.10	0.29	1.00	0.40	0.69		
<i>Erysimum asperum</i>	0.10	0.29	1.00	0.40	0.69		
<i>Grindelia squarrosa</i>	0.40	1.18	4.00	1.62	2.80		
<i>Potentilla pensylvanica</i>	0.30	0.88	2.00	0.81	1.69		
<i>Psoralea argophylla</i>	0.10	0.29	1.00	0.40	0.69		
<i>Ratibida columnifera</i>	0.80	2.35	7.00	2.83	5.18		
<i>Vicia americana</i>	0.10	0.29	1.00	0.40	0.69		
Lichen spp.	0.50	1.47	5.00	2.02	3.49		
Furrow	5.10		9.00				
Litter	54.40		99.00				
Rock	0.00		0.00				
Sod	6.50		17.00				
Soil	0.00		0.00				

Table 56. Points Analysis of the Grazed Clayey Range Site on the Native Range, Pasture 2, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Agropyron smithii</i>	4.30	10.80	39.00	15.42	26.22		
<i>Bouteloua gracilis</i>	18.80	47.24	79.00	31.23	78.47		
<i>Koeleria pyramidata</i>	0.70	1.76	7.00	2.77	4.53		
<i>Stipa comata</i>	3.40	8.54	29.00	11.46	20.00		
<i>Stipa viridula</i>	4.10	10.30	25.00	9.88	20.18		
<i>Carex filifolia</i>	0.30	0.75	3.00	1.19	1.94		
<i>Carex heliophila</i>	0.20	0.50	2.00	0.79	1.29		
<i>Achillea millefolium</i>	2.30	5.78	19.00	7.51	13.29		
<i>Antennaria parvifolia</i>	0.10	0.25	1.00	0.40	0.65		
<i>Artemisia dracunculus</i>	0.10	0.25	1.00	0.40	0.65		
<i>Artemisia frigida</i>	2.50	6.28	20.00	7.91	14.19		
<i>Cirsium undulatum</i>	0.30	0.75	3.00	1.19	1.94		
<i>Coryza canadensis</i>	0.40	1.01	4.00	1.58	2.59		
<i>Grindelia squarrosa</i>	0.80	2.01	7.00	2.77	4.78		
<i>Hedeoma hispida</i>	0.10	0.25	1.00	0.40	0.65		
<i>Opuntia fragilis</i>	0.40	1.01	3.00	1.19	2.20		
<i>Potentilla pensylvanica</i>	0.60	1.51	6.00	2.37	3.88		
<i>Ratibida columnifera</i>	0.20	0.50	2.00	0.79	1.29		
<i>Sphaeralcea coccinea</i>	0.20	0.50	2.00	0.79	1.29		
Furrow	3.50		6.00				
Litter	52.20		96.00				
Rock	0.00		0.00				
Sod	4.50		10.00				
Soil	0.00		0.00				

Table 57. Points Analysis of the Ungrazed Sandy Range Site on the Native Range, Pasture 2, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Bouteloua gracilis</i>	6.10	30.20	48.00	28.07	58.27	18.27	18.27
<i>Calamovilfa longifolia</i>	1.80	8.91	16.00	9.36	8.05	8.05	8.05
<i>Koeleria pyramidata</i>	0.80	3.96	7.00	4.09	9.14	9.14	9.14
<i>Panicum oligosanthos</i>	0.90	4.46	8.00	4.68	11.88	11.88	11.88
<i>Stipa comata</i>	1.10	5.45	11.00	6.43	1.08	1.08	1.08
<i>Stipa viridula</i>	0.10	0.50	1.00	0.58			
<i>Carex filifolia</i>	5.40	26.73	45.00	26.32	53.05	53.05	53.05
<i>Carex heliophila</i>	2.90	14.36	25.00	14.62	28.98	28.98	28.98
<i>Antennaria parvifolia</i>	0.10	0.50	1.00	0.58	1.08	1.08	1.08
<i>Artemisia dracunculus</i>	0.10	0.50	1.00	0.58	1.08	1.08	1.08
<i>Artemisia frigida</i>	0.20	0.99	2.00	1.17	2.16	2.16	2.16
<i>Artemisia ludoviciana</i>	0.10	0.50	1.00	0.58	1.08	1.08	1.08
<i>Phlox hoodii</i>	0.10	0.50	1.00	0.58	1.08	1.08	1.08
Lichen spp.	0.50	2.48	4.00	2.34	4.82	4.82	4.82
Furrow	4.80		10.00				
Litter	67.80		100.00				
Rock	0.00		0.00				
Sod	6.80		14.00				
Soil	0.40		4.00				

Table 58. Points Analysis of the Grazed Sandy Range Site on the Native Range, Pasture 2, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Bouteloua gracilis</i>	3.70	18.05	18.05	32.00	18.18	36.23	
<i>Calamovilfa longifolia</i>	1.90	9.27	9.27	17.00	9.66	18.93	
<i>Koeleria pyramidata</i>	0.80	3.90	3.90	8.00	4.55	8.45	
<i>Panicum oligosanthes</i>	0.90	4.39	4.39	9.00	5.11	9.50	
<i>Stipa comata</i>	3.10	15.12	15.12	30.00	17.05	32.17	
<i>Stipa viridula</i>	0.40	1.95	1.95	4.00	2.27	4.22	
<i>Carex filifolia</i>	7.40	36.10	36.10	54.00	30.68	66.78	
<i>Carex heliophila</i>	1.50	7.32	7.32	14.00	7.95	15.27	
<i>Artemisia dracunculus</i>	0.20	0.98	0.98	2.00	1.14	2.12	
<i>Artemisia frigida</i>	0.10	0.49	0.49	1.00	0.57	1.06	
<i>Artemisia ludoviciana</i>	0.10	0.49	0.49	1.00	0.57	1.06	
<i>Oxytropis lambertii</i>	0.10	0.49	0.49	1.00	0.57	1.06	
<i>Phlox hoodii</i>	0.20	0.98	0.98	2.00	1.14	2.12	
Lichen spp.	0.10	0.49	0.49	1.00	0.57	1.06	
Furrow	3.80			9.00			
Litter	69.30			99.00			
Rock	0.00			0.00			
Sod	4.30			10.00			
Soil	2.10			16.00			

Table 59. Points Analysis of the Ungrazed Shallow Range Site on the Native Range, Pasture 2, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative Basal		Relative Percent		Importance Value
	Cover	Cover	Cover	Frequency	Frequency	Frequency	
<i>Bouteloua gracilis</i>	9.10	27.16	56.00	23.24	50.40		
<i>Calamagrostis montanensis</i>	0.10	0.30	1.00	0.41	0.71		
<i>Koeleria pyramidata</i>	3.80	11.34	28.00	11.62	22.96		
<i>Muhlenbergia cuspidata</i>	0.10	0.30	1.00	0.41	0.71		
<i>Stipa comata</i>	7.40	22.09	53.00	21.99	44.08		
<i>Carex filifolia</i>	9.30	27.76	66.00	27.39	55.15		
<i>Carex heliophila</i>	0.30	0.90	3.00	1.24	2.14		
<i>Artemisia dracunculus</i>	0.40	1.19	4.00	1.66	2.85		
<i>Artemisia frigida</i>	0.50	1.49	5.00	2.07	3.56		
<i>Erysimum asperum</i>	0.10	0.30	1.00	0.41	0.71		
<i>Grindelia squarrosa</i>	0.10	0.30	1.00	0.41	0.71		
<i>Haplopappus spinulosus</i>	0.20	0.60	2.00	0.83	1.43		
<i>Lotus americanus</i>	0.10	0.30	1.00	0.41	0.71		
<i>Oxytropis lambertii</i>	0.50	1.49	4.00	1.66	3.15		
<i>Phlox hoodii</i>	0.50	1.49	5.00	2.07	3.56		
<i>Potentilla pensylvanica</i>	0.10	0.30	1.00	0.41	0.71		
<i>Psoralea argophylla</i>	0.10	0.30	1.00	0.41	0.71		
<i>Sphaeralcea coccinea</i>	0.60	1.79	6.00	2.49	4.28		
<i>Lichen spp.</i>	0.20	0.60	2.00	0.83	1.43		
Furrow	4.10		13.00				
Litter	54.10		100.00				
Rock	0.00		0.00				
Sod	7.00		25.00				
Soil	1.30		9.00				

Table 60. Points Analysis of the Grazed Shallow Range Site on the Native Range, Pasture 2, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Agropyron smithii</i>	0.10	0.31	1.00	0.43	0.43	0.74	
<i>Bouteloua gracilis</i>	6.90	21.70	47.00	20.43	20.43	42.13	
<i>Koeleria pyramidata</i>	2.60	8.18	25.00	10.87	10.87	19.05	
<i>Muhlenbergia cuspidata</i>	0.10	0.31	1.00	0.43	0.43	0.74	
<i>Stipa comata</i>	8.50	26.73	61.00	26.52	26.52	53.25	
<i>Carex filifolia</i>	10.10	31.76	62.00	26.96	26.96	58.72	
<i>Allionia albida</i>	0.10	0.31	1.00	0.43	0.43	0.74	
<i>Artemisia dracunculus</i>	0.30	0.94	3.00	1.30	1.30	2.24	
<i>Echinacea angustifolia</i>	0.10	0.31	1.00	0.43	0.43	0.74	
<i>Haplopappus spinulosus</i>	0.20	0.63	2.00	0.87	0.87	1.50	
<i>Liatis punctata</i>	0.20	0.63	2.00	0.87	0.87	1.50	
<i>Oxytropis lambertii</i>	0.60	1.89	4.00	1.74	1.74	3.63	
<i>Phlox hoodii</i>	1.00	3.14	10.00	4.35	4.35	7.49	
<i>Psoralea argophylla</i>	0.10	0.31	1.00	0.43	0.43	0.74	
<i>Sphaeralcea coccinea</i>	0.20	0.63	2.00	0.87	0.87	1.50	
Lichen spp.	0.70	2.20	7.00	3.04	3.04	5.24	
Furrow	3.10		10.00				
Litter	57.50		100.00				
Rock	0.00		0.00				
Sod	6.50		18.00				
Soil	1.10		9.00				

Table 61. Points Analysis of the Ungrazed Silty Range Site on the Native Range, Pasture 2, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative Basal		Relative Percent		Importance Value
	Cover	Cover	Cover	Cover	Frequency	Frequency	
<i>Agropyron smithii</i>	5.20	10.32	42.00	18.58			28.90
<i>Bouteloua gracilis</i>	32.30	64.09	94.00	41.59			105.68
<i>Koeleria pyramidata</i>	0.30	0.60	2.00	0.88			1.48
<i>Stipa comata</i>	1.00	1.98	8.00	3.54			5.52
<i>Stipa viridula</i>	1.50	2.98	13.00	5.75			8.73
<i>Carex filifolia</i>	6.10	12.10	35.00	15.49			27.59
<i>Antennaria parvifolia</i>	0.30	0.60	1.00	0.44			1.04
<i>Arabis holboellii</i>	0.30	0.60	3.00	1.33			1.93
<i>Artemisia dracunculoides</i>	0.10	0.20	1.00	0.44			0.64
<i>Artemisia frigida</i>	1.30	2.58	11.00	4.87			7.45
<i>Coryza canadensis</i>	0.10	0.20	1.00	0.44			0.64
<i>Hedeoma hispida</i>	0.10	0.20	1.00	0.44			0.64
<i>Lotus americanus</i>	0.20	0.40	2.00	0.88			1.28
<i>Medicago spp.</i>	0.60	1.19	3.00	1.33			2.52
<i>Plantago purshii</i>	0.20	0.40	2.00	0.88			1.28
<i>Ratibida columnifera</i>	0.10	0.20	1.00	0.44			0.64
<i>Sphaeralcea coccinea</i>	0.40	0.79	4.00	1.77			2.56
<i>Selaginella densa</i>	0.10	0.20	1.00	0.44			0.64
<i>Lichen spp.</i>	0.20	0.40	1.00	0.44			0.84
Furrow	5.80		16.00				
Litter	39.00		94.00				
Rock	0.00		0.00				
Sod	4.80		13.00				
Soil	0.00		0.00				

Table 62. Points Analysis of the Grazed Silty Range Site on the Native Range, Pasture 2, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Agropyron smithii</i>	4.40	8.37	37.00	16.30	24.67		
<i>Bouteloua gracilis</i>	36.00	68.44	97.00	42.73	111.17		
<i>Koeleria pyramidata</i>	0.80	1.52	5.00	2.20	3.72		
<i>Stipa comata</i>	0.60	1.14	6.00	2.64	3.78		
<i>Stipa viridula</i>	1.70	3.23	13.00	5.73	8.96		
<i>Carex filifolia</i>	5.20	9.89	33.00	14.54	24.43		
<i>Carex heliophila</i>	0.10	0.19	1.00	0.44	0.63		
<i>Achillea millefolium</i>	0.50	0.95	3.00	1.32	2.27		
<i>Agoseris glauca</i>	0.20	0.38	2.00	0.88	1.26		
<i>Allium textile</i>	0.10	0.19	1.00	0.44	0.63		
<i>Antennaria parvifolia</i>	0.10	0.19	1.00	0.44	0.63		
<i>Artemisia frigida</i>	1.00	1.90	10.00	4.41	6.31		
<i>Astragalus crassicaupus</i>	0.10	0.19	1.00	0.44	0.63		
<i>Grindelia squarrosa</i>	0.20	0.38	2.00	0.88	1.26		
<i>Lotus americanus</i>	0.10	0.19	1.00	0.44	0.63		
<i>Potentilla pensylvanica</i>	0.10	0.19	1.00	0.44	0.63		
<i>Ratibida columifera</i>	0.40	0.76	3.00	1.32	2.08		
<i>Sphaeralcea coccinea</i>	0.90	1.71	9.00	3.96	5.67		
<i>Lichen spp.</i>	0.10	0.19	1.00	0.44	0.63		
Furrow	4.30		12.00				
Litter	38.50		97.00				
Rock	0.00		0.00				
Sod	4.50		14.00				
Soil	0.10		1.00				

Table 63. Points Analysis of the Ungrazed Clayey Range Site on the Native Range, Pasture 3, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Cover	Basal Cover	Percent Frequency	Basal Cover	Percent Frequency	
<i>Agropyron smithii</i>	3.40	6.80	27.00	10.38	17.18		
<i>Bouteloua gracilis</i>	24.40	48.80	86.00	33.08	81.88		
<i>Buchloe dactyloides</i>	3.10	6.20	11.00	4.23	10.43		
<i>Koeleria pyramidata</i>	6.00	12.00	41.00	15.77	27.77		
<i>Stipa comata</i>	0.40	0.80	4.00	1.54	2.34		
<i>Stipa viridula</i>	0.80	1.60	6.00	2.31	3.91		
<i>Carex filifolia</i>	0.80	1.60	6.00	2.31	3.91		
<i>Carex heliophila</i>	2.70	5.40	22.00	8.46	13.86		
<i>Achillea millefolium</i>	0.90	1.80	9.00	3.46	5.26		
<i>Antennaria parvifolia</i>	2.50	5.00	9.00	3.46	8.46		
<i>Arabis holboellii</i>	0.20	0.40	2.00	0.77	1.17		
<i>Artemisia dracunculus</i>	0.80	1.60	6.00	2.31	3.91		
<i>Artemisia frigida</i>	0.10	0.20	1.00	0.38	0.58		
<i>Artemisia ludoviciana</i>	0.60	1.20	5.00	1.92	3.12		
<i>Grindelia squarrosa</i>	0.60	1.20	6.00	2.31	3.51		
<i>Linum rigidum</i>	0.20	0.40	2.00	0.77	1.17		
<i>Phlox hoodii</i>	0.90	1.80	3.00	1.15	2.95		
<i>Polygala alba</i>	0.30	0.60	2.00	0.77	1.37		
<i>Psoralea argophylla</i>	0.20	0.40	2.00	0.77	1.17		
<i>Ratibida columnifera</i>	0.30	0.60	3.00	1.15	1.75		
Lichen spp.	0.80	1.60	7.00	2.69	4.29		
Litter	50.00		98.00				
Rock	0.00		0.00				
Soil	0.00		0.00				

Table 64. Points Analysis of the Grazed Clayey Range Site on the Native Range, Pasture 3, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal Cover		Relative Basal Cover		Percent Frequency		Relative Percent Frequency		Importance Value
	Basal Cover	3.60	7.91	31.00	11.79	19.70			
<i>Agropyron smithii</i>	3.60	7.91	31.00	11.79	19.70				
<i>Bouteloua gracilis</i>	23.30	51.21	91.00	34.60	85.81				
<i>Koeleria pyramidata</i>	6.80	14.95	51.00	19.39	34.34				
<i>Stipa comata</i>	1.60	3.52	12.00	4.56	8.08				
<i>Carex filifolia</i>	1.00	2.20	5.00	1.90	4.10				
<i>Carex heliophila</i>	2.70	5.93	18.00	6.84	12.77				
<i>Antennaria parvifolia</i>	0.70	1.54	3.00	1.14	2.68				
<i>Artemisia dracunculus</i>	0.70	1.54	7.00	2.66	4.20				
<i>Artemisia frigida</i>	0.10	0.22	1.00	0.38	0.60				
<i>Artemisia ludoviciana</i>	0.10	0.22	1.00	0.38	0.60				
<i>Aster ericoides</i>	0.20	0.44	2.00	0.76	1.20				
<i>Grindelia squarrosa</i>	0.30	0.66	3.00	1.14	1.80				
<i>Hedeoma hispida</i>	0.30	0.66	3.00	1.14	1.80				
<i>Liatis punctata</i>	0.10	0.22	1.00	0.38	0.60				
<i>Lotus americanus</i>	0.10	0.22	1.00	0.38	0.60				
<i>Oxytropis lambertii</i>	0.30	0.66	3.00	1.14	1.80				
<i>Phlox hoodii</i>	0.20	0.44	2.00	0.76	1.20				
<i>Psoralea argophylla</i>	0.30	0.66	3.00	1.14	1.80				
<i>Ratibida columnifera</i>	0.10	0.22	1.00	0.38	0.60				
<i>Solidago missouriensis</i>	0.10	0.22	1.00	0.38	0.60				
<i>Rosa arkansana</i>	0.20	0.44	2.00	0.76	1.20				
Lichen spp.	2.70	5.93	21.00	7.98	13.91				
Litter	54.40		100.00						
Rock	0.00		0.00						
Soil	0.10		1.00						

Table 65. Points Analysis of the Ungrazed Sandy Range Site on the Native Range, Pasture 3, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Agropyron smithii</i>	0.10	0.41	0.41	1.00	0.47	0.88	
<i>Bouteloua gracilis</i>	3.20	13.01	13.01	31.00	14.69	27.70	
<i>Calamovilfa longifolia</i>	3.10	12.60	12.60	28.00	13.27	25.87	
<i>Koeleria pyramidata</i>	0.40	1.63	1.63	4.00	1.90	3.53	
<i>Stipa comata</i>	1.50	6.10	6.10	15.00	7.11	13.21	
<i>Stipa viridula</i>	0.60	2.44	2.44	6.00	2.84	5.28	
<i>Carex filifolia</i>	7.70	31.30	31.30	57.00	27.01	58.31	
<i>Carex heliophila</i>	6.80	27.64	27.64	57.00	27.01	54.65	
<i>Antennaria parvifolia</i>	0.30	1.22	1.22	3.00	1.42	2.64	
<i>Artemisia dracunculus</i>	0.40	1.63	1.63	4.00	1.90	3.53	
<i>Artemisia frigida</i>	0.10	0.41	0.41	1.00	0.47	0.88	
<i>Artemisia ludoviciana</i>	0.20	0.81	0.81	2.00	0.95	1.76	
<i>Lygodesmia juncea</i>	0.10	0.41	0.41	1.00	0.47	0.88	
<i>Phlox hoodii</i>	0.10	0.41	0.41	1.00	0.47	0.88	
Litter	75.20			100.00			
Rock	0.00			0.00			
Soil	0.20			1.00			

Table 66. Points Analysis of the Grazed Sandy Range Site on the Native Range, Pasture 3, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal Cover		Relative Basal Cover		Percent Frequency		Relative Percent Frequency		Importance Value
	Basal Cover	Relative Basal Cover	Percent Frequency	Relative Percent Frequency					
<i>Bouteloua gracilis</i>	1.90	7.36	19.00	9.50	16.86				
<i>Calamovilfa longifolia</i>	4.10	15.89	35.00	17.50	33.39				
<i>Koeleria pyramidata</i>	1.00	3.88	8.00	4.00	7.88				
<i>Stipa comata</i>	2.20	8.53	19.00	9.50	18.03				
<i>Carex filifolia</i>	9.00	34.88	59.00	29.50	64.38				
<i>Carex heliophila</i>	6.50	25.19	49.00	24.50	49.69				
<i>Artemisia dracunculus</i>	0.30	1.16	3.00	1.50	2.66				
<i>Artemisia ludoviciana</i>	0.20	0.78	2.00	1.00	1.78				
<i>Psoralea argophylla</i>	0.10	0.39	1.00	0.50	0.89				
<i>Sphaeralcea coccinea</i>	0.10	0.39	1.00	0.50	0.89				
<i>Tragopogon dubius</i>	0.10	0.39	1.00	0.50	0.89				
<i>Rosa arkansana</i>	0.10	0.39	1.00	0.50	0.89				
Lichen spp.	0.20	0.78	2.00	1.00	1.78				
Litter	74.20		100.00						
Rock	0.00		0.00						
Soil	0.00		0.00						

Table 67. Points Analysis of the Ungrazed Shallow Range Site on the Native Range, Pasture 3, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative Basal		Relative Percent		Importance Value
	Cover	Cover	Cover	Frequency	Frequency	Frequency	
<i>Bouteloua gracilis</i>	22.10	49.33	64.00	29.09	78.42		
<i>Koeleria pyramidata</i>	11.10	24.78	72.00	32.73	57.51		
<i>Stipa comata</i>	6.80	15.18	44.00	20.00	35.18		
<i>Stipa viridula</i>	0.40	0.89	2.00	0.91	1.80		
<i>Carex filifolia</i>	0.10	0.22	1.00	0.45	0.67		
<i>Carex heliophila</i>	2.10	4.69	16.00	7.27	11.96		
<i>Artemisia dracunculus</i>	0.60	1.34	5.00	2.27	3.61		
<i>Erysimum asperum</i>	0.10	0.22	1.00	0.45	0.67		
<i>Grindelia squarrosa</i>	0.10	0.22	1.00	0.45	0.67		
<i>Hedeoma hispida</i>	0.10	0.22	1.00	0.45	0.67		
<i>Kochia scoparia</i>	0.20	0.45	2.00	0.91	1.36		
<i>Lotus americanus</i>	0.10	0.22	1.00	0.45	0.67		
<i>Lygodesmia juncea</i>	0.20	0.45	2.00	0.91	1.36		
<i>Melilotus officinalis</i>	0.10	0.22	1.00	0.45	0.67		
<i>Oxytropis lambertii</i>	0.10	0.22	1.00	0.45	0.67		
<i>Phlox hoodii</i>	0.10	0.22	1.00	0.45	0.67		
<i>Psoralea argophylla</i>	0.20	0.45	2.00	0.91	1.36		
<i>Psoralea esculenta</i>	0.10	0.22	1.00	0.45	0.67		
<i>Ratibida columnifera</i>	0.10	0.22	1.00	0.45	0.67		
<i>Rosa arkansana</i>	0.10	0.22	1.00	0.45	0.67		
Litter	55.00		98.00				
Rock	0.00		0.00				
Soil	0.20		2.00				

Table 68. Points Analysis of the Grazed Shallow Range Site on the Native Range, Pasture 3, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Bouteloua gracilis</i>	21.60	47.68	65.00	28.26	75.94		
<i>Koeleria pyramidata</i>	7.70	17.00	56.00	24.35	41.35		
<i>Stipa comata</i>	11.20	24.72	65.00	28.26	52.98		
<i>Stipa viridula</i>	0.60	1.32	5.00	2.17	3.49		
<i>Carex filifolia</i>	0.30	0.66	2.00	0.87	1.53		
<i>Carex heliophila</i>	1.70	3.75	15.00	6.52	10.27		
<i>Artemisia dracunculus</i>	0.40	0.88	4.00	1.74	2.62		
<i>Artemisia frigida</i>	0.30	0.66	3.00	1.30	1.96		
<i>Hedeoma hispida</i>	0.10	0.22	1.00	0.43	0.65		
<i>Kochia scoparia</i>	0.10	0.22	1.00	0.43	0.65		
<i>Linum rigidum</i>	0.10	0.22	1.00	0.43	0.65		
<i>Lotus americanus</i>	0.10	0.22	1.00	0.43	0.65		
<i>Opuntia fragilis</i>	0.10	0.22	1.00	0.43	0.65		
<i>Psoralea esculenta</i>	0.10	0.22	1.00	0.43	0.65		
<i>Solidago missouriensis</i>	0.40	0.88	4.00	1.74	2.62		
<i>Rosa arkansana</i>	0.10	0.22	1.00	0.43	0.65		
Lichen spp.	0.40	0.88	4.00	1.74	2.62		
Litter	54.70		100.00				
Rock	0.00		0.00				
Soil	0.00		0.00				

Table 69. Points Analysis of the Ungrazed Silty Range Site on the Native Range, Pasture 3, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Agropyron smithii</i>	3.60	12.00	32.00	14.95	26.95		
<i>Bouteloua gracilis</i>	1.10	3.67	6.00	2.80	6.47		
<i>Koeleria pyramidata</i>	4.10	13.67	29.00	13.55	27.22		
<i>Stipa comata</i>	10.40	34.67	61.00	28.50	63.17		
<i>Stipa viridula</i>	7.40	24.67	55.00	25.70	50.37		
<i>Achillea millefolium</i>	0.10	0.33	1.00	0.47	0.80		
<i>Antennaria parvifolia</i>	0.10	0.33	1.00	0.47	0.80		
<i>Artemisia frigida</i>	1.90	6.33	17.00	7.94	14.27		
<i>Erigeron glabellus</i>	0.20	0.67	1.00	0.47	1.14		
<i>Grindelia squarrosa</i>	0.10	0.33	1.00	0.47	0.80		
<i>Hedeoma hispida</i>	0.40	1.33	4.00	1.87	3.20		
<i>Lotus americanus</i>	0.10	0.33	1.00	0.47	0.80		
<i>Opuntia fragilis</i>	0.10	0.33	1.00	0.47	0.80		
<i>Potentilla pensylvanica</i>	0.10	0.33	1.00	0.47	0.80		
<i>Sphaeralcea coccinea</i>	0.30	1.00	3.00	1.40	2.40		
Litter	70.00		100.00				
Rock	0.00		0.00				
Soil	0.00		0.00				

Table 70. Points Analysis of the Grazed Silty Range Site on the Native Range, Pasture 3, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Agropyron smithii</i>	3.90	11.93	32.00	15.61	27.54		
<i>Bouteloua gracilis</i>	1.80	5.50	8.00	3.90	9.40		
<i>Koeleria pyramidata</i>	2.00	6.12	13.00	6.34	12.46		
<i>Stipa comata</i>	9.80	29.97	53.00	25.85	55.82		
<i>Stipa viridula</i>	11.50	35.17	68.00	33.17	68.34		
<i>Carex heliophila</i>	0.70	2.14	5.00	2.44	4.58		
<i>Achillea millefolium</i>	0.10	0.31	1.00	0.49	0.80		
<i>Antennaria parvifolia</i>	0.50	1.53	2.00	0.98	2.51		
<i>Artemisia dracunculus</i>	0.10	0.31	1.00	0.49	0.80		
<i>Artemisia frigida</i>	0.80	2.45	7.00	3.41	5.86		
<i>Grindelia squarrosa</i>	0.20	0.61	2.00	0.98	1.59		
<i>Hedeoma hispida</i>	0.40	1.22	4.00	1.95	3.17		
<i>Linum rigidum</i>	0.10	0.31	1.00	0.49	0.80		
<i>Lotus americanus</i>	0.30	0.92	3.00	1.46	2.38		
<i>Psoralea esculenta</i>	0.10	0.31	1.00	0.49	0.80		
<i>Ratibida columnifera</i>	0.20	0.61	2.00	0.98	1.59		
<i>Sphaeralcea coccinea</i>	0.20	0.61	2.00	0.98	1.59		
Litter	67.30		100.00				
Rock	0.00		0.00				
Soil	0.00		0.00				

Table 71. Points Analysis of the Ungrazed Clayey Range Site on the Native Range, Pasture 4, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Agropyron smithii</i>	2.80	7.93	27.00	12.56	20.49		
<i>Bouteloua gracilis</i>	15.70	44.48	65.00	30.23	74.71		
<i>Koeleria pyramidata</i>	5.60	15.86	36.00	16.74	32.60		
<i>Stipa comata</i>	0.30	0.85	3.00	1.40	2.25		
<i>Stipa viridula</i>	0.50	1.42	4.00	1.86	3.28		
<i>Carex filifolia</i>	0.40	1.13	3.00	1.40	2.53		
<i>Carex heliophila</i>	2.90	8.22	21.00	9.77	17.99		
<i>Achillea millefolium</i>	0.70	1.98	6.00	2.79	4.77		
<i>Agoseris glauca</i>	0.10	0.28	1.00	0.47	0.75		
<i>Antennaria parvifolia</i>	2.00	5.67	9.00	4.19	9.86		
<i>Artemisia dracuncul</i>	0.70	1.98	6.00	2.79	4.77		
<i>Artemisia frigida</i>	0.40	1.13	4.00	1.86	2.99		
<i>Artemisia ludoviciana</i>	0.10	0.28	1.00	0.47	0.75		
<i>Grindelia squarrosa</i>	0.30	0.85	3.00	1.40	2.25		
<i>Oxytropis lambertii</i>	0.10	0.28	1.00	0.47	0.75		
<i>Phlox hoodii</i>	0.10	0.28	1.00	0.47	0.75		
<i>Potentilla pensylvanica</i>	0.20	0.57	2.00	0.93	1.50		
<i>Psoralea argophylla</i>	0.10	0.28	1.00	0.47	0.75		
<i>Ratibida columnifera</i>	0.40	1.13	4.00	1.86	2.99		
<i>Sphaeralcea coccinea</i>	0.20	0.57	2.00	0.93	1.50		
<i>Lichen spp.</i>	1.70	4.82	15.00	6.98	11.80		
Furrow	10.00		15.00				
Litter	41.90		86.00				
Rock	0.00		0.00				
Sod	12.80		25.00				
Soil	0.00		0.00				

Table 72. Points Analysis of the Grazed Clayey Range Site on the Native Range, Pasture 4, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Agropyron smithii</i>	1.70	7.94	15.00	10.87	18.81		
<i>Bouteloua gracilis</i>	10.40	48.60	47.00	34.06	82.66		
<i>Koeleria pyramidata</i>	2.20	10.28	18.00	13.04	23.32		
<i>Stipa comata</i>	0.60	2.80	6.00	4.35	7.15		
<i>Stipa viridula</i>	1.10	5.14	9.00	6.52	11.66		
<i>Carex filifolia</i>	0.20	0.93	2.00	1.45	2.38		
<i>Carex heliophila</i>	0.20	0.93	2.00	1.45	2.38		
<i>Achillea millefolium</i>	0.30	1.40	3.00	2.17	3.57		
<i>Antennaria parvifolia</i>	0.50	2.34	2.00	1.45	3.79		
<i>Artemisia dracunculus</i>	0.70	3.27	4.00	2.90	6.17		
<i>Aster ericoides</i>	0.20	0.93	2.00	1.45	2.38		
<i>Grindelia squarrosa</i>	0.40	1.87	4.00	2.90	4.77		
<i>Linum rigidum</i>	0.10	0.47	1.00	0.72	1.19		
<i>Phlox hoodii</i>	0.10	0.47	1.00	0.72	1.19		
<i>Potentilla pensylvanica</i>	0.10	0.47	1.00	0.72	1.19		
<i>Sphaeralcea coccinea</i>	0.10	0.47	1.00	0.72	1.19		
Lichen spp.	2.50	11.68	20.00	14.49	26.17		
Furrow	9.90		70.00				
Litter	51.50		84.00				
Rock	0.00		0.00				
Sod	16.10		30.00				
Soil	1.10		8.00				

Table 73. Points Analysis of the Ungrazed Sandy Range Site on the Native Range, Pasture 4, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative Basal Cover		Relative Percent Frequency		Importance Value
	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	
<i>Andropogon scoparius</i>	0.20	0.57	2.00	0.81	1.38
<i>Bouteloua gracilis</i>	6.50	18.62	46.00	18.55	37.17
<i>Calamovilfa longifolia</i>	7.20	20.63	55.00	22.18	42.81
<i>Koeleria pyramidata</i>	1.20	3.44	11.00	4.44	7.88
<i>Muhlenbergia cuspidata</i>	0.10	0.29	1.00	0.40	0.69
<i>Panicum oligosanthos</i>	1.30	3.72	10.00	4.03	7.75
<i>Setaria viridis</i>	0.20	0.57	2.00	0.81	1.38
<i>Stipa comata</i>	1.10	3.15	9.00	3.63	6.78
<i>Stipa viridula</i>	1.20	3.44	11.00	4.44	7.88
<i>Carex filifolia</i>	0.20	0.57	2.00	0.81	1.38
<i>Carex heliophila</i>	12.60	36.10	75.00	30.24	66.34
<i>Antennaria parvifolia</i>	1.00	2.87	4.00	1.61	4.48
<i>Artemisia dracunculus</i>	0.10	0.29	1.00	0.40	0.69
<i>Artemisia ludoviciana</i>	1.10	3.15	10.00	4.03	7.18
<i>Lactuca oblongifolia</i>	0.10	0.29	1.00	0.40	0.69
<i>Lygodesmia juncea</i>	0.30	0.86	3.00	1.21	2.07
<i>Oxytropis lambertii</i>	0.10	0.29	1.00	0.40	0.69
<i>Rosa arkansana</i>	0.30	0.86	3.00	1.21	2.07
Lichen spp.	0.10	0.29	1.00	0.40	0.69
Furrow	3.80		10.00		
Litter	55.80		100.00		
Rock	0.00		0.00		
Sod	5.20		11.00		
Soil	0.30		2.00		

Table 74. Points Analysis of the Grazed Sandy Range Site on the Native Range, Pasture 4, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Agropyron smithii</i>	0.10	0.33	0.33	1.00	0.48	0.81	0.81
<i>Bouteloua gracilis</i>	6.50	21.38	21.38	40.00	19.05	40.43	40.43
<i>Calamovilfa longifolia</i>	6.60	21.71	21.71	51.00	24.29	46.00	46.00
<i>Koeleria pyramidata</i>	0.50	1.64	1.64	5.00	2.38	4.02	4.02
<i>Panicum oligosanthes</i>	2.00	6.58	6.58	18.00	8.57	15.15	15.15
<i>Setaria viridis</i>	0.50	1.64	1.64	5.00	2.38	4.02	4.02
<i>Stipa comata</i>	0.10	0.33	0.33	1.00	0.48	0.81	0.81
<i>Stipa viridula</i>	1.60	5.26	5.26	14.00	6.67	11.93	11.93
<i>Carex filifolia</i>	0.10	0.33	0.33	1.00	0.48	0.81	0.81
<i>Carex heliophila</i>	10.60	34.87	34.87	58.00	27.62	62.49	62.49
<i>Antennaria parvifolia</i>	0.30	0.99	0.99	2.00	0.95	1.94	1.94
<i>Artemisia frigida</i>	0.10	0.33	0.33	1.00	0.48	0.81	0.81
<i>Artemisia ludoviciana</i>	0.60	1.97	1.97	6.00	2.86	4.83	4.83
<i>Chrysopsis villosa</i>	0.10	0.33	0.33	1.00	0.48	0.81	0.81
<i>Lactuca oblongifolia</i>	0.20	0.66	0.66	1.00	0.48	1.14	1.14
<i>Lygodesmia juncea</i>	0.10	0.33	0.33	1.00	0.48	0.81	0.81
<i>Oxytropis lambertii</i>	0.40	1.32	1.32	4.00	1.90	3.22	3.22
Furrow	5.60			13.00			
Litter	53.20			100.00			
Rock	0.00			0.00			
Sod	10.80			20.00			
Soil	0.00			0.00			

Table 75. Points Analysis of the Ungrazed Shallow Range Site on the Native Range, Pasture 4, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal Cover		Relative Basal Cover		Relative Percent Frequency		Importance Value
	Basal Cover	Value	Basal Cover	Value	Percent Frequency	Value	
<i>Bouteloua gracilis</i>	15.70	83.08	48.46	34.62	72.00	34.62	83.08
<i>Koeleria pyramidata</i>	1.80	13.25	5.56	7.69	16.00	7.69	13.25
<i>Stipa comata</i>	3.80	29.04	11.73	17.31	36.00	17.31	29.04
<i>Carex filifolia</i>	7.40	46.40	22.84	23.56	49.00	23.56	46.40
<i>Artemisia dracunculus</i>	0.20	1.58	0.62	0.96	2.00	0.96	1.58
<i>Aster ericoides</i>	0.50	3.94	1.54	2.40	5.00	2.40	3.94
<i>Echinacea angustifolia</i>	0.10	0.79	0.31	0.48	1.00	0.48	0.79
<i>Grindelia squarrosa</i>	0.20	1.58	0.62	0.96	2.00	0.96	1.58
<i>Liatris punctata</i>	0.20	1.58	0.62	0.96	2.00	0.96	1.58
<i>Lygodesmia juncea</i>	0.10	0.79	0.31	0.48	1.00	0.48	0.79
<i>Opuntia fragilis</i>	0.10	0.79	0.31	0.48	1.00	0.48	0.79
<i>Phlox hoodii</i>	0.80	5.84	2.47	3.37	7.00	3.37	5.84
<i>Psoralea esculenta</i>	0.10	0.79	0.31	0.48	1.00	0.48	0.79
<i>Ratibida columnifera</i>	0.30	2.37	0.93	1.44	3.00	1.44	2.37
<i>Sphaeralcea coccinea</i>	0.20	1.58	0.62	0.96	2.00	0.96	1.58
Lichen spp.	0.90	6.63	2.78	3.85	8.00	3.85	6.63
Furrow	4.20				5.00		
Litter	55.80				93.00		
Rock	0.00				0.00		
Sod	5.40				15.00		
Soil	2.20				11.00		

Table 76. Points Analysis of the Grazed Shallow Range Site on the Native Range, Pasture 4, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative Basal		Relative Percent		Importance Value
	Cover	Cover	Cover	Frequency	Frequency	Frequency	
<i>Bouteloua gracilis</i>	13.10	44.86	73.00	35.78	80.64		
<i>Koeleria pyramidata</i>	1.30	4.45	11.00	5.39	9.84		
<i>Stipa comata</i>	4.90	16.78	43.00	21.08	37.86		
<i>Carex filifolia</i>	7.50	25.68	53.00	25.98	51.66		
<i>Artemisia frigida</i>	0.10	0.34	1.00	0.49	0.83		
<i>Artemisia ludoviciana</i>	0.50	1.71	5.00	2.45	4.16		
<i>Aster ericoides</i>	0.40	1.37	4.00	1.96	3.33		
<i>Grindelia squarrosa</i>	0.10	0.34	1.00	0.49	0.83		
<i>Opuntia fragilis</i>	0.10	0.34	1.00	0.49	0.83		
<i>Phlox hoodii</i>	0.50	1.71	5.00	2.45	4.16		
<i>Psoralea argophylla</i>	0.10	0.34	1.00	0.49	0.83		
<i>Ratibida columnifera</i>	0.20	0.68	2.00	0.98	1.66		
Lichen spp.	0.40	1.37	4.00	1.96	3.33		
Furrow	4.80		5.00				
Litter	59.50		100.00				
Rock	0.10		1.00				
Sod	2.70		8.00				
Soil	3.70		12.00				

Table 77. Points Analysis of the Ungrazed Silty Range Site on the Native Range, Pasture 4, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Cover	Basal Cover	Percent Frequency	Percent Frequency	Frequency	
<i>Agropyron smithii</i>	3.30	9.38	28.00	13.66	23.04		
<i>Bouteloua gracilis</i>	20.80	59.09	90.00	43.90	102.99		
<i>Koeleria pyramidata</i>	0.60	1.70	6.00	2.93	4.63		
<i>Munroa squarrosa</i>	0.10	0.28	1.00	0.49	0.77		
<i>Stipa comata</i>	3.00	8.52	26.00	12.68	21.20		
<i>Stipa viridula</i>	0.40	1.14	4.00	1.95	3.09		
<i>Carex filifolia</i>	4.20	11.93	29.00	14.15	26.08		
<i>Carex heliophila</i>	0.20	0.57	2.00	0.98	1.55		
<i>Artemisia dracunculul</i>	0.40	1.14	4.00	1.95	3.09		
<i>Artemisia frigida</i>	0.30	0.85	2.00	0.98	1.83		
<i>Grindelia squarrosa</i>	0.30	0.85	3.00	1.46	2.31		
<i>Opuntia fragilis</i>	1.10	3.13	5.00	2.44	5.57		
<i>Ratibida columnifera</i>	0.10	0.28	1.00	0.49	0.77		
<i>Sphaeralcea coccinea</i>	0.40	1.14	4.00	1.95	3.09		
Furrow	2.20		3.00				
Litter	60.40		98.00				
Rock	0.00		0.00				
Sod	1.80		5.00				
Soil	0.40		4.00				

Table 78. Points Analysis of the Grazed Silty Range Site on the Native Range, Pasture 4, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal Cover		Relative Basal Cover		Percent Frequency		Relative Percent Frequency		Importance Value
	Basal Cover	Basal Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Percent Frequency	Percent Frequency	
<i>Agropyron smithii</i>	2.00	5.41	17.00	8.25	13.66				
<i>Bouteloua gracilis</i>	23.20	62.70	93.00	45.15	107.85				
<i>Koeleria pyramidata</i>	1.10	2.97	11.00	5.34	8.31				
<i>Munroa squarrosa</i>	0.10	0.27	1.00	0.49	0.76				
<i>Stipa comata</i>	1.40	3.78	11.00	5.34	9.12				
<i>Stipa viridula</i>	0.10	0.27	1.00	0.49	0.76				
<i>Carex filifolia</i>	6.20	16.76	45.00	21.84	38.60				
<i>Antennaria parvifolia</i>	0.20	0.54	1.00	0.49	1.03				
<i>Artemisia dracunculoides</i>	0.20	0.54	2.00	0.97	1.51				
<i>Artemisia frigida</i>	0.40	1.08	4.00	1.94	3.02				
<i>Ceratoides lanata</i>	0.10	0.27	1.00	0.49	0.76				
<i>Grindelia squarrosa</i>	0.10	0.27	1.00	0.49	0.76				
<i>Medicago</i> spp.	0.20	0.54	2.00	0.97	1.51				
<i>Opuntia fragilis</i>	0.50	1.35	4.00	1.94	3.29				
<i>Phlox hoodii</i>	0.10	0.27	1.00	0.49	0.76				
<i>Polygala alba</i>	0.50	1.35	5.00	2.43	3.78				
<i>Ratibida columnifera</i>	0.10	0.27	1.00	0.49	0.76				
<i>Sphaeralcea coccinea</i>	0.40	1.08	4.00	1.94	3.02				
<i>Lichen</i> spp.	0.10	0.27	1.00	0.49	0.76				
Furrow	3.80		5.00						
Litter	55.20		95.00						
Rock	0.00		0.00						
Sod	3.10		6.00						
Soil	0.90		7.00						

Table 79. Points Analysis of the Ungrazed Sandy Range Site on the Native Range, Pasture 5, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Andropogon scoparius</i>	0.10	0.32	1.00	0.43	0.75		
<i>Bouteloua gracilis</i>	3.80	12.26	29.00	12.39	24.65		
<i>Calamovilfa longifolia</i>	5.20	16.77	40.00	17.09	33.86		
<i>Koeleria pyramidata</i>	0.80	2.58	8.00	3.42	6.00		
<i>Panicum oligosanthos</i>	1.30	4.19	13.00	5.56	9.75		
<i>Stipa comata</i>	5.50	17.74	50.00	21.37	39.11		
<i>Carex filifolia</i>	1.20	3.87	9.00	3.85	7.72		
<i>Carex heliophila</i>	10.20	32.90	61.00	26.07	58.97		
<i>Artemisia dracunculoides</i>	0.90	2.90	5.00	2.14	5.04		
<i>Artemisia ludoviciana</i>	1.00	3.23	9.00	3.85	7.08		
<i>Cirsium undulatum</i>	0.30	0.97	2.00	0.85	1.82		
<i>Opuntia fragilis</i>	0.30	0.97	3.00	1.28	2.25		
<i>Psoralea argophylla</i>	0.10	0.32	1.00	0.43	0.75		
<i>Solidago rigida</i>	0.20	0.65	2.00	0.85	1.50		
<i>Rosa arkansana</i>	0.10	0.32	1.00	0.43	0.75		
Litter	69.00		100.00				
Rock	0.00		0.00				
Soil	0.00		0.00				

Table 80. Points Analysis of the Grazed Sandy Range Site on the Native Range, Pasture 5, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal Cover		Relative Basal Cover		Relative Percent Frequency		Importance Value
	Basal Cover	Relative Basal Cover	Percent Frequency	Relative Percent Frequency			
<i>Andropogon scoparius</i>	0.90	2.91	8.00	3.28	6.19		
<i>Bouteloua gracilis</i>	4.40	14.24	32.00	13.11	27.35		
<i>Calamovilfa longifolia</i>	3.90	12.62	33.00	13.52	26.14		
<i>Koeleria pyramidata</i>	2.60	8.41	22.00	9.02	17.43		
<i>Panicum oligosanthos</i>	0.10	0.32	1.00	0.41	0.73		
<i>Stipa comata</i>	4.90	15.86	40.00	16.39	32.25		
<i>Carex filifolia</i>	0.30	0.97	3.00	1.23	2.20		
<i>Carex heliophila</i>	9.60	31.07	67.00	27.46	58.53		
<i>Artemisia dracunculus</i>	0.40	1.29	4.00	1.64	2.93		
<i>Artemisia ludoviciana</i>	1.20	3.88	12.00	4.92	8.80		
<i>Aster ericoides</i>	0.10	0.32	1.00	0.41	0.73		
<i>Chrysopsis villosa</i>	0.10	0.32	1.00	0.41	0.73		
<i>Cirsium undulatum</i>	0.40	1.29	4.00	1.64	2.93		
<i>Lygodesmia juncea</i>	0.10	0.32	1.00	0.41	0.73		
<i>Opuntia fragilis</i>	1.00	3.24	6.00	2.46	5.70		
<i>Phlox hoodii</i>	0.10	0.32	1.00	0.41	0.73		
<i>Solidago rigida</i>	0.30	0.97	3.00	1.23	2.20		
<i>Rosa arkansana</i>	0.40	1.29	4.00	1.64	2.93		
Lichen spp.	0.10	0.32	1.00	0.41	0.73		
Litter	68.60		100.00				
Rock	0.00		0.00				
Soil	0.50		5.00				

Table 81. Points Analysis of the Ungrazed Shallow Range Site on the Native Range, Pasture 5, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Percent Frequency	
<i>Andropogon scoparius</i>	1.60	5.13	5.13	7.00	3.20	8.33	8.33
<i>Aristida longiseta</i>	0.10	0.32	0.32	1.00	0.46	0.78	0.78
<i>Bouteloua gracilis</i>	13.80	44.23	44.23	73.00	33.33	77.56	77.56
<i>Koeleria pyramidata</i>	1.50	4.81	4.81	14.00	6.39	11.20	11.20
<i>Muhlenbergia cuspidata</i>	0.30	0.96	0.96	3.00	1.37	2.33	2.33
<i>Stipa comata</i>	2.60	8.33	8.33	21.00	9.59	17.92	17.92
<i>Stipa viridula</i>	0.30	0.96	0.96	3.00	1.37	2.33	2.33
<i>Carex filifolia</i>	2.10	6.73	6.73	20.00	9.13	15.86	15.86
<i>Carex heliophila</i>	4.80	15.38	15.38	37.00	16.89	32.27	32.27
<i>Antennaria parvifolia</i>	0.20	0.64	0.64	2.00	0.91	1.55	1.55
<i>Artemisia frigida</i>	0.20	0.64	0.64	2.00	0.91	1.55	1.55
<i>Artemisia ludoviciana</i>	0.10	0.32	0.32	1.00	0.46	0.78	0.78
<i>Aster ericoides</i>	0.20	0.64	0.64	2.00	0.91	1.55	1.55
<i>Echinacea angustifolia</i>	0.40	1.28	1.28	4.00	1.83	3.11	3.11
<i>Oxytropis lambertii</i>	0.20	0.64	0.64	2.00	0.91	1.55	1.55
<i>Phlox hoodii</i>	0.80	2.56	2.56	7.00	3.20	5.76	5.76
<i>Polygala alba</i>	0.20	0.64	0.64	2.00	0.91	1.55	1.55
<i>Psoralea argophylla</i>	0.10	0.32	0.32	1.00	0.46	0.78	0.78
<i>Ratibida columnifera</i>	0.20	0.64	0.64	2.00	0.91	1.55	1.55
<i>Solidago rigida</i>	0.20	0.64	0.64	2.00	0.91	1.55	1.55
<i>Vicia americana</i>	0.10	0.32	0.32	1.00	0.46	0.78	0.78
<i>Rosa arkansana</i>	0.80	2.56	2.56	8.00	3.65	6.21	6.21
Lichen spp.	0.40	1.28	1.28	4.00	1.83	3.11	3.11
Litter	67.10			100.00			
Rock	0.00			0.00			
Soil	1.70			12.00			

Table 82. Points Analysis of the Grazed Shallow Range Site on the Native Range, Pasture 5, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative Basal		Relative Percent		Importance Value
	Cover	Cover	Cover	Frequency	Frequency	Frequency	
<i>Andropogon scoparius</i>	1.60	5.32	7.00	2.95	8.27		
<i>Bouteloua gracilis</i>	11.00	36.54	73.00	30.80	67.34		
<i>Koeleria pyramidata</i>	3.00	9.97	28.00	11.81	21.78		
<i>Stipa comata</i>	4.00	13.29	34.00	14.35	27.64		
<i>Carex filifolia</i>	3.60	11.96	30.00	12.66	24.62		
<i>Carex heliophila</i>	2.90	9.63	26.00	10.97	20.60		
<i>Antennaria parvifolia</i>	0.30	1.00	2.00	0.84	1.84		
<i>Artemisia frigida</i>	0.40	1.33	4.00	1.69	3.02		
<i>Artemisia ludoviciana</i>	0.10	0.33	1.00	0.42	0.75		
<i>Asclepias verticillata</i>	0.10	0.33	1.00	0.42	0.75		
<i>Aster ericoides</i>	0.50	1.66	5.00	2.11	3.77		
<i>Echinacea angustifolia</i>	0.60	1.99	6.00	2.53	4.52		
<i>Phlox hoodii</i>	0.90	2.99	9.00	3.80	6.79		
<i>Ratibida columnifera</i>	0.20	0.66	2.00	0.84	1.50		
<i>Solidago rigida</i>	0.20	0.66	2.00	0.84	1.50		
<i>Rosa arkansana</i>	0.50	1.66	5.00	2.11	3.77		
Lichen spp.	0.20	0.66	2.00	0.84	1.50		
Litter	67.80		100.00				
Rock	0.00		0.00				
Soil	2.10		5.00				

Table 83. Points Analysis of the Ungrazed Silty Range Site on the Native Range, Pasture 5, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Agropyron smithii</i>	2.90	7.63	28.00	11.52	19.15		
<i>Aristida longiseta</i>	0.20	0.53	2.00	0.82	1.35		
<i>Bouteloua gracilis</i>	18.10	47.63	80.00	32.92	80.55		
<i>Koeleria pyramidata</i>	5.00	13.16	37.00	15.23	28.39		
<i>Panicum oligosanthos</i>	1.50	3.95	12.00	4.94	8.89		
<i>Stipa comata</i>	2.60	6.84	23.00	9.47	16.31		
<i>Stipa viridula</i>	1.00	2.63	8.00	3.29	5.92		
<i>Carex filifolia</i>	3.40	8.95	23.00	9.47	18.42		
<i>Carex heliophila</i>	1.00	2.63	8.00	3.29	5.92		
<i>Antennaria parvifolia</i>	0.10	0.26	1.00	0.41	0.67		
<i>Artemisia dracunculoides</i>	0.40	1.05	4.00	1.65	2.70		
<i>Artemisia frigida</i>	0.40	1.05	4.00	1.65	2.70		
<i>Conyza Canadensis</i>	0.20	0.53	2.00	0.82	1.35		
<i>Echinacea angustifolia</i>	0.10	0.26	1.00	0.41	0.67		
<i>Erigeron glabellus</i>	0.50	1.32	5.00	2.06	3.38		
<i>Grindelia squarrosa</i>	0.10	0.26	1.00	0.41	0.67		
<i>Hedeoma hispida</i>	0.10	0.26	1.00	0.41	0.67		
<i>Solidago rigida</i>	0.30	0.79	2.00	0.82	1.61		
<i>Sphaeralcea coccinea</i>	0.10	0.26	1.00	0.41	0.67		
Litter	62.00		100.00				
Rock	0.00		0.00				
Soil	0.00		0.00				

Table 84. Points Analysis of the Grazed Silty Range Site on the Native Range, Pasture 5, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative		Relative		Importance Value
	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	
<i>Agropyron smithii</i>	1.60	4.80	15.00	5.95	10.75
<i>Aristida longiseta</i>	0.10	0.30	1.00	0.40	0.70
<i>Bouteloua gracilis</i>	7.90	23.72	49.00	19.44	43.16
<i>Koeleria pyramidata</i>	4.00	12.01	34.00	13.49	25.50
<i>Panicum oligosanthos</i>	0.50	1.50	5.00	1.98	3.48
<i>Stipa comata</i>	5.60	16.82	42.00	16.67	33.49
<i>Stipa viridula</i>	1.10	3.30	10.00	3.97	7.27
<i>Carex filifolia</i>	1.40	4.20	10.00	3.97	8.17
<i>Carex heliophila</i>	3.90	11.71	28.00	11.11	22.82
<i>Agoseris glauca</i>	0.30	0.90	3.00	1.19	2.09
<i>Antennaria parvifolia</i>	1.50	4.50	7.00	2.78	7.28
<i>Arabis holboellii</i>	0.10	0.30	1.00	0.40	0.70
<i>Artemisia dracunculoides</i>	0.60	1.80	6.00	2.38	4.18
<i>Artemisia frigida</i>	0.80	2.40	8.00	3.17	5.57
<i>Aster ericoides</i>	0.10	0.30	1.00	0.40	0.70
<i>Chrysoopsis villosa</i>	0.10	0.30	1.00	0.40	0.70
<i>Conyza canadensis</i>	0.30	0.90	3.00	1.19	2.09
<i>Erigeron glabellus</i>	0.10	0.30	1.00	0.40	0.70
<i>Hedeoma hispida</i>	0.10	0.30	1.00	0.40	0.70
<i>Lactuca oblongifolia</i>	0.20	0.60	1.00	0.40	1.00
<i>Lotus americanus</i>	0.10	0.30	1.00	0.40	0.70
<i>Opuntia fragilis</i>	1.20	3.60	7.00	2.78	6.38
<i>Orthocarpus luteus</i>	0.20	0.60	2.00	0.79	1.39
<i>Potentilla pensylvanica</i>	0.30	0.90	3.00	1.19	2.09
<i>Ratibida columnifera</i>	0.90	2.70	9.00	3.57	6.27
<i>Sphaeralcea coccinea</i>	0.30	0.90	3.00	1.19	2.09
Litter	66.70		100.00		
Rock	0.00		0.00		
Soil	0.00		0.00		

Table 85. Points Analysis of the Ungrazed Sandy Range Site on the Native Range, Pasture 6, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative Basal		Relative Percent		Relative Importance	
	Cover	Cover	Cover	Cover	Frequency	Frequency	Value	Value
<i>Agropyron smithii</i>	0.50	1.39	1.39	5.00	2.08	3.47		
<i>Bouteloua gracilis</i>	3.60	9.97	9.97	29.00	12.08	22.05		
<i>Calamovilfa longifolia</i>	3.10	8.59	8.59	29.00	12.08	20.67		
<i>Koeleria pyramidata</i>	0.50	1.39	1.39	5.00	2.08	3.47		
<i>Stipa comata</i>	3.10	8.59	8.59	25.00	10.42	19.01		
<i>Stipa viridula</i>	0.80	2.22	2.22	6.00	2.50	4.72		
<i>Carex filifolia</i>	15.80	43.77	43.77	79.00	32.92	76.69		
<i>Carex heliophila</i>	6.50	18.01	18.01	45.00	18.75	36.76		
<i>Artemisia dracunculus</i>	0.50	1.39	1.39	3.00	1.25	2.64		
<i>Artemisia ludoviciana</i>	0.10	0.28	0.28	1.00	0.42	0.70		
<i>Asclepias verticillata</i>	0.10	0.28	0.28	1.00	0.42	0.70		
<i>Echinacea angustifolia</i>	0.10	0.28	0.28	1.00	0.42	0.70		
<i>Erysimum asperum</i>	0.10	0.28	0.28	1.00	0.42	0.70		
<i>Liatis punctata</i>	0.10	0.28	0.28	1.00	0.42	0.70		
<i>Lygodesmia juncea</i>	0.10	0.28	0.28	1.00	0.42	0.70		
<i>Opuntia fragilis</i>	0.80	2.22	2.22	5.00	2.08	4.30		
<i>Oxytropis lambertii</i>	0.10	0.28	0.28	1.00	0.42	0.70		
<i>Penstemon albidus</i>	0.10	0.28	0.28	1.00	0.42	0.70		
Lichen spp.	0.10	0.28	0.28	1.00	0.42	0.70		
Furrow	0.40			3.00				
Litter	60.60			100.00				
Rock	0.00			0.00				
Sod	2.80			8.00				
Soil	0.10			1.00				

Table 86. Points Analysis of the Grazed Sandy Range Site on the Native Range, Pasture 6, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Basal Cover	Basal Cover	Percent Frequency	Percent Frequency	Percent Frequency	
<i>Agropyron smithii</i>	0.10	0.29	0.29	1.00	0.47	0.76	0.76
<i>Bouteloua gracilis</i>	2.00	5.87	5.87	19.00	8.84	14.71	14.71
<i>Calamovilfa longifolia</i>	2.90	8.50	8.50	25.00	11.63	20.13	20.13
<i>Koeleria pyramidata</i>	0.50	1.47	1.47	5.00	2.33	3.80	3.80
<i>Stipa comata</i>	1.90	5.57	5.57	15.00	6.98	12.55	12.55
<i>Stipa viridula</i>	0.40	1.17	1.17	4.00	1.86	3.03	3.03
<i>Carex filifolia</i>	19.00	55.72	55.72	87.00	40.47	96.19	96.19
<i>Carex heliophila</i>	5.50	16.13	16.13	41.00	19.07	35.20	35.20
<i>Artemisia dracunculus</i>	0.10	0.29	0.29	1.00	0.47	0.76	0.76
<i>Artemisia ludoviciana</i>	1.00	2.93	2.93	10.00	4.65	7.58	7.58
<i>Asclepias verticillata</i>	0.10	0.29	0.29	1.00	0.47	0.76	0.76
<i>Echinacea angustifolia</i>	0.20	0.59	0.59	2.00	0.93	1.52	1.52
<i>Rosa arkansana</i>	0.40	1.17	1.17	4.00	1.86	3.03	3.03
Furrow	0.70			2.00			
Litter	59.40			98.00			
Rock	0.00			0.00			
Sod	5.80			12.00			
Soil	0.00			0.00			

Table 87. Points Analysis of the Ungrazed Shallow Range Site on the Native Range, Pasture 6, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal	Relative		Relative		Importance Value
	Cover	Basal Cover	Percent Frequency	Percent Frequency	Percent Frequency	
<i>Agropyron smithii</i>	0.30	0.86	3.00	1.17	2.03	
<i>Bouteloua gracilis</i>	12.20	34.96	73.00	28.52	63.48	
<i>Koeleria pyramidata</i>	5.30	15.19	39.00	15.23	30.42	
<i>Muhlenbergia cuspidata</i>	0.30	0.86	3.00	1.17	2.03	
<i>Stipa comata</i>	2.90	8.31	25.00	9.77	18.08	
<i>Stipa viridula</i>	0.10	0.29	1.00	0.39	0.68	
<i>Carex filifolia</i>	5.80	16.62	44.00	17.19	33.81	
<i>Carex heliophila</i>	0.20	0.57	2.00	0.78	1.35	
<i>Antennaria parvifolia</i>	0.20	0.57	2.00	0.78	1.35	
<i>Arabis holboellii</i>	0.10	0.29	1.00	0.39	0.68	
<i>Artemisia dracunculus</i>	0.50	1.43	5.00	1.95	3.38	
<i>Artemisia frigida</i>	0.10	0.29	1.00	0.39	0.68	
<i>Erysimum asperum</i>	0.10	0.29	1.00	0.39	0.68	
<i>Haplopappus spinulosus</i>	0.10	0.29	1.00	0.39	0.68	
<i>Liatis punctata</i>	0.10	0.29	1.00	0.39	0.68	
<i>Linum rigidum</i>	0.40	1.15	2.00	0.78	1.93	
<i>Orthocarpus luteus</i>	0.20	0.57	2.00	0.78	1.35	
<i>Oxytropis lambertii</i>	0.10	0.29	1.00	0.39	0.68	
<i>Penstemon albidus</i>	0.10	0.29	1.00	0.39	0.68	
<i>Phlox hoodii</i>	2.50	7.16	21.00	8.20	15.36	
<i>Vicia americana</i>	0.20	0.57	2.00	0.78	1.35	
<i>Selaginella densa</i>	0.30	0.86	3.00	1.17	2.03	
<i>Lichen spp.</i>	2.80	8.02	22.00	8.59	16.61	
Furrow	1.10		7.00			
Litter	57.60		100.00			
Rock	0.00		0.00			
Sod	5.90		16.00			
Soil	0.50		5.00			

Table 88. Points Analysis of the Grazed Shallow Range Site on the Native Range, Pasture 6, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Cover	Basal Cover	Percent Frequency	Percent Frequency	Importance Value	
<i>Agropyron smithii</i>	0.30	0.82	0.82	3.00	1.21	2.03	
<i>Bouteloua gracilis</i>	14.80	40.66	40.66	75.00	30.24	70.90	
<i>Koeleria pyramidata</i>	4.80	13.19	13.19	36.00	14.52	27.71	
<i>Stipa comata</i>	3.10	8.52	8.52	24.00	9.68	18.20	
<i>Stipa viridula</i>	0.10	0.27	0.27	1.00	0.40	0.67	
<i>Carex filifolia</i>	7.10	19.51	19.51	52.00	20.97	40.48	
<i>Carex heliophila</i>	0.10	0.27	0.27	1.00	0.40	0.67	
<i>Allionia albida</i>	0.10	0.27	0.27	1.00	0.40	0.67	
<i>Artemisia dracunculoides</i>	0.50	1.37	1.37	5.00	2.02	3.39	
<i>Aster ericoides</i>	0.10	0.27	0.27	1.00	0.40	0.67	
<i>Grindelia squarrosa</i>	0.20	0.55	0.55	2.00	0.81	1.36	
<i>Liatris punctata</i>	0.10	0.27	0.27	1.00	0.40	0.67	
<i>Petalostemon purpureum</i>	0.10	0.27	0.27	1.00	0.40	0.67	
<i>Phlox hoodii</i>	2.50	6.87	6.87	21.00	8.47	15.34	
<i>Sphaeralcea coccinea</i>	0.10	0.27	0.27	1.00	0.40	0.67	
<i>Selaginella densa</i>	0.70	1.92	1.92	6.00	2.42	4.34	
Lichen spp.	1.70	4.67	4.67	17.00	6.85	11.52	
Furrow	1.60			15.00			
Litter	57.60			100.00			
Rock	0.10			1.00			
Sod	3.60			8.00			
Soil	0.70			5.00			

Table 89. Points Analysis of the Ungrazed Silty Range Site on the Native Range, Pasture 6, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative Basal		Relative Percent		Importance Value
	Cover	Cover	Cover	Cover	Frequency	Frequency	
<i>Agropyron smithii</i>	2.00	4.88	18.00	6.77	11.65		
<i>Bouteloua gracilis</i>	12.80	31.22	58.00	21.80	53.02		
<i>Koeleria pyramidata</i>	3.20	7.80	23.00	8.65	16.45		
<i>Stipa comata</i>	3.60	8.78	29.00	10.90	19.68		
<i>Stipa viridula</i>	3.90	9.51	26.00	9.77	19.28		
<i>Carex filifolia</i>	3.60	8.78	19.00	7.14	15.92		
<i>Carex heliophila</i>	0.80	1.95	6.00	2.26	4.21		
<i>Agoseris glauca</i>	0.50	1.22	5.00	1.88	3.10		
<i>Antennaria parvifolia</i>	1.80	4.39	8.00	3.01	7.40		
<i>Artemisia dracunculus</i>	0.30	0.73	3.00	1.13	1.86		
<i>Artemisia frigida</i>	0.50	1.22	5.00	1.88	3.10		
<i>Aster ericoides</i>	0.50	1.22	5.00	1.88	3.10		
<i>Coryza canadensis</i>	1.60	3.90	14.00	5.26	9.16		
<i>Hedeoma hispida</i>	0.30	0.73	3.00	1.13	1.86		
<i>Medicago spp.</i>	0.20	0.49	2.00	0.75	1.24		
<i>Opuntia fragilis</i>	0.10	0.24	1.00	0.38	0.62		
<i>Potentilla pensylvanica</i>	4.10	10.00	29.00	10.90	20.90		
<i>Psoralea argophylla</i>	0.20	0.49	2.00	0.75	1.24		
<i>Psoralea esculenta</i>	0.10	0.24	1.00	0.38	0.62		
<i>Ratibida columnifera</i>	0.20	0.49	2.00	0.75	1.24		
<i>Sphaeralcea coccinea</i>	0.70	1.71	7.00	2.63	4.34		
Furrow	3.00		6.00				
Litter	48.10		98.00				
Rock	0.00		0.00				
Sod	7.90		16.00				
Soil	0.00		0.00				

Table 90. Points Analysis of the Grazed Silty Range Site on the Native Range, Pasture 6, For the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal	Relative		Relative		Importance Value
	Cover	Basal Cover	Percent Frequency	Percent Frequency	Percent Frequency	
<i>Agropyron smithii</i>	2.20	5.51	20.00	6.83	12.34	
<i>Bouteloua gracilis</i>	11.90	29.82	67.00	22.87	52.69	
<i>Koeleria pyramidata</i>	1.50	3.76	14.00	4.78	8.54	
<i>Stipa comata</i>	2.20	5.51	18.00	6.14	11.65	
<i>Stipa viridula</i>	5.20	13.03	36.00	12.29	25.32	
<i>Carex filifolia</i>	4.50	11.28	33.00	11.26	22.54	
<i>Carex heliophila</i>	1.20	3.01	9.00	3.07	6.08	
<i>Achillea millefolium</i>	0.20	0.50	2.00	0.68	1.18	
<i>Agoseris glauca</i>	1.00	2.51	10.00	3.41	5.92	
<i>Antennaria parvifolia</i>	0.40	1.00	2.00	0.68	1.68	
<i>Arabis holboellii</i>	0.10	0.25	1.00	0.34	0.59	
<i>Artemisia dracunculul</i>	0.20	0.50	2.00	0.68	1.18	
<i>Artemisia frigida</i>	0.50	1.25	4.00	1.37	2.62	
<i>Aster ericoides</i>	1.00	2.51	10.00	3.41	5.92	
<i>Coryza canadensis</i>	0.40	1.00	4.00	1.37	2.37	
<i>Grindelia squarrosa</i>	0.20	0.50	2.00	0.68	1.18	
<i>Lactuca oblongifolia</i>	0.20	0.50	2.00	0.68	1.18	
<i>Lotus americanus</i>	0.50	1.25	5.00	1.71	2.96	
<i>Medicago spp.</i>	0.90	2.26	5.00	1.71	3.97	
<i>Opuntia fragilis</i>	0.90	2.26	3.00	1.02	3.28	
<i>Oxytropis lambertii</i>	0.30	0.75	3.00	1.02	1.77	
<i>Phlox hoodii</i>	0.60	1.50	4.00	1.37	2.87	
<i>Potentilla pensylvanica</i>	3.20	8.02	31.00	10.58	18.60	
<i>Psoralea argophylla</i>	0.40	1.00	4.00	1.37	2.37	
<i>Ratibida columnifera</i>	0.20	0.50	2.00	0.68	1.18	
Furrow	2.40		7.00			
Litter	54.00		97.00			
Rock	0.00		0.00			
Sod	3.70		9.00			
Soil	0.00		0.00			

**Table 91. Percentage of Basal Cover for the Native Range Pastures on the Complementary Grazing System
At the Dickinson Experiment Station, 1984**

System – WEST	Past. #	Grass	Sedge	Forbs	Shrubs	Club			Rock	Soil
						Moss	Lichen	Litter		
Ungrazed:										
Clayey	1	29.90	0.40	2.90	0.00	0.00	0.10	66.40	0.00	0.30
	3	38.10	3.50	7.60	0.00	0.00	0.80	50.00	0.00	0.00
	5									
Sandy	1	11.80	25.30	1.60	0.20	0.00	0.00	61.10	0.00	0.00
	3	8.90	14.50	1.20	0.00	0.00	0.00	75.20	0.00	0.20
	5	16.70	11.40	2.80	0.10	0.00	0.00	69.00	0.00	0.00
Shallow	1	24.10	5.70	3.20	0.00	0.00	0.80	65.90	0.00	0.30
	3	40.40	2.20	2.10	0.10	0.00	0.00	55.00	0.00	0.20
	5	20.20	6.90	2.90	0.80	0.00	0.40	67.10	0.00	1.70
Silty	1	33.30	2.30	4.70	0.00	0.00	0.00	59.70	0.00	0.00
	3	26.60	0.00	3.40	0.00	0.00	0.00	70.00	0.00	0.00
	5	31.30	4.40	2.30	0.00	0.00	0.00	62.00	0.00	0.00
Grazed:										
Clayey	1	29.10	0.70	1.90	0.00	0.00	0.00	67.70	0.00	0.60
	3	35.30	3.70	3.60	0.20	0.00	2.70	54.40	0.00	0.10
	5									
Sandy	1	14.30	25.70	0.80	0.40	0.00	0.00	58.80	0.00	0.00
	3	9.20	15.50	0.80	0.10	0.00	0.20	74.20	0.00	0.00
	5	16.80	9.90	3.70	0.40	0.00	0.10	68.60	0.00	0.50
Shallow	1	26.90	7.10	2.60	0.00	0.00	0.00	61.40	0.00	2.00
	3	41.10	2.00	1.70	0.10	0.00	0.40	54.70	0.00	0.00
	5	19.60	6.50	3.30	0.50	0.00	0.20	67.80	0.00	2.10
Silty	1	34.70	1.30	2.10	0.00	0.00	0.10	61.80	0.00	0.00
	3	29.00	0.70	3.00	0.00	0.00	0.00	67.30	0.00	0.00
	5	20.80	5.30	7.20	0.00	0.00	0.00	66.70	0.00	0.00

Table 92. Percentage of Basal Cover for the Native Range Pastures on the Complementary Grazing System At the Dickinson Experiment Station, 1984

System – EAST	Past. #	Grass	Sedge	Forbs	Shrubs	Club				Litter	Rock	Sod	Soil
						Moss	Lichen	Furrow	Furrow				
Ungrazed:													
Clayey	2	24.60	2.30	6.60	0.00	0.00	0.50	5.10	54.40	0.00	6.50	0.00	
	4	24.90	3.30	5.40	0.00	0.00	1.70	10.00	41.90	0.00	12.80	0.00	
	6												
Sandy	2	10.80	8.30	0.60	0.00	0.00	0.50	4.80	67.80	0.00	6.80	0.40	
	4	19.00	12.80	2.70	0.30	0.00	0.10	3.80	55.80	0.00	5.20	0.30	
	6	11.60	22.30	2.10	0.00	0.00	0.10	0.40	60.60	0.00	2.80	0.10	
Shallow	2	20.50	9.60	3.20	0.00	0.00	0.20	4.10	54.10	0.00	7.00	1.30	
	4	21.30	7.40	2.80	0.00	0.00	0.90	4.20	55.80	0.00	5.40	2.20	
	6	21.10	6.00	4.70	0.00	0.30	2.80	1.10	57.60	0.00	5.90	0.50	
Silty	2	40.30	6.10	3.70	0.00	0.10	0.20	5.80	39.00	0.00	0.00	4.80	
	4	28.20	4.40	2.60	0.00	0.00	0.00	2.20	60.40	0.00	1.80	0.40	
	6	25.50	4.40	11.10	0.00	0.00	0.00	3.00	48.10	0.00	7.90	0.00	
Grazed:													
Clayey	2	31.30	0.50	8.00	0.00	0.00	0.00	3.50	52.20	0.00	4.50	0.00	
	4	16.00	0.40	2.50	0.00	0.00	2.50	9.90	51.50	0.00	16.10	1.10	
	6												
Sandy	2	10.80	8.90	0.70	0.00	0.00	0.10	3.80	69.30	0.00	4.30	2.10	
	4	17.90	10.70	1.80	0.00	0.00	0.00	5.60	53.20	0.00	10.80	0.00	
	6	7.80	24.50	1.40	0.40	0.00	0.00	0.70	59.40	0.00	5.80	0.00	
Shallow	2	18.20	10.10	2.80	0.00	0.00	0.70	3.10	57.50	0.00	6.50	1.10	
	4	19.30	7.50	2.00	0.00	0.00	0.40	4.80	59.50	0.10	2.70	3.70	
	6	23.10	7.20	3.70	0.00	0.70	1.70	1.60	57.60	0.10	3.60	0.70	
Silty	2	43.50	5.30	3.70	0.00	0.00	0.10	4.30	38.50	0.00	4.50	0.10	
	4	27.90	6.20	2.80	0.00	0.00	0.10	3.80	55.20	0.00	3.10	0.90	
	6	23.00	5.70	11.20	0.00	0.00	0.00	2.40	54.00	0.00	3.70	0.00	

Table 93. Mean Percentage of Basal Cover for the Native Range Pastures on the Complementary Grazing System at the Dickinson Experiment Station, 1984

System – WEST	Grass	Sedge	Forbs	Shrubs	Club				Rock	Sod	Soil
					Moss	Lichen	Furrow	Litter			
Ungrazed:											
Clayey	34.00	1.95	5.25	0.00	0.00	0.45	0.00	58.20	0.00	0.00	0.15
Sandy	12.47	17.07	1.87	0.10	0.00	0.00	0.00	67.43	0.00	0.00	0.07
Shallow	28.23	4.93	2.73	0.30	0.00	0.40	0.00	62.67	0.00	0.00	0.73
Silty	30.40	2.23	3.47	0.00	0.00	0.00	0.00	63.90	0.00	0.00	0.00
Grazed:											
Clayey	32.20	2.20	2.75	0.10	0.00	1.35	0.00	61.05	0.00	0.00	0.35
Sandy	13.43	17.03	1.77	0.30	0.00	0.10	0.00	67.20	0.00	0.00	0.17
Shallow	29.20	5.20	2.53	0.20	0.00	0.20	0.00	61.30	0.00	0.00	1.37
Silty	28.17	2.43	4.10	0.00	0.00	0.03	0.00	65.27	0.00	0.00	0.00
System – EAST											
Ungrazed:											
Clayey	24.75	2.80	6.00	0.00	0.00	1.10	7.55	48.15	0.00	9.65	0.00
Sandy	13.80	14.47	1.80	0.10	0.00	0.23	3.00	61.40	0.00	4.93	0.27
Shallow	20.97	7.67	3.57	0.00	0.10	1.30	3.13	55.83	0.00	6.10	1.33
Silty	31.33	4.97	5.80	0.00	0.03	0.07	3.67	49.17	0.00	4.83	0.13
Grazed:											
Clayey	23.65	0.45	5.25	0.00	0.00	1.25	6.70	51.85	0.00	10.30	0.55
Sandy	12.17	14.70	1.30	0.13	0.00	0.03	3.37	60.63	0.00	6.97	0.70
Shallow	20.20	8.27	2.83	0.00	0.23	0.93	3.17	58.20	0.07	4.27	1.83
Silty	31.47	5.73	5.90	0.00	0.00	0.07	3.50	49.23	0.00	3.77	0.33

Table 94. Points Analysis of the Ungrazed West Pasture, on the Altai Wildrye, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Relative		Importance Value
	Cover	Cover	Basal Cover	Percent Frequency	Basal Cover	Percent Frequency	
<i>Avena sativa</i>	0.40	1.17	1.17	3.50	2.10	2.10	3.27
<i>Elymus angustus</i>	15.00	43.80	43.80	64.00	38.44	38.44	82.24
<i>Poa pratensis</i>	0.20	0.58	0.58	1.00	0.60	0.60	1.18
<i>Setaria glauca</i>	1.30	3.80	3.80	6.50	3.90	3.90	7.70
<i>Setaria viridis</i>	3.60	10.51	10.51	19.00	11.41	11.41	21.92
<i>Stipa viridula</i>	1.00	2.92	2.92	6.00	3.60	3.60	6.52
<i>Amaranthus retroflexus</i>	0.10	0.29	0.29	1.00	0.60	0.60	0.89
<i>Chenopodium album</i>	0.35	1.02	1.02	3.00	1.80	1.80	2.82
<i>Convolvulus arvensis</i>	0.25	0.73	0.73	2.50	1.50	1.50	2.23
<i>Conyza canadensis</i>	0.35	1.02	1.02	3.00	1.80	1.80	2.82
<i>Helianthus rigidus</i>	0.05	0.15	0.15	0.50	0.30	0.30	0.45
<i>Kochia scoparia</i>	9.75	28.47	28.47	41.00	24.62	24.62	53.09
<i>Lactuca oblongifolia</i>	0.10	0.29	0.29	1.00	0.60	0.60	0.89
<i>Polygonum convolvulus</i>	0.85	2.48	2.48	7.00	4.20	4.20	6.68
<i>Xanthium strumarium</i>	0.75	2.19	2.19	6.00	3.60	3.60	5.79
<i>Rosa arkansana</i>	0.20	0.58	0.58	1.50	0.90	0.90	1.48
Litter	62.95			99.00			
Rock	0.10			1.00			
Soil	2.70			8.50			

Table 95. Points Analysis of the Ungrazed East Pasture, on the Altai Wildrye, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Basal		Relative		Importance Value
	Cover	Cover	Percent Frequency	Percent Frequency	
<i>Avena sativa</i>	0.15	0.47	1.50	0.93	1.40
<i>Elymus angustus</i>	17.20	54.26	73.50	45.37	99.63
<i>Setaria viridis</i>	2.20	6.94	16.50	10.19	17.13
<i>Chenopodium album</i>	0.05	0.16	0.50	0.31	0.47
<i>Convolvulus arvensis</i>	0.15	0.47	1.50	0.93	1.40
<i>Conyza canadensis</i>	0.40	1.26	3.00	1.85	3.11
<i>Kochia scoparia</i>	9.15	28.86	46.00	28.40	57.26
<i>Lactuca oblongifolia</i>	0.45	1.42	4.00	2.47	3.89
<i>Polygonum convolvulus</i>	1.25	3.94	9.50	5.86	9.80
<i>Salsola kali</i>	0.05	0.16	0.50	0.31	0.47
<i>Xanthium strumarium</i>	0.65	2.05	5.50	3.40	5.45
Litter	62.90		99.50		
Rock	0.00		0.00		
Soil	5.35		26.00		

Table 96. Density Analysis per 0.1 Sq. Meter of the Ungrazed Clayey Range Site on the Native Range, Pasture 1, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative Percent		Relative Frequency		Importance Value
	Density	Percent	Frequency	Percent	
<i>Achillea millefolium</i>	0.44	4.76	24.00	6.25	11.01
<i>Arabis holboellii</i>	0.04	0.43	4.00	1.04	1.47
<i>Artemisia dracunculus</i>	0.08	0.87	8.00	2.08	2.95
<i>Artemisia frigida</i>	0.72	7.79	36.00	9.38	17.17
<i>Conyza canadensis</i>	3.56	38.53	68.00	17.71	56.24
<i>Grindelia squarrosa</i>	0.36	3.90	28.00	7.29	11.19
<i>Hedeoma hispida</i>	0.56	6.06	16.00	4.17	10.23
<i>Lotus americanus</i>	1.16	12.55	60.00	15.63	28.18
<i>Phlox hoodii</i>	0.08	0.87	4.00	1.04	1.91
<i>Potentilla pensylvanica</i>	0.36	3.90	20.00	5.21	9.11
<i>Ratibida columnifera</i>	0.60	6.49	48.00	12.50	18.99
<i>Sphaeralcea coccinea</i>	1.28	13.85	68.00	17.71	31.56

Table 97. Density Analysis per 0.1 Sq. Meter of the Grazed Clayey Range Site on the Native Range, Pasture 1, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative			Relative			Importance Value
	Density	Percent Density	Percent Frequency	Density	Percent Frequency	Frequency	
<i>Achillea millefolium</i>	0.60	9.09	32.00	8.70	8.70	17.79	17.79
<i>Androsace occidentalis</i>	0.04	0.61	4.00	1.09	1.09	1.70	1.70
<i>Antennaria parvifolia</i>	0.12	1.82	8.00	2.17	2.17	3.99	3.99
<i>Artemisia dracuncul</i>	0.04	0.61	4.00	1.09	1.09	1.70	1.70
<i>Artemisia frigida</i>	0.92	13.94	60.00	16.30	16.30	30.24	30.24
<i>Astragalus crassica</i>	0.04	0.61	4.00	1.09	1.09	1.70	1.70
<i>Conyza canadensis</i>	1.20	18.18	64.00	17.39	17.39	35.57	35.57
<i>Grindelia squarrosa</i>	0.36	5.45	24.00	6.52	6.52	11.97	11.97
<i>Hedeoma hispida</i>	1.44	21.82	48.00	13.04	13.04	34.86	34.86
<i>Lotus americanus</i>	0.04	0.61	4.00	1.09	1.09	1.70	1.70
<i>Potentilla pensylvanica</i>	0.16	2.42	12.00	3.26	3.26	5.68	5.68
<i>Ratibida columnifera</i>	1.20	18.18	68.00	18.48	18.48	36.66	36.66
<i>Sphaeralcea coccinea</i>	0.44	6.67	36.00	9.78	9.78	16.45	16.45

Table 98. Density Analysis per 0.1 Sq. Meter of the Ungrazed Sandy Range Site on the Native Range, Pasture 1, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density	Relative Percent		Importance Value
		Density	Frequency	
<i>Artemisia ludoviciana</i>	0.84	19.44	32.00	31.56
<i>Asclepias verticillata</i>	0.72	16.67	52.00	36.37
<i>Aster ericoides</i>	0.28	6.48	28.00	17.09
<i>Chrysopsis villosa</i>	0.08	1.85	8.00	4.88
<i>Echinacea angustifolia</i>	0.08	1.85	4.00	3.37
<i>Gaura coccinea</i>	0.04	0.93	4.00	2.45
<i>Hedeoma hispida</i>	0.04	0.93	4.00	2.45
<i>Helianthus rigidus</i>	0.16	3.70	12.00	8.25
<i>Lepidium densiflorum</i>	0.04	0.93	4.00	2.45
<i>Liatis punctata</i>	0.08	1.85	8.00	4.88
<i>Lithospermum incisum</i>	0.04	0.93	4.00	2.45
<i>Lygodesmia juncea</i>	0.64	14.81	44.00	31.48
<i>Psoralea argophylla</i>	0.08	1.85	8.00	4.88
<i>Senecio plattensis</i>	0.12	2.78	12.00	7.33
<i>Rosa arkansana</i>	1.08	25.00	40.00	40.15

Table 99. Density Analysis per 0.1 Sq. Meter of the Grazed Sandy Range Site on the Native Range, Pasture 1, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative			Relative			Importance Value
	Density	Percent Density	Percent Frequency	Percent Density	Percent Frequency	Importance Value	
<i>Artemisia dracunculus</i>	0.12	3.13	8.00	3.28	3.28	6.41	
<i>Artemisia ludoviciana</i>	0.44	11.46	32.00	13.11	13.11	24.57	
<i>Asclepias verticillata</i>	1.24	32.29	68.00	27.87	27.87	60.16	
<i>Aster ericoides</i>	0.04	1.04	4.00	1.64	1.64	2.68	
<i>Echinacea angustifolia</i>	0.08	2.08	4.00	1.64	1.64	3.72	
<i>Gaura coccinea</i>	0.32	8.33	20.00	8.20	8.20	16.53	
<i>Grindelia squarrosa</i>	0.04	1.04	4.00	1.64	1.64	2.68	
<i>Hedeoma hispida</i>	0.04	1.04	4.00	1.64	1.64	2.68	
<i>Liatis punctata</i>	0.24	6.25	20.00	8.20	8.20	14.45	
<i>Lithospermum incisum</i>	0.12	3.13	8.00	3.28	3.28	6.41	
<i>Lygodesmia juncea</i>	0.32	8.33	20.00	8.20	8.20	16.53	
<i>Opuntia fragilis</i>	0.08	2.08	8.00	3.28	3.28	5.36	
<i>Oxytropis lambertii</i>	0.04	1.04	4.00	1.64	1.64	2.68	
<i>Ratibida columnifera</i>	0.04	1.04	4.00	1.64	1.64	2.68	
<i>Senecio plattensis</i>	0.04	1.04	4.00	1.64	1.64	2.68	
<i>Rosa arkansana</i>	0.64	16.67	32.00	13.11	13.11	29.78	

Table 100. Density Analysis per 0.1 Sq. Meter of the Ungrazed Shallow Range Site on the Native Range, Pasture 1, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative Percent			Importance Value
	Density	Percent Frequency	Relative Frequency	
<i>Antennaria parvifolia</i>	0.28	4.67	2.27	6.94
<i>Artemisia dracunculus</i>	0.24	4.00	3.41	7.41
<i>Artemisia frigida</i>	0.16	2.67	4.55	7.22
<i>Aster ericoides</i>	1.20	20.00	13.64	33.64
<i>Cerastium arvense</i>	0.04	0.67	1.14	1.81
<i>Chrysopsis villosa</i>	0.04	0.67	1.14	1.81
<i>Cirsium undulatum</i>	0.08	1.33	2.27	3.60
<i>Echinacea angustifolia</i>	0.64	10.67	11.36	22.03
<i>Erysimum asperum</i>	0.16	2.67	4.55	7.22
<i>Gaura coccinea</i>	0.16	2.67	3.41	6.08
<i>Grindelia squarrosa</i>	0.04	0.67	1.14	1.81
<i>Haplopappus spinulosus</i>	0.08	1.33	2.27	3.60
<i>Liatis punctata</i>	0.04	0.67	1.14	1.81
<i>Linum rigidum</i>	0.12	2.00	3.41	5.41
<i>Lotus americanus</i>	0.20	3.33	2.27	5.60
<i>Neslia paniculata</i>	0.08	1.33	1.14	2.47
<i>Penstemon albidus</i>	0.08	1.33	2.27	3.60
<i>Petalostemon purpureum</i>	0.44	7.33	9.09	16.42
<i>Phlox hoodii</i>	1.36	22.67	14.77	37.44
<i>Polygala alba</i>	0.08	1.33	2.27	3.60
<i>Psoralea argophylla</i>	0.12	2.00	3.41	5.41
<i>Ratibida columnifera</i>	0.08	1.33	2.27	3.60
<i>Sphaeralcea coccinea</i>	0.12	2.00	3.41	5.41
<i>Rosa arkansana</i>	0.16	2.67	3.41	6.08

Table 101. Density Analysis per 0.1 Sq. Meter of the Grazed Shallow Range Site on the Native Range, Pasture 1, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative Percent		Relative Frequency		Importance Value
	Density	Density	Frequency	Frequency	
<i>Arabis holboellii</i>	0.04	0.60	4.00	1.37	1.97
<i>Artemisia dracunculus</i>	0.20	2.98	20.00	6.85	9.83
<i>Artemisia frigida</i>	0.08	1.19	8.00	2.74	3.93
<i>Aster ericoides</i>	3.00	44.64	56.00	19.18	63.82
<i>Chrysopsis villosa</i>	0.04	0.60	4.00	1.37	1.97
<i>Echinacea angustifolia</i>	0.24	3.57	16.00	5.48	9.05
<i>Erysimum asperum</i>	0.24	3.57	24.00	8.22	11.79
<i>Grindelia squarrosa</i>	0.04	0.60	4.00	1.37	1.97
<i>Haplopappus spinulosus</i>	0.04	0.60	4.00	1.37	1.97
<i>Hedeoma hispida</i>	0.04	0.60	4.00	1.37	1.97
<i>Lactuca oblongifolia</i>	0.04	0.60	4.00	1.37	1.97
<i>Liatris punctata</i>	0.32	4.76	16.00	5.48	10.24
<i>Linum rigidum</i>	0.12	1.79	12.00	4.11	5.90
<i>Lotus americanus</i>	0.24	3.57	24.00	8.22	11.79
<i>Opuntia fragilis</i>	0.12	1.79	8.00	2.74	4.53
<i>Penstemon albidus</i>	0.04	0.60	4.00	1.37	1.97
<i>Petalostemon purpureum</i>	0.04	0.60	4.00	1.37	1.97
<i>Phlox hoodii</i>	1.52	22.62	44.00	15.07	37.69
<i>Polygala alba</i>	0.12	1.79	12.00	4.11	5.90
<i>Potentilla pensylvanica</i>	0.04	0.60	4.00	1.37	1.97
<i>Psoralea argophylla</i>	0.04	0.60	4.00	1.37	1.97
<i>Ratibida columnifera</i>	0.12	1.79	12.00	4.11	5.90

Table 102. Density Analysis per 0.1 Sq. Meter of the Ungrazed Silty Range Site on the Native Range, Pasture 1, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative Percent		Relative Percent		Importance Value
	Density	Percent Frequency	Density	Percent Frequency	
<i>Achillea millefolium</i>	0.20	20.00	3.82	6.10	9.92
<i>Arabis holboellii</i>	0.16	16.00	3.05	4.88	7.93
<i>Artemisia frigida</i>	1.28	76.00	24.43	23.17	47.60
<i>Conyza canadensis</i>	0.80	44.00	15.27	13.41	28.68
<i>Descurainia sophia</i>	0.04	4.00	0.76	1.22	1.98
<i>Grindelia squarrosa</i>	0.12	12.00	2.29	3.66	5.95
<i>Gutierrezia sarothrae</i>	0.08	8.00	1.53	2.44	3.97
<i>Hedeoma hispida</i>	0.64	24.00	12.21	7.32	19.53
<i>Lactuca oblongifolia</i>	0.04	4.00	0.76	1.22	1.98
<i>Opuntia fragilis</i>	0.04	4.00	0.76	1.22	1.98
<i>Potentilla pensylvanica</i>	0.08	8.00	1.53	2.44	3.97
<i>Ratibida columnifera</i>	0.68	36.00	12.98	10.98	23.96
<i>Sphaeralcea coccinea</i>	1.08	72.00	20.61	21.95	42.56

Table 103. Density Analysis per 0.1 Sq. Meter of the Grazed Silty Range Site on the Native Range, Pasture 1, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density		Relative Percent		Relative Importance	
	Density	Percent	Frequency	Value	Frequency	Value
<i>Achillea millefolium</i>	1.00	28.74	32.00	43.03	14.29	43.03
<i>Arabis holboellii</i>	0.04	1.15	4.00	2.94	1.79	2.94
<i>Artemisia dracunculoides</i>	0.08	2.30	8.00	5.87	3.57	5.87
<i>Artemisia frigida</i>	0.60	17.24	48.00	38.67	21.43	38.67
<i>Conyza canadensis</i>	0.28	8.05	20.00	16.98	8.93	16.98
<i>Grindelia squarrosa</i>	0.04	1.15	4.00	2.94	1.79	2.94
<i>Hedeoma hispida</i>	0.32	9.20	24.00	19.91	10.71	19.91
<i>Lactuca oblongifolia</i>	0.04	1.15	4.00	2.94	1.79	2.94
<i>Opuntia fragilis</i>	0.08	2.30	8.00	5.87	3.57	5.87
<i>Plantago purshii</i>	0.04	1.15	4.00	2.94	1.79	2.94
<i>Potentilla pensylvanica</i>	0.04	1.15	4.00	2.94	1.79	2.94
<i>Ratibida columnifera</i>	0.72	20.69	52.00	43.90	23.21	43.90
<i>Senecio plattensis</i>	0.08	2.30	4.00	4.09	1.79	4.09
<i>Sphaeralcea coccinea</i>	0.08	2.30	4.00	4.09	1.79	4.09
<i>Tragopogon dubius</i>	0.04	1.15	4.00	2.94	1.79	2.94

Table 104. Density Analysis per 0.1 Sq. Meter of the Ungrazed Clayey Range Site on the Native Range, Pasture 2, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density	Relative Percent		Importance Value
		Density	Frequency	
<i>Achillea millefolium</i>	2.52	24.51	72.00	39.76
<i>Antennaria parvifolia</i>	0.12	1.17	4.00	2.02
<i>Arabis holboellii</i>	0.04	0.39	4.00	1.24
<i>Artemisia dracunculoides</i>	0.56	5.45	32.00	12.23
<i>Artemisia frigida</i>	2.04	19.84	84.00	37.64
<i>Aster ericoides</i>	0.36	3.50	24.00	8.58
<i>Coryza canadensis</i>	1.68	16.34	68.00	30.75
<i>Grindelia squarrosa</i>	0.28	2.72	20.00	6.96
<i>Lotus americanus</i>	0.32	3.11	28.00	9.04
<i>Potentilla pensylvanica</i>	0.24	2.33	24.00	7.41
<i>Psoralea argophylla</i>	0.12	1.17	8.00	2.86
<i>Ratibida columnifera</i>	1.24	12.06	60.00	24.77
<i>Senecio plattensis</i>	0.12	1.17	8.00	2.86
<i>Sphaeralcea coccinea</i>	0.08	0.78	8.00	2.47
<i>Vicia americana</i>	0.56	5.45	28.00	11.38

Table 105. Density Analysis per 0.1 Sq. Meter of the Grazed Clayey Range Site on the Native Range, Pasture 2, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative			Importance Value
	Density	Percent Frequency	Percent Frequency	
<i>Achillea millefolium</i>	1.28	48.00	13.19	28.57
<i>Arabis holboellii</i>	0.08	8.00	2.20	3.16
<i>Artemisia dracunculus</i>	0.32	24.00	6.59	10.44
<i>Artemisia frigida</i>	1.68	72.00	19.78	39.97
<i>Cirsium undulatum</i>	0.16	4.00	1.10	3.02
<i>Conyza canadensis</i>	2.76	72.00	19.78	52.95
<i>Descurainia sophia</i>	0.04	4.00	1.10	1.58
<i>Echinacea angustifolia</i>	0.12	4.00	1.10	2.54
<i>Grindelia squarrosa</i>	0.28	20.00	5.49	8.86
<i>Gutierrezia sarothrae</i>	0.04	4.00	1.10	1.58
<i>Hedeoma hispida</i>	0.08	4.00	1.10	2.06
<i>Opuntia fragilis</i>	0.08	4.00	1.10	2.06
<i>Potentilla pensylvanica</i>	0.12	12.00	3.30	4.74
<i>Psoralea argophylla</i>	0.12	8.00	2.20	3.64
<i>Ratibida columnifera</i>	0.52	36.00	9.89	16.14
<i>Senecio plattensis</i>	0.16	16.00	4.40	6.32
<i>Sphaeralcea coccinea</i>	0.48	24.00	6.59	12.36

Table 106. Density Analysis per 0.1 Sq. Meter of the Ungrazed Sandy Range Site on the Native Range, Pasture 2, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density	Relative Percent		Importance Value
		Density	Frequency	
<i>Artemisia caudata</i>	0.40	13.89	12.00	20.87
<i>Artemisia dracunculus</i>	0.32	11.11	20.00	22.74
<i>Artemisia frigida</i>	0.12	4.17	8.00	8.82
<i>Artemisia ludoviciana</i>	0.76	26.39	28.00	42.67
<i>Asclepias verticillata</i>	0.08	2.78	4.00	5.11
<i>Erysimum asperum</i>	0.32	11.11	24.00	25.06
<i>Gaura coccinea</i>	0.12	4.17	12.00	11.15
<i>Grindelia squarrosa</i>	0.08	2.78	4.00	5.11
<i>Haplopappus spinulosus</i>	0.04	1.39	4.00	3.72
<i>Hedeoma hispida</i>	0.04	1.39	4.00	3.72
<i>Helianthus rigidus</i>	0.12	4.17	4.00	6.50
<i>Lotus americanus</i>	0.04	1.39	4.00	3.72
<i>Lygodesmia juncea</i>	0.04	1.39	4.00	3.72
<i>Musineon divaricatum</i>	0.04	1.39	4.00	3.72
<i>Phlox hoodii</i>	0.16	5.56	16.00	14.86
<i>Potentilla pensylvanica</i>	0.04	1.39	4.00	3.72
<i>Psoralea argophylla</i>	0.04	1.39	4.00	3.72
<i>Ratibida columnifera</i>	0.04	1.39	4.00	3.72
<i>Sphaeralcea coccinea</i>	0.04	1.39	4.00	3.72
<i>Rosa arkansana</i>	0.04	1.39	4.00	3.72

Table 107. Density Analysis per 0.1 Sq. Meter of the Grazed Sandy Range Site on the Native Range, Pasture 2, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density	Relative		Importance Value
		Percent Density	Percent Frequency	
<i>Artemisia dracunculus</i>	0.28	10.14	24.00	22.38
<i>Artemisia frigida</i>	0.08	2.90	8.00	6.98
<i>Artemisia ludoviciana</i>	0.76	27.54	16.00	35.70
<i>Chrysopsis villosa</i>	0.08	2.90	8.00	6.98
<i>Echinacea angustifolia</i>	0.08	2.90	8.00	6.98
<i>Erysimum asperum</i>	0.08	2.90	8.00	6.98
<i>Gaura coccinea</i>	0.20	7.25	16.00	15.41
<i>Grindelia squarrosa</i>	0.04	1.45	4.00	3.49
<i>Haplopappus spinulosus</i>	0.08	2.90	8.00	6.98
<i>Liatris punctata</i>	0.04	1.45	4.00	3.49
<i>Lygodesmia juncea</i>	0.28	10.14	24.00	22.38
<i>Musineon divaricatum</i>	0.04	1.45	4.00	3.49
<i>Opuntia fragilis</i>	0.04	1.45	4.00	3.49
<i>Oxytropis lambertii</i>	0.20	7.25	20.00	17.45
<i>Petalostemon purpureum</i>	0.24	8.70	16.00	16.86
<i>Ratibida columnifera</i>	0.12	4.35	12.00	10.47
<i>Sphaeralcea coccinea</i>	0.12	4.35	12.00	10.47

Table 108. Density Analysis per 0.1 Sq. Meter of the Ungrazed Shallow Range Site on the Native Range, Pasture 2, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density	Relative		Importance
		Percent Density	Percent Frequency	
<i>Arabis holboellii</i>	0.04	1.27	4.00	2.76
<i>Artemisia caudata</i>	0.04	1.27	4.00	2.76
<i>Artemisia dracunculoides</i>	0.44	13.92	24.00	22.88
<i>Artemisia frigida</i>	0.12	3.80	12.00	8.28
<i>Asclepias verticillata</i>	0.04	1.27	4.00	2.76
<i>Aster ericoides</i>	0.04	1.27	4.00	2.76
<i>Erysimum asperum</i>	0.24	7.59	24.00	16.55
<i>Gaura coccinea</i>	0.48	15.19	48.00	33.10
<i>Grindelia squarrosa</i>	0.04	1.27	4.00	2.76
<i>Haplopappus spinulosus</i>	0.08	2.53	8.00	5.52
<i>Hedeoma pinnatifidum</i>	0.08	2.53	8.00	5.52
<i>Lepidium densiflorum</i>	0.04	1.27	4.00	2.76
<i>Liatis punctata</i>	0.04	1.27	4.00	2.76
<i>Linum rigidum</i>	0.04	1.27	4.00	2.76
<i>Lithospermum incisum</i>	0.08	2.53	8.00	5.52
<i>Lotus americanus</i>	0.20	6.33	20.00	13.79
<i>Oxytropis lambertii</i>	0.28	8.86	20.00	16.32
<i>Penstemon albidus</i>	0.04	1.27	4.00	2.76
<i>Petalostemon purpureum</i>	0.32	10.13	24.00	19.09
<i>Phlox hoodia</i>	0.20	6.33	16.00	12.30
<i>Potentilla pensylvanica</i>	0.08	2.53	4.00	4.02
<i>Psoralea argophylla</i>	0.12	3.80	12.00	8.28
<i>Sphaeralcea coccinea</i>	0.08	2.53	4.00	4.02

Table 109. Density Analysis per 0.1 Sq. Meter of the Grazed Shallow Range Site on the Native Range, Pasture 2, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density	Relative Percent		Relative Frequency		Importance Value
		Density	Percent	Frequency	Percent	
<i>Artemisia dracunculus</i>	0.24	9.38	24.00	12.24	12.24	21.62
<i>Artemisia frigida</i>	0.16	6.25	16.00	8.16	8.16	14.41
<i>Aster ericoides</i>	0.28	10.94	12.00	6.12	6.12	17.06
<i>Chrysopsis villosa</i>	0.04	1.56	4.00	2.04	2.04	3.60
<i>Erysimum asperum</i>	0.20	7.81	16.00	8.16	8.16	15.97
<i>Haplopappus spinulosus</i>	0.40	15.63	24.00	12.24	12.24	27.87
<i>Hedeoma hispida</i>	0.08	3.13	8.00	4.08	4.08	7.21
<i>Liatris punctata</i>	0.16	6.25	12.00	6.12	6.12	12.37
<i>Linum rigidum</i>	0.08	3.13	8.00	4.08	4.08	7.21
<i>Oxytropis lambertii</i>	0.40	15.63	28.00	14.29	14.29	29.92
<i>Petalostemon purpureum</i>	0.08	3.13	8.00	4.08	4.08	7.21
<i>Phlox hoodii</i>	0.36	14.06	28.00	14.29	14.29	28.35
<i>Psoralea argophylla</i>	0.08	3.13	8.00	4.08	4.08	7.21

Table 110. Density Analysis per 0.1 Sq. Meter of the Ungrazed Silty Range Site on the Native Range, Pasture 2, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density		Relative Percent		Relative Percent		Importance Value
	Density	Density	Density	Frequency	Frequency	Frequency	
<i>Achillea millefolium</i>	0.20	2.46	20.00	5.32	7.78		
<i>Arabis holboellii</i>	0.16	1.97	8.00	2.13	4.10		
<i>Artemisia dracunculoides</i>	0.32	3.94	20.00	5.32	9.26		
<i>Artemisia frigida</i>	1.28	15.76	60.00	15.96	31.72		
<i>Conyza Canadensis</i>	3.32	40.89	76.00	20.21	61.10		
<i>Grindelia squarrosa</i>	0.16	1.97	8.00	2.13	4.10		
<i>Hedeoma hispida</i>	1.08	13.30	56.00	14.89	28.19		
<i>Lotus americanus</i>	0.32	3.94	28.00	7.45	11.39		
<i>Plantago purshii</i>	0.20	2.46	16.00	4.26	6.72		
<i>Potentilla pensylvanica</i>	0.04	0.49	4.00	1.06	1.55		
<i>Psoralea esculenta</i>	0.04	0.49	4.00	1.06	1.55		
<i>Ratibida columnifera</i>	0.16	1.97	16.00	4.26	6.23		
<i>Senecio plattensis</i>	0.12	1.48	8.00	2.13	3.61		
<i>Sphaeralcea coccinea</i>	0.72	8.87	52.00	13.83	22.70		

Table 111. Density Analysis per 0.1 Sq. Meter of the Grazed Silty Range Site on the Native Range, Pasture 2, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density		Relative Percent		Relative Percent		Importance Value
	Density	Density	Density	Frequency	Frequency	Frequency	
<i>Achillea millefolium</i>	0.08	1.30	8.00	2.25	2.25	3.55	
<i>Agoseris glauca</i>	0.24	3.90	8.00	2.25	2.25	6.15	
<i>Arabis holboellii</i>	0.20	3.25	12.00	3.37	3.37	6.62	
<i>Artemisia dracunculus</i>	0.12	1.95	12.00	3.37	3.37	5.32	
<i>Artemisia frigida</i>	1.20	19.48	68.00	19.10	19.10	38.58	
<i>Aster ericoides</i>	0.08	1.30	8.00	2.25	2.25	3.55	
<i>Coryza Canadensis</i>	1.08	17.53	44.00	12.36	12.36	29.89	
<i>Grindelia squarrosa</i>	0.08	1.30	8.00	2.25	2.25	3.55	
<i>Hedeoma hispida</i>	0.96	15.58	44.00	12.36	12.36	27.94	
<i>Linum rigidum</i>	0.04	0.65	4.00	1.12	1.12	1.77	
<i>Lotus americanus</i>	0.28	4.55	16.00	4.49	4.49	9.04	
<i>Plantago purshii</i>	0.04	0.65	4.00	1.12	1.12	1.77	
<i>Psoralea argophylla</i>	0.04	0.65	4.00	1.12	1.12	1.77	
<i>Ratibida columnifera</i>	0.36	5.84	32.00	8.99	8.99	14.83	
<i>Senecio plattensis</i>	0.12	1.95	8.00	2.25	2.25	4.20	
<i>Sphaeralcea coccinea</i>	1.16	18.83	72.00	20.22	20.22	39.05	
<i>Taraxacum officinale</i>	0.08	1.30	4.00	1.12	1.12	2.42	

Table 112. Density Analysis per 0.1 Sq. Meter of the Ungrazed Clayey Range Site on the Native Range, Pasture 3, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative Percent			Relative Importance		
	Density	Percent Density	Percent Frequency	Percent Density	Percent Frequency	Importance Value
<i>Achillea millefolium</i>	0.88	11.00	28.00	8.64	19.64	19.64
<i>Antennaria parvifolia</i>	0.16	2.00	4.00	1.23	3.23	3.23
<i>Arabis holboellii</i>	0.04	0.50	4.00	1.23	1.73	1.73
<i>Artemisia dracunculus</i>	0.28	3.50	24.00	7.41	10.91	10.91
<i>Artemisia frigida</i>	0.16	2.00	8.00	2.47	4.47	4.47
<i>Artemisia ludoviciana</i>	1.92	24.00	48.00	14.81	38.81	38.81
<i>Aster ericoides</i>	1.24	15.50	12.00	3.70	19.20	19.20
<i>Conyza Canadensis</i>	0.04	0.50	4.00	1.23	1.73	1.73
<i>Echinacea angustifolia</i>	0.04	0.50	4.00	1.23	1.73	1.73
<i>Grindelia squarrosa</i>	0.20	2.50	12.00	3.70	6.20	6.20
<i>Hedeoma hispida</i>	1.04	13.00	56.00	17.28	30.28	30.28
<i>Liatis punctata</i>	0.04	0.50	4.00	1.23	1.73	1.73
<i>Linum rigidum</i>	0.16	2.00	12.00	3.70	5.70	5.70
<i>Lotus americanus</i>	0.08	1.00	4.00	1.23	2.23	2.23
<i>Oxytropis lambertii</i>	0.04	0.50	4.00	1.23	1.73	1.73
<i>Phlox hoodia</i>	0.20	2.50	4.00	1.23	3.73	3.73
<i>Plantago purshii</i>	0.48	6.00	24.00	7.41	13.41	13.41
<i>Polygala alba</i>	0.04	0.50	4.00	1.23	1.73	1.73
<i>Psoralea argophylla</i>	0.60	7.50	40.00	12.35	19.85	19.85
<i>Ratibida columnifera</i>	0.36	4.50	24.00	7.41	11.91	11.91

Table 113. Density Analysis per 0.1 Sq. Meter of the Grazed Clayey Range Site on the Native Range, Pasture 3, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative			Relative			Importance Value
	Density	Percent Density	Percent Frequency	Percent Density	Percent Frequency	Percent Frequency	
<i>Achillea millefolium</i>	0.68	7.91	24.00	7.23	7.23	15.14	
<i>Antennaria parvifolia</i>	0.60	6.98	4.00	1.20	1.20	8.18	
<i>Artemisia dracunculus</i>	0.20	2.33	16.00	4.82	4.82	7.15	
<i>Artemisia frigida</i>	0.08	0.93	8.00	2.41	2.41	3.34	
<i>Artemisia ludoviciana</i>	0.04	0.47	4.00	1.20	1.20	1.67	
<i>Aster ericoides</i>	2.44	28.37	32.00	9.64	9.64	38.01	
<i>Grindelia squarrosa</i>	0.56	6.51	48.00	14.46	14.46	20.97	
<i>Hedeoma hispida</i>	0.52	6.05	32.00	9.64	9.64	15.69	
<i>Lepidium densiflorum</i>	0.04	0.47	4.00	1.20	1.20	1.67	
<i>Liatris punctata</i>	0.96	11.16	20.00	6.02	6.02	17.18	
<i>Linum rigidum</i>	0.40	4.65	32.00	9.64	9.64	14.29	
<i>Lotus americanus</i>	0.12	1.40	4.00	1.20	1.20	2.60	
<i>Phlox hoodia</i>	0.20	2.33	12.00	3.61	3.61	5.94	
<i>Plantago purshii</i>	1.04	12.09	36.00	10.84	10.84	22.93	
<i>Psoralea argophylla</i>	0.44	5.12	28.00	8.43	8.43	13.55	
<i>Ratibida columnifera</i>	0.12	1.40	12.00	3.61	3.61	5.01	
<i>Senecio plattensis</i>	0.04	0.47	4.00	1.20	1.20	1.67	
<i>Taraxacum officinale</i>	0.04	0.47	4.00	1.20	1.20	1.67	
<i>Rosa arkansana</i>	0.08	0.93	8.00	2.41	2.41	3.34	

Table 114. Density Analysis per 0.1 Sq. Meter of the Ungrazed Sandy Range Site on the Native Range, Pasture 3, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density	Relative Percent		Importance Value
		Density	Frequency	
<i>Antennaria parvifolia</i>	0.04	1.64	4.00	4.02
<i>Artemisia dracunculus</i>	0.92	37.70	60.00	73.41
<i>Artemisia ludoviciana</i>	0.76	31.15	44.00	57.34
<i>Chrysopsis villosa</i>	0.04	1.64	4.00	4.02
<i>Erysimum asperum</i>	0.04	1.64	4.00	4.02
<i>Hedeoma hispida</i>	0.04	1.64	4.00	4.02
<i>Linum rigidum</i>	0.12	4.92	12.00	12.06
<i>Musineon divaricatum</i>	0.04	1.64	4.00	4.02
<i>Psoralea argophylla</i>	0.08	3.28	8.00	8.04
<i>Solidago rigida</i>	0.32	13.11	20.00	25.01
<i>Sphaeralcea coccinea</i>	0.04	1.64	4.00	4.02

Table 115. Density Analysis per 0.1 Sq. Meter of the Grazed Sandy Range Site on the Native Range, Pasture 3, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density	Relative Percent		Importance Value
		Density	Frequency	
<i>Artemisia dracunculus</i>	0.40	21.28	36.00	45.60
<i>Artemisia frigida</i>	0.04	2.13	4.00	4.83
<i>Artemisia ludoviciana</i>	0.60	31.91	32.00	53.53
<i>Erysimum asperum</i>	0.08	4.26	8.00	9.67
<i>Hedeoma hispida</i>	0.12	6.38	8.00	11.79
<i>Opuntia fragilis</i>	0.04	2.13	4.00	4.83
<i>Phlox hoodia</i>	0.04	2.13	4.00	4.83
<i>Psoralea argophylla</i>	0.16	8.51	16.00	19.32
<i>Solidago rigida</i>	0.20	10.64	16.00	21.45
<i>Sphaeralcea coccinea</i>	0.20	10.64	20.00	24.15

Table 116. Density Analysis per 0.1 Sq. Meter of the Ungrazed Shallow Range Site on the Native Range, Pasture 3, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative Percent			Relative Importance		
	Density	Percent Density	Percent Frequency	Percent Density	Percent Frequency	Importance Value
<i>Artemisia dracunculus</i>	0.20	6.67	20.00	9.62	16.29	16.29
<i>Aster ericoides</i>	1.16	38.67	52.00	25.00	63.67	63.67
<i>Erysimum asperum</i>	0.12	4.00	12.00	5.77	9.77	9.77
<i>Gaura coccinea</i>	0.24	8.00	16.00	7.69	15.69	15.69
<i>Grindelia squarrosa</i>	0.08	2.67	4.00	1.92	4.59	4.59
<i>Lactuca oblongifolia</i>	0.04	1.33	4.00	1.92	3.25	3.25
<i>Linum rigidum</i>	0.28	9.33	24.00	11.54	20.87	20.87
<i>Lotus americanus</i>	0.20	6.67	20.00	9.62	16.29	16.29
<i>Lygodesmia juncea</i>	0.16	5.33	12.00	5.77	11.10	11.10
<i>Oxytropis lambertii</i>	0.08	2.67	8.00	3.85	6.52	6.52
<i>Psoralea argophylla</i>	0.20	6.67	20.00	9.62	16.29	16.29
<i>Sphaeralcea coccinea</i>	0.04	1.33	4.00	1.92	3.25	3.25
<i>Rosa arkansana</i>	0.20	6.67	12.00	5.77	12.44	12.44

Table 117. Density Analysis per 0.1 Sq. Meter of the Grazed Shallow Range Site on the Native Range, Pasture 3, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density	Relative Percent		Importance Value
		Density	Frequency	
<i>Artemisia dracunculus</i>	0.28	10.45	20.00	22.35
<i>Artemisia frigida</i>	0.12	4.48	12.00	11.62
<i>Erysimum asperum</i>	0.24	8.96	24.00	23.25
<i>Gaura coccinea</i>	0.40	14.93	20.00	26.83
<i>Hedeoma hispida</i>	0.08	2.99	8.00	7.75
<i>Linum rigidum</i>	0.16	5.97	16.00	15.49
<i>Lotus americanus</i>	0.12	4.48	12.00	11.62
<i>Lygodesmia juncea</i>	0.20	7.46	12.00	14.60
<i>Opuntia fragilis</i>	0.04	1.49	4.00	3.87
<i>Oxytropis lambertii</i>	0.08	2.99	8.00	7.75
<i>Petalostemon purpureum</i>	0.04	1.49	4.00	3.87
<i>Psoralea argophylla</i>	0.20	7.46	12.00	14.60
<i>Solidago missouriensis</i>	0.72	26.87	16.00	36.39

Table 118. Density Analysis per 0.1 Sq. Meter of the Ungrazed Silty Range Site on the Native Range, Pasture 3, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative Percent			Relative Importance		
	Density	Percent Frequency	Percent Frequency	Density	Percent Frequency	Importance Value
<i>Achillea millefolium</i>	0.08	2.17	4.00	2.78	2.78	4.95
<i>Artemisia frigida</i>	0.56	15.22	44.00	30.56	30.56	45.78
<i>Grindelia squarrosa</i>	0.04	1.09	4.00	2.78	2.78	3.87
<i>Hedeoma hispida</i>	2.48	67.39	56.00	38.89	38.89	106.28
<i>Linum rigidum</i>	0.04	1.09	4.00	2.78	2.78	3.87
<i>Potentilla pensylvanica</i>	0.04	1.09	4.00	2.78	2.78	3.87
<i>Sphaeralcea coccinea</i>	0.44	11.96	28.00	19.44	19.44	31.40

Table 119. Density Analysis per 0.1 Sq. Meter of the Grazed Silty Range Site on the Native Range, Pasture 3, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative Percent			Relative Importance		
	Density	Percent Frequency	Percent Frequency	Density	Percent Frequency	Importance Value
<i>Achillea millefolium</i>	0.24	6.59	8.00	4.44	4.44	11.03
<i>Antennaria parvifolia</i>	0.04	1.10	4.00	2.22	2.22	3.32
<i>Arabis holboellii</i>	0.04	1.10	4.00	2.22	2.22	3.32
<i>Artemisia frigida</i>	0.60	16.48	48.00	26.67	26.67	43.15
<i>Erysimum asperum</i>	0.08	2.20	8.00	4.44	4.44	6.64
<i>Gutierrezia sarothrae</i>	0.04	1.10	4.00	2.22	2.22	3.32
<i>Hedeoma hispida</i>	2.16	59.34	64.00	35.56	35.56	94.90
<i>Lepidium densiflorum</i>	0.04	1.10	4.00	2.22	2.22	3.32
<i>Psoralea argophylla</i>	0.28	7.69	24.00	13.33	13.33	21.02
<i>Ratibida columnifera</i>	0.04	1.10	4.00	2.22	2.22	3.32
<i>Sphaeralcea coccinea</i>	0.08	2.20	8.00	4.44	4.44	6.64

Table 120. Density Analysis per 0.1 Sq. Meter of the Ungrazed Clayey Range Site on the Native Range, Pasture 4, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density		Relative Percent		Relative Percent		Importance Value
	Density	Percent	Density	Frequency	Frequency	Frequency	
<i>Achillea millefolium</i>	0.40	10.75	24.00	11.32		22.07	
<i>Antennaria parvifolia</i>	0.88	23.66	8.00	3.77		27.43	
<i>Artemisia frigida</i>	0.16	4.30	12.00	5.66		9.96	
<i>Aster ericoides</i>	0.20	5.38	8.00	3.77		9.15	
<i>Gaura coccinea</i>	0.16	4.30	16.00	7.55		11.85	
<i>Grindelia squarrosa</i>	0.48	12.90	32.00	15.09		27.99	
<i>Hedeoma hispida</i>	0.20	5.38	16.00	7.55		12.93	
<i>Lepidium densiflorum</i>	0.12	3.23	8.00	3.77		7.00	
<i>Linum rigidum</i>	0.04	1.08	4.00	1.89		2.97	
<i>Lotus americanus</i>	0.08	2.15	8.00	3.77		5.92	
<i>Opuntia fragilis</i>	0.16	4.30	8.00	3.77		8.07	
<i>Phlox hoodii</i>	0.04	1.08	4.00	1.89		2.97	
<i>Plantago purshii</i>	0.04	1.08	4.00	1.89		2.97	
<i>Psoralea argophylla</i>	0.08	2.15	4.00	1.89		4.04	
<i>Ratibida columnifera</i>	0.64	17.20	52.00	24.53		41.73	
<i>Vicia americana</i>	0.04	1.08	4.00	1.89		2.97	

Table 121. Density Analysis per 0.1 Sq. Meter of the Grazed Clayey Range Site on the Native Range, Pasture 4, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density		Relative Percent		Relative Percent		Importance Value
	Density	Percent	Density	Frequency	Frequency	Frequency	
<i>Achillea millefolium</i>	0.24	7.23	12.00	6.12	13.35		
<i>Artemisia frigida</i>	0.08	2.41	8.00	4.08	6.49		
<i>Artemisia ludoviciana</i>	0.08	2.41	8.00	4.08	6.49		
<i>Aster ericoides</i>	0.84	25.30	12.00	6.12	31.42		
<i>Gaura coccinea</i>	0.36	10.84	28.00	14.29	25.13		
<i>Grindelia squarrosa</i>	0.48	14.46	28.00	14.29	28.75		
<i>Gutierrezia sarothrae</i>	0.04	1.20	4.00	2.04	3.24		
<i>Hedeoma hispida</i>	0.16	4.82	12.00	6.12	10.94		
<i>Linum rigidum</i>	0.32	9.64	20.00	10.20	19.84		
<i>Lithospermum incisum</i>	0.04	1.20	4.00	2.04	3.24		
<i>Oxytropis lambertii</i>	0.08	2.41	8.00	4.08	6.49		
<i>Phlox hoodia</i>	0.04	1.20	4.00	2.04	3.24		
<i>Plantago purshii</i>	0.16	4.82	8.00	4.08	8.90		
<i>Psoralea argophylla</i>	0.08	2.41	8.00	4.08	6.49		
<i>Ratibida columnifera</i>	0.16	4.82	16.00	8.16	12.98		
<i>Senecio plattensis</i>	0.16	4.82	16.00	8.16	12.98		

Table 122. Density Analysis per 0.1 Sq. Meter of the Ungrazed Sandy Range Site on the Native Range, Pasture 4, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density		Relative Percent		Importance Value
	Density	Relative Percent Density	Percent Frequency	Relative Percent Frequency	
<i>Antennaria parvifolia</i>	0.08	2.35	8.00	3.64	5.99
<i>Artemisia frigida</i>	0.04	1.18	4.00	1.82	3.00
<i>Artemisia ludoviciana</i>	1.20	35.29	48.00	21.82	57.11
<i>Asclepias verticillata</i>	0.16	4.71	16.00	7.27	11.98
<i>Chrysopsis villosa</i>	0.04	1.18	4.00	1.82	3.00
<i>Echinacea angustifolia</i>	0.04	1.18	4.00	1.82	3.00
<i>Gaura coccinea</i>	0.56	16.47	32.00	14.55	31.02
<i>Lactuca oblongifolia</i>	0.20	5.88	16.00	7.27	13.15
<i>Liatis punctata</i>	0.36	10.59	28.00	12.73	23.32
<i>Lygodesmia juncea</i>	0.24	7.06	20.00	9.09	16.15
<i>Opuntia fragilis</i>	0.04	1.18	4.00	1.82	3.00
<i>Oxytropis lambertii</i>	0.04	1.18	4.00	1.82	3.00
<i>Petalostemon purpureum</i>	0.12	3.53	8.00	3.64	7.17
<i>Psoralea esculenta</i>	0.04	1.18	4.00	1.82	3.00
<i>Ratibida columnifera</i>	0.08	2.35	8.00	3.64	5.99
<i>Salsola kali</i>	0.12	3.53	8.00	3.64	7.17
<i>Rosa arkansana</i>	0.04	1.18	4.00	1.82	3.00

Table 123. Density Analysis per 0.1 Sq. Meter of the Grazed Sandy Range Site on the Native Range, Pasture 4, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density	Relative Percent		Importance Value
		Density	Frequency	
<i>Arabis holboellii</i>	0.04	1.00	4.00	2.56
<i>Artemisia dracunculus</i>	0.24	6.00	20.00	13.81
<i>Artemisia ludoviciana</i>	1.44	36.00	60.00	59.44
<i>Aster ericoides</i>	0.08	2.00	8.00	5.13
<i>Chrysopsis villosa</i>	0.04	1.00	4.00	2.56
<i>Echinacea angustifolia</i>	0.04	1.00	4.00	2.56
<i>Gaura coccinea</i>	0.16	4.00	16.00	10.25
<i>Lactuca oblongifolia</i>	0.84	21.00	44.00	38.19
<i>Liatis punctata</i>	0.12	3.00	12.00	7.69
<i>Lygodesmia juncea</i>	0.36	9.00	24.00	18.38
<i>Oxytropis lambertii</i>	0.24	6.00	20.00	13.81
<i>Petalostemon purpureum</i>	0.08	2.00	8.00	5.13
<i>Psoralea argophylla</i>	0.04	1.00	4.00	2.56
<i>Psoralea esculenta</i>	0.04	1.00	4.00	2.56
<i>Ratibida columnifera</i>	0.08	2.00	8.00	5.13
<i>Salsola kali</i>	0.08	2.00	8.00	5.13
<i>Sphaeralcea coccinea</i>	0.08	2.00	8.00	5.13

Table 124. Density Analysis per 0.1 Sq. Meter of the Ungrazed Shallow Range Site on the Native Range, Pasture 4, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative			Relative			Importance Value
	Density	Percent Density	Percent Frequency	Percent Density	Percent Frequency	Percent Frequency	
<i>Arabis holboellii</i>	0.04	0.82	4.00	1.19	1.19	2.01	2.01
<i>Artemisia dracunculus</i>	0.16	3.28	12.00	3.57	3.57	6.85	6.85
<i>Artemisia frigida</i>	0.08	1.64	8.00	2.38	2.38	4.02	4.02
<i>Aster ericoides</i>	1.20	24.59	44.00	13.10	13.10	37.69	37.69
<i>Chrysopsis villosa</i>	0.20	4.10	16.00	4.76	4.76	8.86	8.86
<i>Gaura coccinea</i>	0.12	2.46	12.00	3.57	3.57	6.03	6.03
<i>Grindelia squarrosa</i>	0.32	6.56	24.00	7.14	7.14	13.70	13.70
<i>Haplopappus spinulosus</i>	0.12	2.46	12.00	3.57	3.57	6.03	6.03
<i>Hedeoma hispida</i>	0.12	2.46	8.00	2.38	2.38	4.84	4.84
<i>Lactuca oblongifolia</i>	0.12	2.46	12.00	3.57	3.57	6.03	6.03
<i>Liatis punctata</i>	0.40	8.20	32.00	9.52	9.52	17.72	17.72
<i>Linum rigidum</i>	0.04	0.82	4.00	1.19	1.19	2.01	2.01
<i>Lygodesmia juncea</i>	0.16	3.28	12.00	3.57	3.57	6.85	6.85
<i>Petalostemon purpureum</i>	0.60	12.30	44.00	13.10	13.10	25.40	25.40
<i>Phlox hoodia</i>	0.16	3.28	12.00	3.57	3.57	6.85	6.85
<i>Potentilla pensylvanica</i>	0.04	0.82	4.00	1.19	1.19	2.01	2.01
<i>Psoralea argophylla</i>	0.04	0.82	4.00	1.19	1.19	2.01	2.01
<i>Ratibida columnifera</i>	0.28	5.74	28.00	8.33	8.33	14.07	14.07
<i>Senecio plattensis</i>	0.04	0.82	4.00	1.19	1.19	2.01	2.01
<i>Sphaeralcea coccinea</i>	0.64	13.11	40.00	11.90	11.90	25.01	25.01

Table 125. Density Analysis per 0.1 Sq. Meter of the Grazed Shallow Range Site on the Native Range, Pasture 4, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative		Relative		Importance Value
	Density	Percent Density	Percent Frequency	Relative Frequency	
<i>Androsace occidentalis</i>	0.04	0.76	4.00	1.37	2.13
<i>Antennaria parvifolia</i>	0.16	3.05	4.00	1.37	4.42
<i>Artemisia dracunculoides</i>	0.12	2.29	8.00	2.74	5.03
<i>Artemisia frigida</i>	0.04	0.76	4.00	1.37	2.13
<i>Artemisia ludoviciana</i>	0.56	10.69	36.00	12.33	23.02
<i>Aster ericoides</i>	2.16	41.22	60.00	20.55	61.77
<i>Grindelia squarrosa</i>	0.08	1.53	8.00	2.74	4.27
<i>Haplopappus spinulosus</i>	0.16	3.05	12.00	4.11	7.16
<i>Hedeoma hispida</i>	0.32	6.11	16.00	5.48	11.59
<i>Lactuca oblongifolia</i>	0.20	3.82	16.00	5.48	9.30
<i>Liatis punctata</i>	0.12	2.29	12.00	4.11	6.40
<i>Linum rigidum</i>	0.12	2.29	12.00	4.11	6.40
<i>Lithospermum incisum</i>	0.08	1.53	4.00	1.37	2.90
<i>Opuntia fragilis</i>	0.04	0.76	4.00	1.37	2.13
<i>Oxytropis lambertii</i>	0.04	0.76	4.00	1.37	2.13
<i>Petalostemon purpureum</i>	0.16	3.05	16.00	5.48	8.53
<i>Phlox hoodia</i>	0.16	3.05	8.00	2.74	5.79
<i>Potentilla pensylvanica</i>	0.04	0.76	4.00	1.37	2.13
<i>Psoralea argophylla</i>	0.12	2.29	12.00	4.11	6.40
<i>Ratibida columnifera</i>	0.24	4.58	20.00	6.85	11.43
<i>Senecio plattensis</i>	0.24	4.58	24.00	8.22	12.80
<i>Sphaeralcea coccinea</i>	0.04	0.76	4.00	1.37	2.13

Table 126. Density Analysis per 0.1 Sq. Meter of the Ungrazed Silty Range Site on the Native Range, Pasture 4, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density		Relative Percent		Relative Percent		Importance Value
	Density	Density	Density	Frequency	Frequency	Frequency	
<i>Achillea millefolium</i>	0.24	4.72	4.72	16.00	4.71	9.43	
<i>Antennaria parvifolia</i>	0.04	0.79	0.79	4.00	1.18	1.97	
<i>Arabis holboellii</i>	0.08	1.57	1.57	8.00	2.35	3.92	
<i>Artemisia dracunculus</i>	0.44	8.66	8.66	44.00	12.94	21.60	
<i>Artemisia frigida</i>	0.16	3.15	3.15	12.00	3.53	6.68	
<i>Conyza Canadensis</i>	1.04	20.47	20.47	48.00	14.12	34.59	
<i>Coryphantha vivipara</i>	0.04	0.79	0.79	4.00	1.18	1.97	
<i>Erigeron glabellus</i>	0.04	0.79	0.79	4.00	1.18	1.97	
<i>Grindelia squarrosa</i>	0.28	5.51	5.51	20.00	5.88	11.39	
<i>Gutierrezia sarothrae</i>	0.12	2.36	2.36	4.00	1.18	3.54	
<i>Hedeoma hispida</i>	0.68	13.39	13.39	44.00	12.94	26.33	
<i>Lepidium densiflorum</i>	0.12	2.36	2.36	8.00	2.35	4.71	
<i>Opuntia fragilis</i>	0.20	3.94	3.94	16.00	4.71	8.65	
<i>Petalostemon purpureum</i>	0.08	1.57	1.57	4.00	1.18	2.75	
<i>Plantago purshii</i>	0.04	0.79	0.79	4.00	1.18	1.97	
<i>Potentilla pensylvanica</i>	0.12	2.36	2.36	8.00	2.35	4.71	
<i>Psoralea argophylla</i>	0.04	0.79	0.79	4.00	1.18	1.97	
<i>Ratibida columnifera</i>	0.12	2.36	2.36	12.00	3.53	5.89	
<i>Salsola kali</i>	0.08	1.57	1.57	8.00	2.35	3.92	
<i>Sphaeralcea coccinea</i>	1.12	22.05	22.05	68.00	20.00	42.05	

Table 127. Density Analysis per 0.1 Sq. Meter of the Grazed Silty Range Site on the Native Range, Pasture 4, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative Percent		Relative Frequency		Importance Value
	Density	Density	Frequency	Frequency	
<i>Arabis holboellii</i>	0.04	1.27	4.00	1.89	3.16
<i>Artemisia dracunculus</i>	0.12	3.80	12.00	5.66	9.46
<i>Artemisia frigida</i>	0.04	1.27	4.00	1.89	3.16
<i>Astragalus crassicaarpus</i>	0.12	3.80	4.00	1.89	5.69
<i>Erysimum asperum</i>	0.08	2.53	8.00	3.77	6.30
<i>Grindelia squarrosa</i>	0.12	3.80	12.00	5.66	9.46
<i>Hedeoma hispida</i>	1.00	31.65	40.00	18.87	50.52
<i>Lepidium densiflorum</i>	0.04	1.27	4.00	1.89	3.16
<i>Linum rigidum</i>	0.04	1.27	4.00	1.89	3.16
<i>Opuntia fragilis</i>	0.28	8.86	16.00	7.55	16.41
<i>Oxytropis lambertii</i>	0.08	2.53	8.00	3.77	6.30
<i>Polygala alba</i>	0.24	7.59	24.00	11.32	18.91
<i>Ratibida columnifera</i>	0.16	5.06	16.00	7.55	12.61
<i>Sphaeralcea coccinea</i>	0.80	25.32	56.00	26.42	51.74

Table 128. Density Analysis per 0.1 Sq. Meter of the Ungrazed Sandy Range Site on the Native Range, Pasture 5, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density		Relative Percent		Relative Frequency		Importance Value
	Density	Percent Density	Percent Frequency	Frequency	Frequency	Value	
<i>Artemisia dracunculus</i>	0.20	7.35	16.00	12.50	19.85		
<i>Artemisia ludoviciana</i>	1.76	64.71	68.00	53.13	117.84		
<i>Aster ericoides</i>	0.28	10.29	8.00	6.25	16.54		
<i>Helianthus rigidus</i>	0.16	5.88	12.00	9.38	15.26		
<i>Liatis punctata</i>	0.08	2.94	4.00	3.13	6.07		
<i>Psoralea esculenta</i>	0.12	4.41	12.00	9.38	13.79		
<i>Salsola kali</i>	0.12	4.41	8.00	6.25	10.66		

Table 129. Density Analysis per 0.1 Sq. Meter of the Grazed Sandy Range Site on the Native Range, Pasture 5, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density		Relative Percent		Relative Percent		Importance Value
	Density	Percent	Density	Frequency	Frequency	Value	
<i>Artemisia dracunculus</i>	0.04	1.16	1.16	4.00	2.33	3.49	
<i>Artemisia ludoviciana</i>	1.92	55.81	55.81	72.00	41.86	97.67	
<i>Aster ericoides</i>	0.12	3.49	3.49	12.00	6.98	10.47	
<i>Chrysopsis villosa</i>	0.28	8.14	8.14	16.00	9.30	17.44	
<i>Cirsium undulatum</i>	0.04	1.16	1.16	4.00	2.33	3.49	
<i>Echinacea angustifolia</i>	0.04	1.16	1.16	4.00	2.33	3.49	
<i>Erysimum asperum</i>	0.12	3.49	3.49	12.00	6.98	10.47	
<i>Gaura coccinea</i>	0.08	2.33	2.33	8.00	4.65	6.98	
<i>Haplopappus spinulosus</i>	0.04	1.16	1.16	4.00	2.33	3.49	
<i>Helianthus rigidus</i>	0.20	5.81	5.81	8.00	4.65	10.46	
<i>Lepidium densiflorum</i>	0.04	1.16	1.16	4.00	2.33	3.49	
<i>Liatis punctata</i>	0.36	10.47	10.47	12.00	6.98	17.45	
<i>Opuntia fragilis</i>	0.12	3.49	3.49	8.00	4.65	8.14	
<i>Psoralea argophylla</i>	0.04	1.16	1.16	4.00	2.33	3.49	

Table 130. Density Analysis per 0.1 Sq. Meter of the Ungrazed Shallow Range Site on the Native Range, Pasture 5, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative			Relative			Importance Value
	Density	Percent Density	Percent Frequency	Density	Percent Frequency	Frequency	
<i>Antennaria parvifolia</i>	0.08	1.32	4.00	1.32	1.22	1.22	2.54
<i>Artemisia dracunculus</i>	0.04	0.66	4.00	0.66	1.22	1.22	1.88
<i>Artemisia frigida</i>	0.20	3.29	16.00	3.29	4.88	4.88	8.17
<i>Artemisia ludoviciana</i>	0.48	7.89	20.00	7.89	6.10	6.10	13.99
<i>Aster ericoides</i>	0.56	9.21	36.00	9.21	10.98	10.98	20.19
<i>Chrysopsis villosa</i>	0.04	0.66	4.00	0.66	1.22	1.22	1.88
<i>Echinacea angustifolia</i>	0.84	13.82	56.00	13.82	17.07	17.07	30.89
<i>Erysimum asperum</i>	0.04	0.66	4.00	0.66	1.22	1.22	1.88
<i>Gaura coccinea</i>	0.24	3.95	20.00	3.95	6.10	6.10	10.05
<i>Grindelia squarrosa</i>	0.88	14.47	8.00	14.47	2.44	2.44	16.91
<i>Gutierrezia sarothrae</i>	0.04	0.66	4.00	0.66	1.22	1.22	1.88
<i>Helianthus rigidus</i>	0.48	7.89	24.00	7.89	7.32	7.32	15.21
<i>Lactuca oblongifolia</i>	0.08	1.32	8.00	1.32	2.44	2.44	3.76
<i>Linum rigidum</i>	0.08	1.32	8.00	1.32	2.44	2.44	3.76
<i>Lotus americanus</i>	0.04	0.66	4.00	0.66	1.22	1.22	1.88
<i>Oxytropis lambertii</i>	0.04	0.66	4.00	0.66	1.22	1.22	1.88
<i>Petalostemon purpureum</i>	0.16	2.63	12.00	2.63	3.66	3.66	6.29
<i>Phlox hoodia</i>	0.40	6.58	20.00	6.58	6.10	6.10	12.68
<i>Psoralea esculenta</i>	0.16	2.63	16.00	2.63	4.88	4.88	7.51
<i>Ratibida columifera</i>	0.04	0.66	4.00	0.66	1.22	1.22	1.88
<i>Sphaeralcea coccinea</i>	0.32	5.26	20.00	5.26	6.10	6.10	11.36
<i>Rosa arkansana</i>	0.84	13.82	32.00	13.82	9.76	9.76	23.58

Table 131. Density Analysis per 0.1 Sq. Meter of the Grazed Shallow Range Site on the Native Range, Pasture 5, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density		Relative Percent		Relative Percent		Importance Value
	Density	Density	Density	Frequency	Frequency	Frequency	
<i>Artemisia dracunculus</i>	0.36	6.38	24.00	6.45	12.83		
<i>Artemisia frigida</i>	0.12	2.13	12.00	3.23	5.36		
<i>Artemisia ludoviciana</i>	0.32	5.67	12.00	3.23	8.90		
<i>Aster ericoides</i>	0.76	13.48	44.00	11.83	25.31		
<i>Echinacea angustifolia</i>	0.16	2.84	16.00	4.30	7.14		
<i>Erysimum asperum</i>	0.24	4.26	20.00	5.38	9.64		
<i>Gaura coccinea</i>	0.12	2.13	12.00	3.23	5.36		
<i>Gutierrezia sarothrae</i>	0.04	0.71	4.00	1.08	1.79		
<i>Haplopappus spinulosus</i>	0.16	2.84	16.00	4.30	7.14		
<i>Hedeoma hispida</i>	0.12	2.13	4.00	1.08	3.21		
<i>Helianthus rigidus</i>	0.96	17.02	44.00	11.83	28.85		
<i>Linum rigidum</i>	0.60	10.64	36.00	9.68	20.32		
<i>Oxytropis lambertii</i>	0.08	1.42	8.00	2.15	3.57		
<i>Petalostemon purpureum</i>	0.12	2.13	8.00	2.15	4.28		
<i>Phlox hoodia</i>	0.68	12.06	44.00	11.83	23.89		
<i>Polygala alba</i>	0.04	0.71	4.00	1.08	1.79		
<i>Ratibida columnifera</i>	0.12	2.13	8.00	2.15	4.28		
<i>Solidago missouriensis</i>	0.04	0.71	4.00	1.08	1.79		
<i>Sphaeralcea coccinea</i>	0.24	4.26	24.00	6.45	10.71		
<i>Rosa arkansana</i>	0.36	6.38	28.00	7.53	13.91		

Table 132. Density Analysis per 0.1 Sq. Meter of the Ungrazed Silty Range Site on the Native Range, Pasture 5, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative			Relative			Importance Value
	Density	Percent Density	Percent Frequency	Percent Density	Percent Frequency	Percent Frequency	
<i>Artemisia dracunculus</i>	0.04	0.99	4.00	1.56	1.56	2.55	2.55
<i>Artemisia frigida</i>	0.16	3.96	12.00	4.69	4.69	8.65	8.65
<i>Aster ericoides</i>	0.28	6.93	12.00	4.69	4.69	11.62	11.62
<i>Coryza canadensis</i>	0.60	14.85	36.00	14.06	14.06	28.91	28.91
<i>Erigeron glabellus</i>	0.44	10.89	36.00	14.06	14.06	24.95	24.95
<i>Erysimum asperum</i>	0.04	0.99	4.00	1.56	1.56	2.55	2.55
<i>Gaura coccinea</i>	0.04	0.99	4.00	1.56	1.56	2.55	2.55
<i>Hedeoma hispida</i>	0.52	12.87	32.00	12.50	12.50	25.37	25.37
<i>Lactuca oblongifolia</i>	1.08	26.73	56.00	21.88	21.88	48.61	48.61
<i>Linum rigidum</i>	0.04	0.99	4.00	1.56	1.56	2.55	2.55
<i>Lotus americanus</i>	0.04	0.99	4.00	1.56	1.56	2.55	2.55
<i>Opuntia fragilis</i>	0.12	2.97	8.00	3.13	3.13	6.10	6.10
<i>Petalostemon purpureum</i>	0.04	0.99	4.00	1.56	1.56	2.55	2.55
<i>Ratibida columnifera</i>	0.36	8.91	20.00	7.81	7.81	16.72	16.72
<i>Sphaeralcea coccinea</i>	0.24	5.94	20.00	7.81	7.81	13.75	13.75

Table 133. Density Analysis per 0.1 Sq. Meter of the Grazed Silty Range Site on the Native Range, Pasture 5, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative Percent			Relative Frequency			Importance Value
	Density	Percent	Density	Frequency	Percent	Frequency	
<i>Antennaria parvifolia</i>	0.20	4.50	8.00	3.03	8.00	3.03	7.53
<i>Artemisia dracunculus</i>	0.04	0.90	4.00	1.52	4.00	1.52	2.42
<i>Artemisia frigida</i>	0.32	7.21	28.00	10.61	28.00	10.61	17.82
<i>Aster ericoides</i>	0.52	11.71	28.00	10.61	28.00	10.61	22.32
<i>Coryza canadensis</i>	0.24	5.41	12.00	4.55	12.00	4.55	9.96
<i>Erigeron glabellus</i>	0.04	0.90	4.00	1.52	4.00	1.52	2.42
<i>Erysimum asperum</i>	0.08	1.80	8.00	3.03	8.00	3.03	4.83
<i>Hedeoma hispida</i>	0.56	12.61	36.00	13.64	36.00	13.64	26.25
<i>Lactuca oblongifolia</i>	1.32	29.73	64.00	24.24	64.00	24.24	53.97
<i>Linum rigidum</i>	0.16	3.60	16.00	6.06	16.00	6.06	9.66
<i>Opuntia fragilis</i>	0.08	1.80	8.00	3.03	8.00	3.03	4.83
<i>Potentilla pensylvanica</i>	0.12	2.70	8.00	3.03	8.00	3.03	5.73
<i>Ratibida columnifera</i>	0.72	16.22	36.00	13.64	36.00	13.64	29.86
<i>Sphaeralcea coccinea</i>	0.04	0.90	4.00	1.52	4.00	1.52	2.42

Table 134. Density Analysis per 0.1 Sq. Meter of the Ungrazed Sandy Range Site on the Native Range, Pasture 6, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density	Relative Percent		Importance Value	
		Density	Frequency		Frequency
<i>Artemisia dracunculus</i>	0.20	15.63	16.00	18.18	33.81
<i>Artemisia ludoviciana</i>	0.20	15.63	4.00	4.55	20.18
<i>Asclepias verticillata</i>	0.44	34.38	28.00	31.82	66.20
<i>Aster ericoides</i>	0.08	6.25	4.00	4.55	10.80
<i>Echinacea angustifolia</i>	0.04	3.13	4.00	4.55	7.68
<i>Lactuca oblongifolia</i>	0.08	6.25	8.00	9.09	15.34
<i>Lepidium densiflorum</i>	0.04	3.13	4.00	4.55	7.68
<i>Lygodesmia juncea</i>	0.04	3.13	4.00	4.55	7.68
<i>Opuntia fragilis</i>	0.04	3.13	4.00	4.55	7.68
<i>Oxytropis lambertii</i>	0.08	6.25	8.00	9.09	15.34
<i>Potentilla pensylvanica</i>	0.04	3.13	4.00	4.55	7.68

Table 135. Density Analysis per 0.1 Sq. Meter of the Grazed Sandy Range Site on the Native Range, Pasture 6, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative Percent		Relative Frequency		Importance Value
	Density	Density	Frequency	Frequency	
<i>Artemisia dracunculus</i>	0.32	10.26	16.00	11.43	21.69
<i>Artemisia ludoviciana</i>	1.44	46.15	36.00	25.71	71.86
<i>Asclepias verticillata</i>	0.24	7.69	20.00	14.29	21.98
<i>Aster ericoides</i>	0.12	3.85	12.00	8.57	12.42
<i>Echinacea angustifolia</i>	0.04	1.28	4.00	2.86	4.14
<i>Lepidium densiflorum</i>	0.08	2.56	8.00	5.71	8.27
<i>Liatis punctata</i>	0.04	1.28	4.00	2.86	4.14
<i>Opuntia fragilis</i>	0.04	1.28	4.00	2.86	4.14
<i>Psoralea argophylla</i>	0.04	1.28	4.00	2.86	4.14
<i>Rosa arkansana</i>	0.76	24.36	32.00	22.86	47.22

Table 136. Density Analysis per 0.1 Sq. Meter of the Ungrazed Shallow Range Site on the Native Range, Pasture 6, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density		Relative Percent		Relative Percent		Importance Value
	Density	Density	Density	Frequency	Frequency	Frequency	
<i>Antennaria parvifolia</i>	0.12	3.06	4.00	1.61	4.67		
<i>Artemisia dracunculus</i>	0.56	14.29	44.00	17.74	32.03		
<i>Artemisia frigida</i>	0.16	4.08	16.00	6.45	10.53		
<i>Aster ericoides</i>	1.40	35.71	56.00	22.58	58.29		
<i>Erysimum asperum</i>	0.08	2.04	8.00	3.23	5.27		
<i>Gaura coccinea</i>	0.08	2.04	4.00	1.61	3.65		
<i>Grindelia squarrosa</i>	0.16	4.08	16.00	6.45	10.53		
<i>Hedeoma hispida</i>	0.08	2.04	4.00	1.61	3.65		
<i>Lactuca oblongifolia</i>	0.04	1.02	4.00	1.61	2.63		
<i>Liatis punctata</i>	0.60	15.31	36.00	14.52	29.83		
<i>Lygodesmia juncea</i>	0.04	1.02	4.00	1.61	2.63		
<i>Oxytropis lambertii</i>	0.16	4.08	16.00	6.45	10.53		
<i>Petalostemon purpureum</i>	0.16	4.08	8.00	3.23	7.31		
<i>Phlox hoodia</i>	0.20	5.10	20.00	8.06	13.16		
<i>Polygala alba</i>	0.08	2.04	8.00	3.23	5.27		

Table 137. Density Analysis per 0.1 Sq. Meter of the Grazed Shallow Range Site on the Native Range, Pasture 6, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density		Relative Percent		Relative Percent		Importance Value
	Density	Percent Density	Frequency	Percent Frequency	Frequency	Percent Frequency	
<i>Androsace occidentalis</i>	0.12	3.70	12.00	4.62	4.62	8.32	
<i>Artemisia dracunculus</i>	0.40	12.35	32.00	12.31	12.31	24.66	
<i>Artemisia frigida</i>	0.04	1.23	4.00	1.54	1.54	2.77	
<i>Aster ericoides</i>	0.60	18.52	40.00	15.38	15.38	33.90	
<i>Astragalus crassicaarpus</i>	0.28	8.64	16.00	6.15	6.15	14.79	
<i>Echinacea angustifolia</i>	0.08	2.47	8.00	3.08	3.08	5.55	
<i>Gaura coccinea</i>	0.28	8.64	20.00	7.69	7.69	16.33	
<i>Grindelia squarrosa</i>	0.20	6.17	20.00	7.69	7.69	13.86	
<i>Haplopappus spinulosus</i>	0.08	2.47	8.00	3.08	3.08	5.55	
<i>Hedeoma hispida</i>	0.04	1.23	4.00	1.54	1.54	2.77	
<i>Lactuca oblongifolia</i>	0.08	2.47	4.00	1.54	1.54	4.01	
<i>Liatris punctata</i>	0.36	11.11	24.00	9.23	9.23	20.34	
<i>Linum rigidum</i>	0.08	2.47	8.00	3.08	3.08	5.55	
<i>Oxytropis lambertii</i>	0.20	6.17	20.00	7.69	7.69	13.86	
<i>Petalostemon purpureum</i>	0.12	3.70	12.00	4.62	4.62	8.32	
<i>Phlox hoodia</i>	0.20	6.17	20.00	7.69	7.69	13.86	
<i>Polygala alba</i>	0.08	2.47	8.00	3.08	3.08	5.55	

Table 138. Density Analysis per 0.1 Sq. Meter of the Ungrazed Silty Range Site on the Native Range, Pasture 6, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Density		Relative Percent		Relative Percent		Importance Value
	Density	Percent	Density	Percent	Frequency	Frequency	
<i>Antennaria parvifolia</i>	0.12	1.38	1.38	8.00	2.08	2.08	3.46
<i>Artemisia dracunculus</i>	0.08	0.92	0.92	8.00	2.08	2.08	3.00
<i>Artemisia frigida</i>	0.44	5.07	5.07	36.00	9.38	9.38	14.45
<i>Conyza canadensis</i>	3.24	37.33	37.33	72.00	18.75	18.75	56.08
<i>Erysimum asperum</i>	0.12	1.38	1.38	12.00	3.13	3.13	4.51
<i>Hedeoma hispida</i>	0.32	3.69	3.69	28.00	7.29	7.29	10.98
<i>Lactuca oblongifolia</i>	0.80	9.22	9.22	52.00	13.54	13.54	22.76
<i>Lotus americanus</i>	0.56	6.45	6.45	36.00	9.38	9.38	15.83
<i>Opuntia fragilis</i>	0.04	0.46	0.46	4.00	1.04	1.04	1.50
<i>Potentilla pensylvanica</i>	2.16	24.88	24.88	84.00	21.88	21.88	46.76
<i>Psoralea esculenta</i>	0.04	0.46	0.46	4.00	1.04	1.04	1.50
<i>Ratibida columnifera</i>	0.16	1.84	1.84	8.00	2.08	2.08	3.92
<i>Sphaeralcea coccinea</i>	0.60	6.91	6.91	32.00	8.33	8.33	15.24

Table 139. Density Analysis per 0.1 Sq. Meter of the Grazed Silty Range Site on the Native Range, Pasture 6, for the Complementary Grazing System at the Dickinson Experiment Station, 1984

Species	Relative Percent			Relative Frequency			Importance Value
	Density	Percent Density	Percent Frequency	Density	Percent Frequency	Frequency	
<i>Achillea millefolium</i>	0.16	3.01	16.00	4.65	7.66		
<i>Androsace occidentalis</i>	0.12	2.26	12.00	3.49	5.75		
<i>Arabis holboellii</i>	0.04	0.75	4.00	1.16	1.91		
<i>Artemisia dracunculus</i>	0.08	1.50	8.00	2.33	3.83		
<i>Artemisia frigida</i>	0.52	9.77	36.00	10.47	20.24		
<i>Conyza Canadensis</i>	0.48	9.02	28.00	8.14	17.16		
<i>Erysimum asperum</i>	0.68	12.78	40.00	11.63	24.41		
<i>Grindelia squarrosa</i>	0.12	2.26	12.00	3.49	5.75		
<i>Hedeoma hispida</i>	0.08	1.50	8.00	2.33	3.83		
<i>Lactuca oblongifolia</i>	0.32	6.02	24.00	6.98	13.00		
<i>Lygodesmia juncea</i>	0.08	1.50	8.00	2.33	3.83		
<i>Opuntia fragilis</i>	0.08	1.50	8.00	2.33	3.83		
<i>Oxytropis lambertii</i>	0.12	2.26	8.00	2.33	4.59		
<i>Phlox hoodia</i>	0.04	0.75	4.00	1.16	1.91		
<i>Potentilla pensylvanica</i>	1.76	33.08	80.00	23.26	56.34		
<i>Psoralea argophylla</i>	0.20	3.76	16.00	4.65	8.41		
<i>Ratibida columnifera</i>	0.44	8.27	32.00	9.30	17.57		

Table 140. Mean Forb and Shrub Density per 0.1 Sq. Meter for the Native Range Pastures on the Complementary Grazing System at the Dickinson Experiment Station, 1984

System: WEST	Pasture #	Forbs			Shrubs		
		Ungrazed	Grazed	Ungrazed	Grazed	Ungrazed	Grazed
Clayey	1	9.24	6.60	0.00	0.00	0.00	0.00
	3	8.00	8.52	0.00	0.00	0.00	0.08
	5						
	Mean	8.62	7.56	0.00	0.00	0.00	0.04
Sandy	1	3.24	3.20	1.08	0.64	0.64	0.00
	3	2.44	1.88	0.00	0.00	0.00	0.00
	5	2.72	3.44	0.00	0.00	0.00	0.00
	Mean	2.80	2.84	0.36	0.21	0.21	0.00
Shallow	1	5.84	6.72	0.16	0.00	0.00	0.00
	3	2.80	2.68	0.20	0.00	0.00	0.00
	5	5.24	5.28	0.84	0.36	0.36	0.00
	Mean	4.63	4.89	0.40	0.12	0.12	0.00
Silty	1	5.24	3.48	0.00	0.00	0.00	0.00
	3	3.68	3.64	0.00	0.00	0.00	0.00
	5	4.04	4.44	0.00	0.00	0.00	0.00
	Mean	4.32	3.85	0.00	0.00	0.00	0.00

Table 140 (Continued):

System: EAST					
Clayey	2	10.28	8.32	0.00	0.00
	4	3.72	3.32	0.00	0.00
	6				
	Mean	7.00	5.82	0.00	0.00
Sandy	2	2.84	2.76	0.04	0.00
	4	3.36	4.00	0.04	0.00
	6	1.28	2.36	0.00	0.76
	Mean	2.49	3.04	0.03	0.25
Shallow	2	3.16	2.56	0.00	0.00
	4	4.88	5.24	0.00	0.00
	6	3.92	3.24	0.00	0.00
	Mean	3.99	3.68	0.00	0.00
Silty	2	8.12	6.16	0.00	0.00
	4	5.08	3.16	0.00	0.00
	6	8.68	5.32	0.00	0.00
	Mean	7.29	4.88	0.00	0.00

Table 141. Mean Alfalfa Seedling Counts per Meter of Row of the Alfalfa Interseeded Pastures for the Complementary Grazing System at the Dickinson Experiment Station, 1984

System – EAST		13 Jul	22 Aug
Pasture – 2			
Site – Clayey	Ungrazed	30.75	0.75
	Grazed	29.43	0.14
Site – Sandy	Ungrazed	20.29	0.00
	Grazed	32.80	0.33
Site – Shallow	Ungrazed	36.50	0.17
	Grazed	42.67	0.00
Site – Silty	Ungrazed	42.00	12.67
	Grazed	36.87	18.50
Pasture – 4			
Site – Clayey	Ungrazed	34.13	1.25
	Grazed	9.50	0.50
Site – Sandy	Ungrazed	3.67	0.00
	Grazed	7.63	0.00
Site – Shallow	Ungrazed	8.00	0.00
	Grazed	30.25	0.00
Site – Silty	Ungrazed	60.25	11.00
	Grazed	50.25	18.25

Table 141 (Continued):

Pasture – 6			
Site - Sandy	Ungrazed	38.75	0.00
	Grazed	75.00	0.25
Site - Shallow	Ungrazed	33.25	2.75
	Grazed	17.00	0.25
Site – Silty	Ungrazed	34.75	5.63
	Grazed	27.13	1.63

Table 142. Mean Alfalfa Seedling Counts per Foot of Row of the Alfalfa Interseeded Pastures for the Complementary Grazing System at the Dickinson Experiment Station, 1984

System – EAST		13 Jul	22 Aug
Pasture – 2			
Site – Clayey	Ungrazed	9.38	0.23
	Grazed	8.97	0.04
Site – Sandy	Ungrazed	6.19	0.00
	Grazed	10.00	0.10
Site – Shallow	Ungrazed	11.13	0.05
	Grazed	13.01	0.00
Site – Silty	Ungrazed	12.80	3.86
	Grazed	11.24	5.64
Pasture – 4			
Site – Clayey	Ungrazed	10.41	0.38

	Grazed	2.90	0.15
Site – Sandy	Ungrazed Grazed	1.12 2.33	0.00 0.00
Site – Shallow	Ungrazed Grazed	2.44 9.22	0.00 0.00
Site – Silty	Ungrazed Grazed	18.37 15.32	3.35 5.56

Table 142 (Continued):

Pasture – 6			
Site – Sandy	Ungrazed Grazed	11.81 22.87	0.00 0.08
Site – Shallow	Ungrazed Grazed	10.14 5.18	0.84 0.08
Site – Silty	Ungrazed Grazed	10.59 8.27	1.72 0.50

**PLANT SPECIES LIST OF THE COMPLEMENTARY GRAZING SYSTEM,
DICKINSON EXPERIMENT STATION, 1984**

Graminoids:

Ag de	<i>Agropyron desertorum</i>	Crested wheatgrass
Ag sm	<i>Agropyron smithii</i>	Western wheatgrass
Ag tr	<i>Agropyron trachycaulum</i>	Slender wheatgrass
An sc	<i>Andropogon scoparius</i>	Little bluestem
Ar lo	<i>Aristida longiseta</i>	Red threeawn
Av sa	<i>Avena sativa</i>	Oats
Bo cu	<i>Bouteloua curtipendula</i>	Side-oats grama
Bo gr	<i>Bouteloua gracilis</i>	Blue grama
Bu da	<i>Buchloe dactyloides</i>	Buffalo grass
Ca mo	<i>Calamagrostis montanensis</i>	Plains reedgrass
Ca lo	<i>Calamovilfa longifolia</i>	Prairie sandreed
El an	<i>Elymus angustus</i>	Altai wildrye
Ko py	<i>Koeleria pyramidata</i>	Prairie junegrass
Mu cu	<i>Muhlenbergia cuspidata</i>	Plains muhly
Mu sq	<i>Munroa squarrosa</i>	False buffalo grass
Pa ol	<i>Panicum oligosanthos</i>	Scribner panic grass
Po co	<i>Poa compressa</i>	Canada bluegrass
Po pr	<i>Poa pratensis</i>	Kentucky bluegrass
Sc pa	<i>Schedonnardus paniculatus</i>	Tumble grass
Se gl	<i>Setaria glauca</i>	Yellow pigeongrass
Se ve	<i>Setaria verticillata</i>	Bur pigeongrass
Se vi	<i>Setaria viridis</i>	Green pigeongrass
St co	<i>Stipa comata</i>	Needleandthread
St vi	<i>Stipa viridula</i>	Green needlegrass

Graminoids (Continued)

Ca el	Carex eleocharis	Needleleaf sedge
Ca fi	Carex filifolia	Threadleaved sedge
Ca he	Carex heliophila	Yellow sedge
El spp.	Eleocharis spp.	Spikerush

Forbs:

Ac mi	Achillea millefolium	Yarrow
Ag gl	Agoseris glauca	Prairie dandelion
Al ai	Allionia ainearis	Four O'clock
Al te	Allium textile	White wild onion
Am re	Amaranthus retroflexus	Rough pigweed
An oc	Androsace occidentalis	Fairy candelabra
An cy	Anemone cylindrica	Cottonweed
An ne	Antennaria neglecta	Pussytoes
An pa	Antennaria parvifolia	Pussytoes
Ar ho	Arabis holboellii	Slim rockcress
Ar ca	Artemisia caudata	Green sage
Ar dr	Artemisia dracunculus	Green sage
Ar fr	Artemisia frigida	Fringed sage
Ar lu	Artemisia ludoviciana	White sage
As ve	Asclepias verticillata	Whorled milkweed
As vi	Asclepias viridiflora	Green milkweed
As er	Aster ericoides	White prairie aster
As ca	Astragalus canadensis	Little rattlepod
As cr	Astragalus crassicaulus	Ground plum
Ce ar	Cerastium arvense	Prairie chickweed
Ce la	Ceratoides lanata	Winter fat
Ch al	Chenopodium album	Lamb's quarters

Forbs (Continued):

Ch vi	<i>Chrysopsis villosa</i>	Golden aster
Ci un	<i>Cirsium undulatum</i>	Prairie thistle
Co um	<i>Commandra umbellata</i>	Bastard toadflax
Co ar	<i>Convolvulus arvensis</i>	Field bindweed
Co ca	<i>Conyza canadensis</i>	Horseweed
Co vi	<i>Coryphantha vivipara</i>	Ball cactus
De pi	<i>Descurainia pinnata</i>	Tansy mustard
De so	<i>Descurainia sophia</i>	Flixweed
Ec an	<i>Echinacea angustifolia</i>	Purple coneflower
Er gl	<i>Erigeron glabellus</i>	Rough erigeron
Er spp.	<i>Erigeron</i> spp.	Daisy fleabane
Er fl	<i>Eriogonum flavum</i>	Yellow umbrella plant
Er mu	<i>Eriogonum multiceps</i>	Eriogonum
Er as	<i>Erysimum asperum</i>	Western wallflower
Eu di	<i>Euphorbia dictyosperma</i>	Spurge
Eu ge	<i>Euphorbia geyeri</i>	Geyer's spurge
Eu ma	<i>Euphorbia maculata</i>	Nodding spurge
Ga co	<i>Gaura coccinea</i>	Gaura
Gr sq	<i>Grindelia squarrosa</i>	Gumweed
Gu sa	<i>Gutierrezia sarothrae</i>	Broomweed
Ha sp	<i>Haplopappus spinulosus</i>	Spiny ironweed
He hi	<i>Hedeoma hispida</i>	Rough pennyroyal
He ri	<i>Helianthus rigidus</i>	Stiff sunflower
Hi vu	<i>Hippuris vulgaris</i>	Marestail
Hy ri	<i>Hymenoxys richardsonii</i>	Rubber plant
Ko sc	<i>Kochia scoparia</i>	Kochia
La ob	<i>Lactuca oblongifolia</i>	Blue wild lettuce
Le de	<i>Lepidium densiflorum</i>	Peppergrass
Li pu	<i>Liatris punctata</i>	Blazing star
Li ri	<i>Linum rigidum</i>	Stiffstem flax

Forbs (Continued):

Li in	<i>Lithospermum incisum</i>	Narrow-leaved puccoon
Lo am	<i>Lotus americanus</i>	Prairie bird's foot trefoil
Ly ju	<i>Lygodesmia juncea</i>	Skeleton weed
Ma ro	<i>Malva rotundifolia</i>	Small mallow
Me fa	<i>Medicago falcata</i>	Alfalfa
Me of	<i>Melilotus officinalis</i>	Yellow sweetclover
Mu di	<i>Musineon divaricatum</i>	Wild parsley
Ne pa	<i>Neslia paniculata</i>	Ball mustard
Oe se	<i>Oenothera serrulata</i>	Tooth-leaved evening primrose
Op fr	<i>Opuntia fragilis</i>	Brittle prickly pear
Or lu	<i>Orthocarpus luteus</i>	Owl clover
Ox la	<i>Oxytropis lambertii</i>	Purple loco
Pe al	<i>Penstemon albidus</i>	White beardtongue
Pe pu	<i>Petalostemon purpureum</i>	Purple prairie clover
Ph ho	<i>Phlox hoodii</i>	Moss phlox
Pl pu	<i>Plantago purshii</i>	Woolly plantain
Po al	<i>Polygala alba</i>	White milkwort
Po ar	<i>Polygonum arenastrum</i>	Common knotweed
Po co	<i>Polygonum convolvulus</i>	Wild buckwheat
Po pe	<i>Potentilla pensylvanica</i>	Potentilla
Ps ar	<i>Psoralea argophylla</i>	Silverleaf scurfpea
Ps es	<i>Psoralea esculenta</i>	Indian breadroot
Ra cy	<i>Ranunculus cymbalaria</i>	Seaside buttercup
Ra co	<i>Ratibida columnifera</i>	Long headed coneflower
Sa ka	<i>Salsola kali</i>	Russian thistle
Se pl	<i>Senecio plattensis</i>	Prairie ragwort
So mi	<i>Solidago missouriensis</i>	Early goldenrod
So ri	<i>Solidago rigida</i>	Stiff goldenrod
Sp co	<i>Sphaeralcea coccinea</i>	Scarlet globemallow

Forbs (Continued):

Ta of	<i>Taraxacum officinale</i>	Dandelion
Th rh	<i>Thermopsis rhombifolia</i>	False lupine
Tr du	<i>Tragopogon dubius</i>	Large goat's beard
Ve fa	<i>Vernonia fasciculata</i>	Ironweed
Vi am	<i>Vicia americana</i>	Wild vetch
Vi nu	<i>Viola nuttallii</i>	Nuttall's violet
Xa st	<i>Xanthium strumarium</i>	Cocklebur

Shrubs:

Ju ho	<i>Juniperus horizontalis</i>	Creeping juniper
Ro ar	<i>Rosa arkansana</i>	Prairie wild rose
Sy oc	<i>Symphoricarpos occidentalis</i>	Wolfberry

Lycopods:

Se de	<i>Selaginella densa</i>	Club moss
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Eumycota:

Li spp.	Species of lichens	Lichens
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