

APPENDIX A

PRODUCTION AND UTILIZATION OF SHRUB AND HERBACEOUS SPECIES ON KEY AREAS

Sagebrush Production and Utilization

Production and utilization data for sagebrush (*Artemisia tridentata wyomingensis*) are collected at ten sites in the Cody Region (Tables 1 and 2 and Figures 1 and 2). Sites were selected using a “key area” concept, whereby if utilization levels are within acceptable limits at these areas, there is reasonable assurance that utilization levels are acceptable over the entire herd unit area. Production is measured in September/October using the leader length method described in WGFD Wildlife Division Vegetation/Habitat Monitoring Protocol (August 1, 2004). Utilization is measured in April/May using a modified Cole browse method described in WGFD Wildlife Division Vegetation/Habitat Monitoring Protocol (August 1, 2004).

Table 1. Production expressed as average annual leader length in centimeters for sagebrush transects in the Cody Region.

Transect	2011	2012	2013	2014	2015	Long-term Average
Breteche	3.58			3.56		2.48
Aldrich	0.27			2.75		1.23
Grass Creek	3.42	0.29	1.94	2.57	3.22	2.72
Wagonhound	3.71	1.75	2.72	2.72	4.59	2.47
Dry Creek Basin	4.83	0.55	2.42	4.37	2.31	2.55
Five-mile	5.71	0.74	2.46	3.57	4.66	3.23
Denver Jake	1.95	0.84	1.40	1.36	3.92	1.81
Lightning Ridge	1.90	0.76	1.00	1.56	1.78	1.43
Alkali	4.13	2.10	2.10	1.80	1.24	2.46
Renner			2.73	2.76	3.73	3.07
Average of Transects	3.25	1.08	1.93	2.70	3.18	2.27

Table 2. Utilization expressed as percent leaders browsed for sagebrush transects in the Cody Region.

Transect	2012	2013	2014	2015	2016	Long-term Average
Breteche	9.4	24.5	7.4		11	18.75
Aldrich	5.80	4.60	0.60	0.00	1.80	5.35
Grass Creek	0.60	0.40	0.00	0.00	0.00	1.75
Wagonhound	26.20	25.40	17.60	8.20	7.00	15.33
Dry Creek Basin	44.20	37.40	20.60	35.20	25.60	23.80
Five-mile	0.20	23.50	20.20	21.20	28.20	18.00
Denver Jake	26.20	18.80	1.60	2.40	6.60	12.68
Lightning Ridge	5.00	3.80	0.00	2.00	9.40	4.45
Alkali	17.60	21.60	4.80	10.20	8.20	11.03
Renner			13.40	1.00	1.20	5.20
Average of Transects	13.54	16.12	8.62	8.91	9.90	11.21

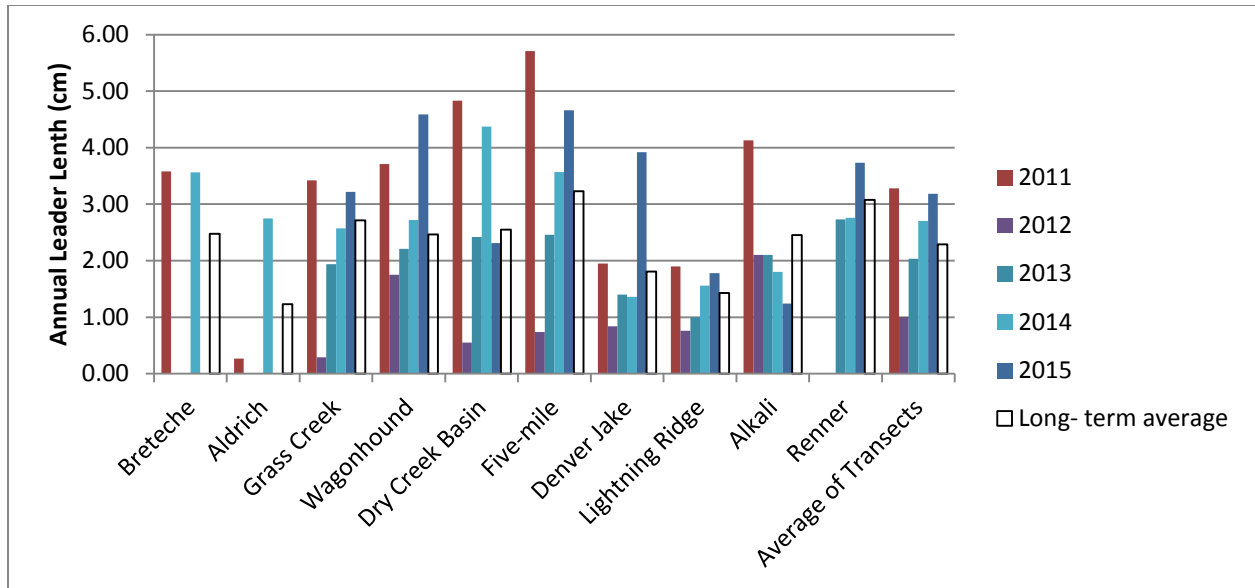


Figure 1. Average annual leader length for sagebrush transects in the Cody Region

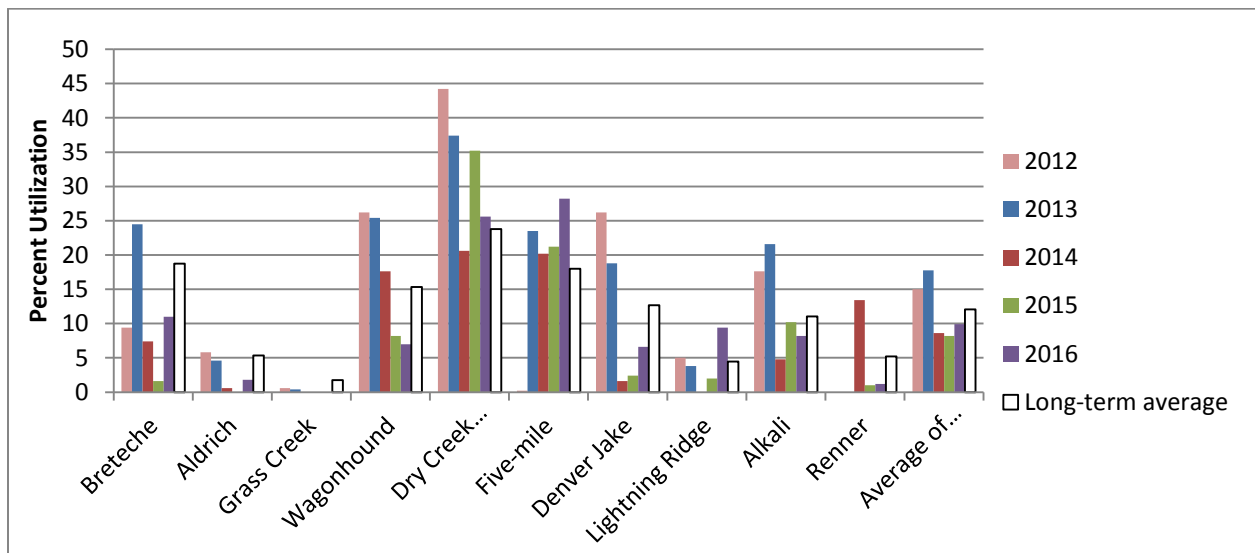


Figure 2. Percent utilization for sagebrush transects in the Cody Region

Curleaf Mountain Mahogany Production and Utilization

Production and utilization data for curleaf mountain mahogany (*Cercocarpus ledifolias*) are collected at two sites in the Cody Region (Table 3 and Figures 3 and 4). Sites were selected using a “key area” concept, whereby if utilization levels are within acceptable limits at these areas, there is reasonable assurance that utilization levels are acceptable over the entire herd unit area. Production and utilization are measured in September/October and April/May, respectively, using the twig length measurement

method described in Utilization Studies and Residual Measurements, BLM Technical Reference 1734-3 (1996).

Table 3. Production expressed as average annual leader length in centimeters for curlleaf mountain mahogany transects in the Cody Region.

Transect	2011	2012	2013	2014	2015	Long-term Average
Red Canyon	5.47	4.73	3.28	4.13	5.49	4.66
Davis Draw	6.43	5.12	4.10	4.77	5.73	5.06
Average of Transects	5.84	5.84	3.69	4.45	5.61	4.86

Table 4. Utilization expressed as average annual leader length in centimeters and percent of total leader length removed for curlleaf mountain mahogany transects in the Cody Region.

Transect	2012	2013	2014	2015	2016	Long-term Average
Red Canyon	63	66	44	61	61	46
Davis Draw	43	63	70	63	79	60
Average of Transects	53	65	57	62	70	54

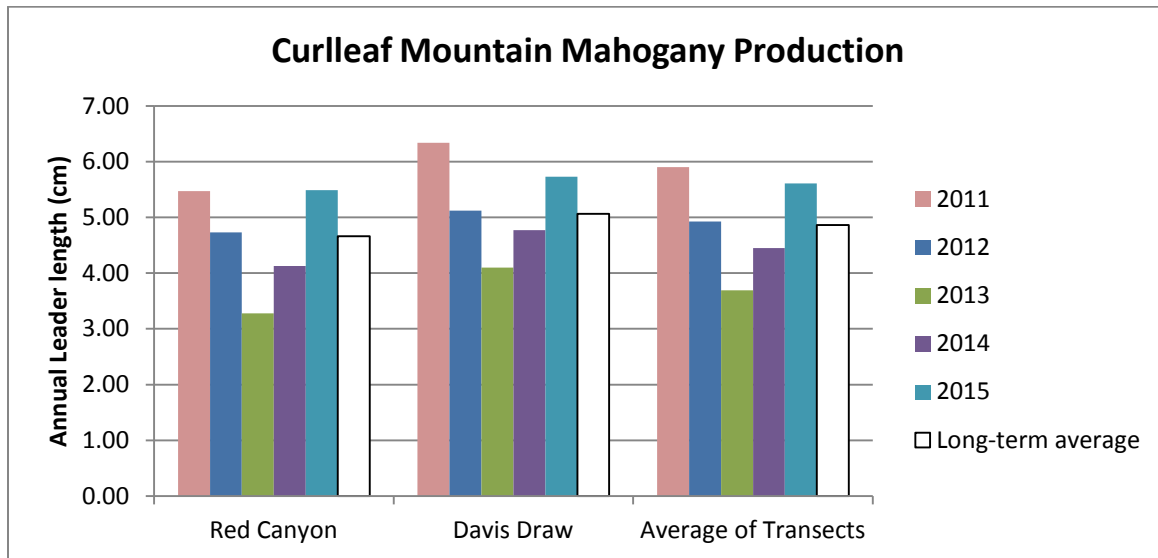


Figure 3. Average annual leader length for curlleaf mountain mahogany transects in the Cody Region.

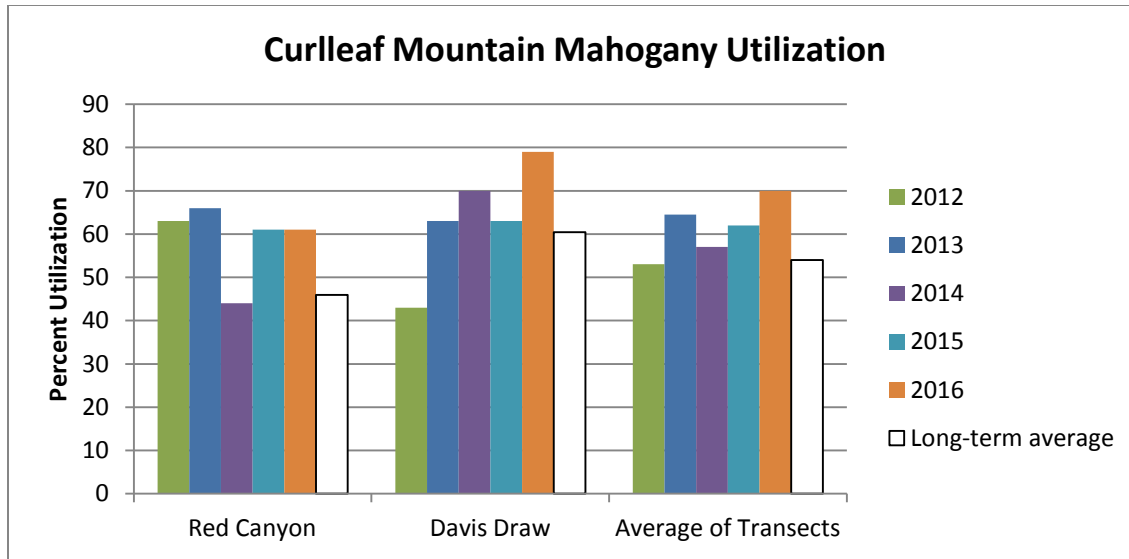


Figure 4. Average percent utilization for curlleaf mountain mahogany transects in the Cody Region.

Herbaceous Production and Utilization

Production and utilization data for herbaceous forage (grasses and forbs) are collected at six sites in the Cody Region (Tables 4 and 5 and Figures 5 and 6). Sites were selected using a “key area” concept, whereby if utilization levels are within acceptable limits at these areas, there is reasonable assurance that utilization levels are acceptable over the entire herd unit area. Production is measured after peak seed ripe of key grass species by clipping and weighing samples. Utilization is measured by clipping and weighing samples inside and outside of a range cage just prior to green-up in the spring. Utilization is assumed to be primarily by elk unless noted. Methods can be found in [WGFD Wildlife Division Vegetation/Habitat Monitoring Protocol \(August 1, 2004\)](#).

Table 5. Production in pounds per acre for herbaceous transects in the Cody Region.

Transect	2011	2012	2013	2014	2015	Long-term Average
Trail Creek	740	350	350	563	546	491
Riddle Flat	400	412	500	525	408	447
Painter Gulch	460	260	175	375	1110	494
Little Bald Ridge	380	270	430	650	892	515
Teepee Gulch	280	260	320	638	755	452
Rose Creek	383	166	350	567	640	403

Table 6. Percent utilization for herbaceous transects in the Cody Region.

Transect	2012	2013	2014	2015	2016	Long-term Average
Trail Creek	23	61			42	42
Riddle Flat	91	82	75	81	67	72
Painter Gulch	49	65	0	47	47	40
Lt Bald Ridge	81	50	67	58	85	72
Teepee Gulch	82	81	79	73	68	78
Rose Creek	50	57		0	5	32

Figure 5. Production for herbaceous transects in the Cody Region.

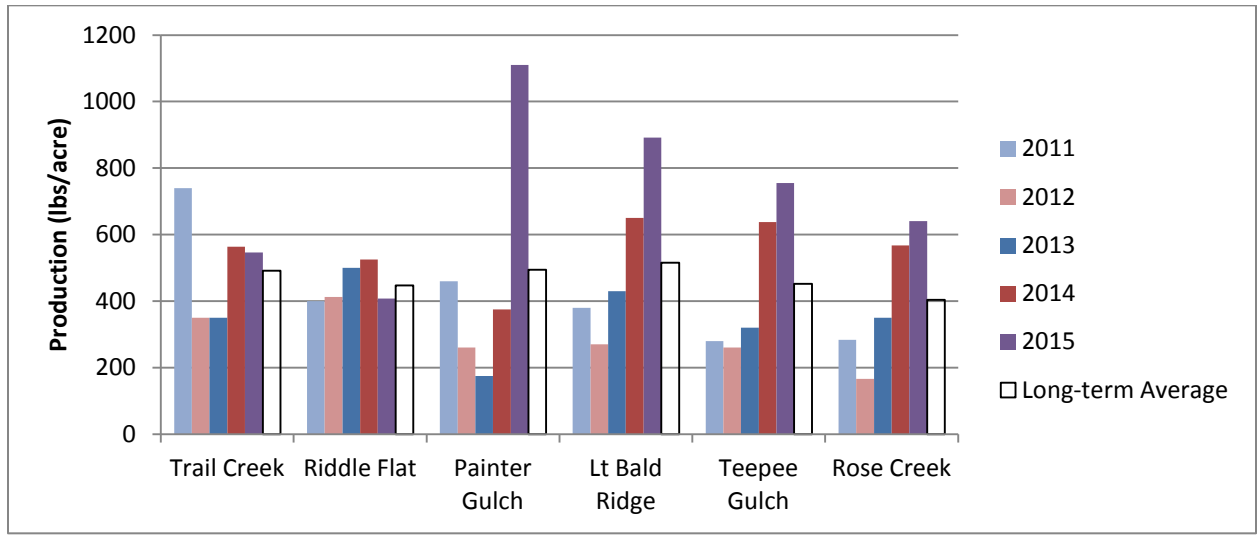


Figure 6. Percent utilization for herbaceous transects in the Cody Region.

