

Appendix B. Rangeland Inventory and Assessments of Range Condition and Rangeland Health

An inventory of rangeland vegetation and an assessment of rangeland health were completed for the pastures included in the Quilomene/Whiskey Dick Wildlife Area grazing permit. The rangeland vegetation inventory was conducted following Natural Resources Conservation Service protocols (USDA, Natural Resources Conservation Service, 2003); the rangeland health assessment was conducted using methods described in Interpreting Indicators of Rangeland Health - Version 4 (Pellant et al. 2005).

A map of the area was prepared using soil survey data for Kittitas County (available at <http://websoilsurvey.nrcs.usda.gov/app/>) that depicted polygons of the various ecological sites by precipitation zone. An ecological site is “a kind of land with specific physical characteristics which differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation and in its response to management” (Pellant et al. 2005). Ecological site names typically reflect the textural characteristics of the soil and the precipitation zone (p.z.) in which they occur. Detailed descriptions of the ecological sites in the table are available at: <http://efotg.nrcs.usda.gov/treemenuFS.aspx>. Ecological site descriptions include: information about the soils and other physiographic features (e.g., slope, aspect, general topography); climatic features and average monthly precipitation; typical soil features; a state-and-transition model of plant community dynamics; a list of characteristic native plant species typically found on the site and a forage production estimate; an estimate of the cover of vegetation, litter, rock, and bare ground; suggestions about initial stocking rate and grazing guidelines; a list of plant species preferences of ungulates that may use the site; recreational use of the site; and reference information describing the range of conditions for each of the 17 rangeland health indicators.

Ecological sites in each pasture were inspected to note species composition and general condition of the soil surface. A representative area was selected for a clip-plot to determine total annual above ground forage production in pounds per acre. Current species composition information is used to calculate a similarity index comparing the present species composition to the historic climax plant community. The similarity index is expressed as “the percentage, by weight, of the historic climax plant present on the site” (USDA, Natural Resources Conservation Service 2003). This provides a numeric indication of how much change in species composition of the plant community has occurred. Sites with 76 to 100 percent of the climax plant community are rated in excellent condition; sites with 51 to 75 percent of the climax plant community are rated as good; sites with 25 to 50 percent of climax plant community are considered to be in fair condition; and sites with less than 25 percent climax plant community are considered to be in poor condition.

Current species composition was also used to identify the current “Vegetation State” of each ecological site. A given ecological site can produce a variety of plant communities, depending on site characteristics and management history. A state and transition model for Wyoming big sagebrush/bluebunch wheatgrass steppe is presented in Figure B-1 (adapted from Rouse 2004). The historic climax plant community depicted here was based on a study of rangeland relic areas that are relatively undisturbed. This state and transition model illustrates potential plant

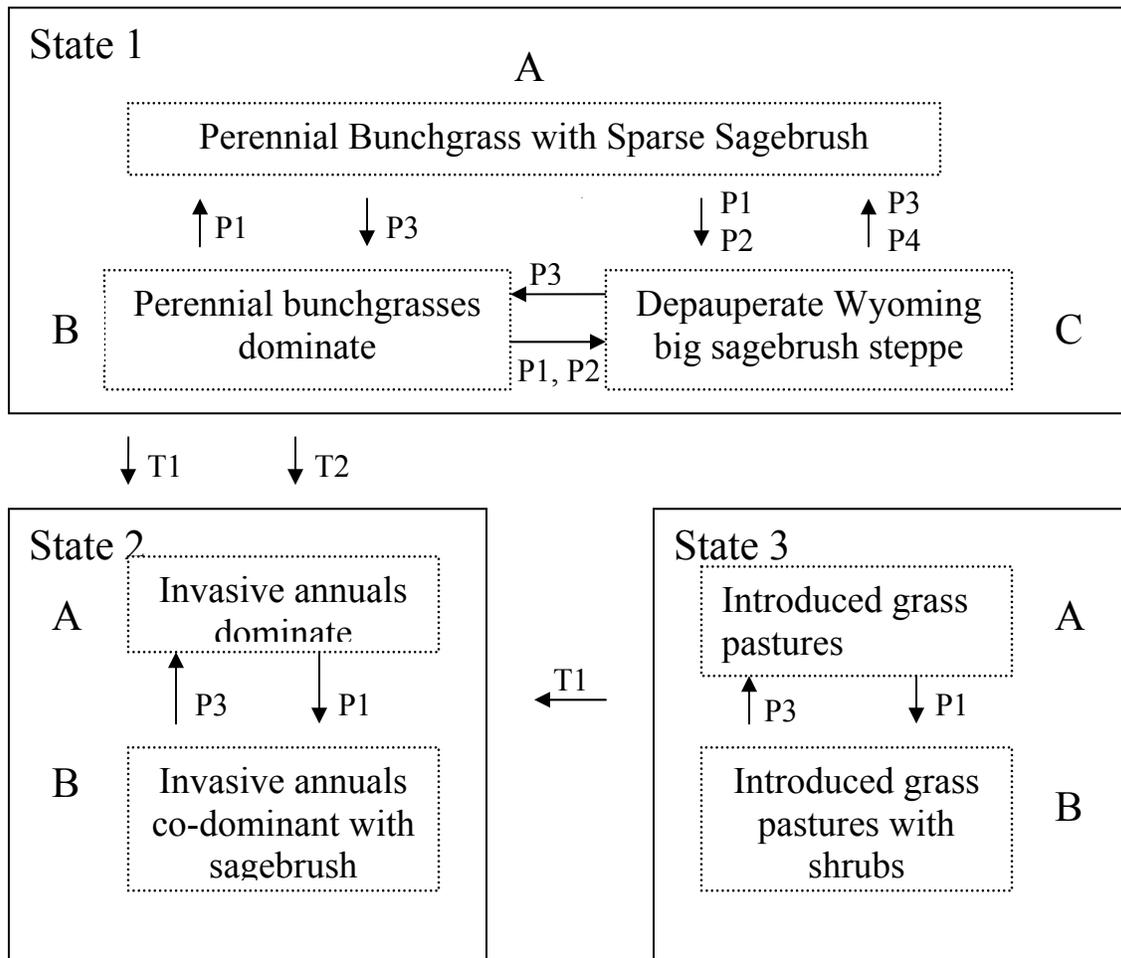
communities, transition pathways, and ecological thresholds. Transition pathways occurring within a state and are generally reversible. Once ecological thresholds are crossed however, the given state of a plant community is changed, and this change is generally irreversible. The model presented in Figure B-1 was used to assign vegetative states to applicable sagebrush-steppe ecological sites found on the CRM area (Appendix A). Models are not currently available for very shallow ecological sites or riparian communities.

Rangeland health is defined as “the degree to which the integrity of the soil and ecological processes of rangeland ecosystems are maintained” (Pellant et al. 2005). The ecological processes of interest include: the water cycle, energy flow, and the nutrient cycle. Because direct measurements of site integrity and the condition of ecological processes are difficult and/or hard to measure, the rangeland health assessment protocol relies on biological and physical indicators of three interrelated attributes of rangeland health (Pellant et al. 2005). The protocol uses 17 qualitative assessment indicators to provide separate ratings for each of the three rangeland health attributes (Table B-1). The assessment of soil/site stability provides an indication of the capacity of the site to limit redistribution and loss of soil resources (i.e., erosion); ten rangeland health indicators are used to rate soil/site stability. Hydrologic function is the capacity of the site to capture, store, and safely release various forms of precipitation, to resist a reduction of this capacity, and to recover this capacity after a reduction occurs. Ten rangeland health indicators are evaluated to rate hydrologic function. Biotic integrity is the capacity of the site to support characteristic functional and structural communities (including plants, animals, and soil microorganisms).

Table B-1 Qualitative rangeland health indicators associated with the three rangeland health attributes

Qualitative Indicator	Rangeland Health Attribute		
	Soil/Site Stability	Hydrologic Function	Biotic Integrity
1. Rills	X	X	
2. Water-flow patterns	X	X	
3. Pedestals and/or terracettes	X	X	
4. Bare ground	X	X	
5. Gullies	X	X	
6. Wind-scoured sites, blowouts	X		
7. Litter movement	X		
8. Soil surface resistance to erosion	X	X	X
9. Soil surface loss or degradation	X	X	X
10. Plant community composition		X	
11. Compaction layer	X	X	X
12. Functional/structural groups			X
13. Plant mortality/decadence			X
14. Litter amount		X	X
15. Annual production			X
16. Invasive plants			X
17. Reproductive capability of perennials			X

Figure B-1 State and transition model for Wyoming big sagebrush/bluebunch wheatgrass sagebrush steppe (adapted from Rouse 2004).



Pathways – Typically reversible

- P1 Increasing fire return interval
- P2 Poor grazing practices such as over-utilization and/or poor timing of grazing (e.g., during critical period)
- P3 Fire and/or insect damage
- P4 Prescribed grazing that meets the needs of perennial cool season grasses. Fire and/or long time periods may be necessary to reduce shrub dominance.

Transitions – Typically irreversible

- T1 Poor grazing practices that are pushed by drought or wildfire
- T2 Decreasing fire return interval caused by the introduction of invasive annual grasses

microorganisms) in the context of normal variability, and to recover this capacity when losses occur (Pellant et al. 2005). Nine rangeland health indicators are evaluated to rate biotic integrity.

A rangeland health assessment form (Pellant et al. 2005) was completed at each assessment site. The observed condition for each indicator was compared to the range of conditions listed in the rangeland health section of the ecological site description. The rating assigned for each indicator reflects the degree of departure from expected levels described in the ecological site description. Possible attribute ratings for degree of departure are: none to slight, slight to moderate, moderate, moderate to extreme, and extreme to total. Each rangeland health attribute is summarized based on “a preponderance of evidence” (Pellant et al. 2005). The rangeland health assessment does not provide a single rating; a separate rating is given for each rangeland health attribute.

A brief description of the prominent ecological sites occurring in the Wild Horse CRM Area follows:

- **Very Shallow/ 9 to 15 in. p.z.** This ecological site occurs commonly on benches and hillsides, and is the principal ecological site found along ridges. Stiff sagebrush and Sandberg’s bluegrass account for 30 percent and 20 percent of the annual production on this site, respectively. Native forbs such as Hooker’s balsamroot, buckwheat, and line-leaf fleabane contribute up to 30 percent of the annual production. Cheatgrass is typically found only on disturbed areas in the ecological site.
- **Very Shallow/ 15 in. + p.z.:** This ecological site differs from the previous one primarily in that low sagebrush replaces stiff sagebrush as the dominant shrub, and Idaho fescue contributes up to 10 percent of the annual production
- **Loamy/ 9 to 15 in. + p.z.:** This ecological site typically is found on deeper soils on flats or gentle slopes. On relatively undisturbed sites more than 70 percent of the annual production comes from bluebunch wheatgrass and Idaho fescue, and about 10 percent is comprised of native annual and perennial forbs. On disturbed sites where the amount of native perennial grasses has been reduced big sagebrush can account for 25-50 percent of annual production.
- **Loamy/ 15 in. + p.z.:** This ecological site is characterized by an understory dominated by bluebunch wheatgrass and Idaho fescue and a variety of perennial forbs. On all but poor condition sites a variety of native perennial forbs account for about 10 percent of annual production. In disturbed areas the amount of big sagebrush, cheatgrass and bulbous bluegrass increases.
- **Stony/ 9 to 15 in. p.z.:** This ecological site occurs typically on south-facing hillsides with gentle to moderate slopes. On relatively undisturbed sites more than 70 percent of annual production is from native perennial grasses such as bluebunch wheatgrass, Idaho fescue, Sandberg’s bluegrass, and Thurber’s needlegrass. Shrubs such as big sagebrush and bitterbrush typically account for about 10 percent of annual production; with disturbance and a decrease in native grasses and forbs, the amount of shrubs increases.
- **Stony/ 15 in + p.z.:** This site differs from the previous one primarily in having slightly higher annual production as a result of increased effective precipitation.

- **Dry Stony/ 9 to 15 in. p.z.:** This site commonly occupies south- and east-facing slopes. On good condition sites most of the annual production comes from bluebunch wheatgrass and Sandberg's bluegrass, while big sagebrush and a variety of native annual and perennial forbs account for about 25 percent and 15 percent of the annual production, respectively.
- **Cool Stony 9 to 15 in. p.z.:** This site is commonly found on north-facing hillsides. Bluebunch wheatgrass, Idaho fescue, Sandberg's bluegrass, and Cusick's bluegrass combine to account for about 60 percent of the annual production at this site, while big sagebrush production varies from 5-15 percent. A diverse community of native forbs is typically found on this ecological site, including penstemon, Indian paintbrush, balsamroot, and fleabane daisy.

Range Condition Status

Range condition assessments were completed at 273 sites across various pastures and ecological sites. Fisher's exact test (Zar 1984) was used to compare the distribution of range condition ratings for individual ecological sites with the overall distribution for all sites combined. For the combined assessments the distribution of range condition ratings was 19.4% poor, 31.5% fair, 38.5% good, and 10.6% excellent (Table B-2). Of the 22 ecological sites included in the assessments ten had at least one poor rating, 14 had at least one fair rating, 14 had at least one good rating, and six had at least one excellent rating. The distribution of ratings for three ecological sites (*viz.*, Very Shallow 9-15" p.z., Very Shallow 15"+ p.z., and Dry Loamy 6-9" p.z.) were significantly different from the overall distribution (Table B-2). All ratings for the Very Shallow ecological sites were good or excellent; the Dry Loamy ecological site had all ratings in poor range condition (Table B-2).

The majority (66%) of poor range condition ratings were given for Loamy and Dry Loamy ecological sites. Very Shallow ecological sites had no poor range condition ratings. The Very Shallow, Stony, and Cool Stony ecological sites received 76% of the excellent range condition ratings.

Total acreage of ecological sites by range condition class is shown in Table B-3. Range condition assessments were completed for approximately 95% of the surveyed area (excluding rock and riparian and forest sites). Ecological sites in poor condition account for 6.5% of the surveyed area, and 18.7% are in fair condition. Good and excellent condition ecological sites together amount to 69.9% of the surveyed area.

There was no statistically significant difference between the distributions of range condition ratings within individual pastures and the overall distribution of range condition ratings (Table B-4). The acreage of all ecological sites in each pasture by range condition class is shown in Table B-5. Acreage in poor condition ranged from 134 acres in Rocky Coulee to 534 in the Vantage Highway. Fair condition acreage ranged from 31 acres in Rocky Coulee to 2,346 acres in East Whiskey Dick. Acreage in good condition ranges from 749 acres in Upper Parke to 6,100 acres in West Whiskey Dick.

Table B-2 Summary of 273 range condition assessments conducted during the rangeland inventory process. Data are the number of assessments by ecological site assigned to various range condition classes, and number (and percent) for all ecological sites combined. (*P* values (where $n \geq 5$) are from Fisher's exact test for count data comparing distribution of range condition ratings for individual ecological sites with the overall distribution of range condition ratings. Bold entries indicate $P \leq 0.05$.)

Ecological Site	<i>n</i>	<i>P</i> value	Range Condition Class			
			Poor	Fair	Good	Excellent
Very Shallow, 6-9" p.z.	7	1.0	0 (0.0)	3 (42.9)	4 (57.1)	0 (0.0)
Very Shallow, 9-15" p.z.	14	0.001	0 (0.0)	0 (0.0)	14 (100.0)	0 (0.0)
Very Shallow, 15" + p.z.	10	0.024	0 (0.0)	0 (0.0)	4 (40.0)	6 (60.0)
Very Shallow Desert Pavement	3	-	0 (0.0)	0 (0.0)	0 (0.0)	3 (100.0)
Stony, 6-9" p.z.	1	-	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)
Stony, 9-15" p.z.	52	0.831	8 (15.4)	13 (25.0)	24 (46.2)	7 (13.5)
Stony, 15" +	6	0.061	0 (0.0)	0 (0.0)	6 (100.0)	0 (0.0)
Sandy, 6-9" p.z.	7	0.388	0 (0.0)	5 (71.4)	2 (28.6)	0 (0.0)
Alkali Bottom, 6-9" p.z.	1	-	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)
Loamy Bottom, 6-9" p.z.	1	-	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)
Loamy Bottom, 9-15" p.z.	9	0.170	4 (44.4)	5 (55.6)	0 (0.0)	0 (0.0)
Loamy, 6-9" p.z.	5	0.178	1 (20.0)	0 (0.0)	0 (0.0)	4 (80.0)
Loamy, 9-15" p.z.	39	0.280	9 (23.1)	13 (33.3)	17 (43.6)	0 (0.0)
Loamy, 15"+ p.z.	18	0.067	8 (44.4)	8 (44.4)	2 (11.1)	0 (0.0)
Dry Stony, 6-9" p.z.	9	0.440	0 (0.0)	5 (55.6)	4 (44.4)	0 (0.0)
Dry Stony, 9-15" p.z.	27	0.419	4 (14.8)	11 (40.7)	12 (44.4)	0 (0.0)
Dry Loamy, 6-9" p.z.	7	0.005	7 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)
Dry Loamy, 9-15" p.z.	14	0.069	10 (71.4)	1 (7.1)	3 (21.4)	0 (0.0)
Cool Stony, 6-9" p.z.	6	0.113	0 (0.0)	1 (16.7)	0 (0.0)	5 (83.3)
Cool Stony, 9-15" p.z.	26	0.125	1 (3.8)	15 (57.7)	6 (23.1)	4 (15.4)
Cool Stony, 15" + p.z.	5	0.167	0 (0.0)	0 (0.0)	5 (100.0)	0 (0.0)
Cool Loamy, 9-15" p.z.	6	0.740	0 (0.0)	4 (66.7)	2 (33.3)	0 (0.0)
All ecological sites combined	273		53 (19.4%)	86 (31.5%)	105 (38.5%)	29 (10.6%)

Table B-3 Summary of acreage in various range condition classes by ecological site. Data are the number of acres (and percent of overall acreage) by ecological site assigned to various range condition classes, and number (and percent) for all ecological sites combined. (T indicates < 0.1 percent.)

Ecological Site	Total Acres	Range Condition Class			
		Poor	Fair	Good	Excellent
Very Shallow, 6-9" p.z.	4,621 (8.3)	0 (0.0)	165 (0.3)	4,456 (8.0)	0 (0.0)
Very Shallow, 9-15" p.z.	14,029 (25.2)	0 (0.0)	0 (0.0)	14,029 (25.2)	0 (0.0)
Very Shallow, 15" + p.z.	1,720 (3.1)	0 (0.0)	0 (0.0)	520 (0.9)	1,200 (2.2)
Very Shallow Desert Pavement	421 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)	421 (0.8)
Stony, 6-9" p.z.	129 (0.2)	0 (0.0)	129 (0.2)	0 (0.0)	0 (0.0)
Stony, 9-15" p.z.	5,514 (9.9)	725 (1.3)	1,655 (3.0)	2,748 (4.9)	386 (0.7)
Stony, 15" +	343 (0.6)	0 (0.0)	0 (0.0)	343 (0.6)	0 (0.0)
Sandy, 6-9" p.z.	736 (1.3)	0 (0.0)	572 (1.0)	164 (0.3)	0 (0.0)
Alkali Bottom, 6-9" p.z.	21 (T)	0 (0.0)	21 (T)	0 (0.0)	0 (0.0)
Loamy Bottom, 6-9" p.z.	76 (0.1)	76 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)
Loamy Bottom, 9-15" p.z.	84 (0.2)	27 (T)	57 (0.1)	0 (0.0)	0 (0.0)
Loamy, 6-9" p.z.	1,457 (2.6)	81 (0.1)	0 (0.0)	0 (0.0)	1,376 (2.5)
Loamy, 9-15" p.z.	4,399 (7.9)	572 (1.0)	1,255 (2.3)	2,572 (4.6)	0 (0.0)
Loamy, 15"+ p.z.	1,411 (2.5)	462 (0.8)	891 (1.6)	58 (0.1)	0 (0.0)
Dry Stony, 6-9" p.z.	4,545 (8.2)	0 (0.0)	2,582 (4.6)	1,963 (3.5)	0 (0.0)
Dry Stony, 9-15" p.z.	5,153 (9.3)	136 (0.2)	633 (1.1)	4,384 (7.9)	0 (0.0)
Dry Loamy, 6-9" p.z.	796 (1.4)	796 (1.4)	0 (0.0)	0 (0.0)	0 (0.0)

Table B-3—Continued.

Ecological Site	Total Acres	Range Condition Class			
		Poor	Fair	Good	Excellent
Dry Loamy, 9-15" p.z.	935 (1.7)	702 (1.3)	155 (0.3)	78 (0.1)	0 (0.0)
Cool Stony, 6-9" p.z.	2,714 (4.9)	0 (0.0)	2 (T)	0 (0.0)	2,712 (4.9)
Cool Stony, 9-15" p.z.	3,180 (5.7)	59 (0.1)	2,094 (3.8)	297 (0.5)	730 (1.3)
Cool Stony, 15" + p.z.	371 (0.7)	0 (0.0)	0 (0.0)	371 (0.7)	0 (0.0)
Cool Loamy, 9-15" p.z.	307 (0.6)	0 (0.0)	184 (0.3)	123 (0.2)	0 (0.0)
Rock, riparian, forest	2,741 (4.9)	-	-	-	-
All sites combined	55,703	3,637 (6.5%)	10,394 (18.7%)	32,106 (57.6%)	6,825 (12.3%)

Table B-4 Summary of 273 range condition assessments by pasture. Data are the number (and percent) of assessments in each pasture assigned to various range condition classes, and number (and percent) for all pastures combined. (*P* values (where $n \geq 5$) are from Fisher's exact test for count data comparing the distribution of range condition ratings for individual pastures with the overall distribution of range condition ratings.)

Pasture	<i>n</i>	<i>P</i> value	Range Condition Class			
			Poor	Fair	Good	Excellent
Upper Parke	23	0.690	7 (30.4)	7 (30.4)	6 (26.1)	3 (13.0)
Lower Parke	19	1.000	5 (26.3)	7 (36.8)	6 (31.6)	1 (5.3)
Whiskey Jim	31	0.963	7 (22.6)	11 (35.5)	10 (32.3)	3 (9.7)
Vantage Highway	25	0.932	4 (16.0)	10 (40.0)	9 (36.0)	2 (8.0)
Wild Horse Crossing	12	0.918	2 (16.7)	2 (16.7)	7 (58.3)	1 (8.3)
North Wild Horse	15	0.590	3 (20.0)	2 (13.3)	9 (60.0)	1 (6.7)
South Wild Horse	26	0.807	5 (19.2)	11 (42.3)	8 (30.8)	2 (7.7)
Upper Skookumchuck	27	0.885	6 (22.2)	6 (22.2)	12 (44.4)	3 (11.1)
East Whiskey Dick	24	0.876	5 (20.8)	10 (41.7)	6 (25.0)	3 (12.5)
West Whiskey Dick	36	0.970	6 (16.7)	10 (27.8)	16 (44.4)	4 (11.1)
Rocky Coulee	15	0.834	1 (6.7)	4 (26.7)	8 (53.3)	2 (13.3)
Lone Star	20	0.732	2 (10.0)	6 (30.0)	8 (40.0)	4 (20.0)
All pastures combined	273		53 (19.4)	86 (31.5)	105 (38.5)	29 (10.6)

Table B-5 Summary of acreage in various range condition classes by pasture. Data are the number (and percent) of acres each pasture assigned to various range condition classes, and number (and percent) for all pastures combined. (The non-range acreage includes rock, forest, and riparian areas.)

Pasture	Total Acres	Non-Range Acres	Range Condition Class			
			Poor	Fair	Good	Excellent
Upper Parke	1,896	170 (9.0)	216 (11.4)	523 (27.6)	749 (39.5)	238 (12.6)
Lower Parke	1,750	65 (3.7)	290 (16.6)	482 (27.5)	910 (52.0)	3 (0.2)
Whiskey Jim	3,258	128 (3.9)	337 (10.3)	1,021 (31.3)	1,238 (38.0)	534 (16.4)
Vantage Highway	5,973	202 (3.4)	534 (8.9)	1,216 (20.4)	3,845 (64.4)	176 (2.9)
Wild Horse Crossing	1,570	64 (4.1)	165 (10.5)	315 (20.1)	938 (59.7)	88 (5.6)
North Wild Horse	5,538	241 (4.4)	278 (5.0)	838 (15.1)	3,257 (58.8)	924 (16.7)
South Wild Horse	3,833	25 (0.7)	276 (7.2)	919 (24.0)	2,587 (67.5)	26 (0.7)
Upper Skookumchuck	3,971	421 (10.6)	299 (7.5)	303 (7.6)	2,820 (71.0)	128 (3.2)
East Whiskey Dick	10,222	609 (6.0)	459 (4.5)	2,346 (23.0)	4,189 (41.0)	2,619 (25.6)
West Whiskey Dick	9,209	434 (4.7)	342 (3.7)	1,488 (16.2)	6,100 (66.2)	845 (9.2)
Rocky Coulee	3,049	74 (2.4)	134 (4.4)	31 (1.0)	2,663 (87.3)	147 (4.8)
Lone Star	5,434	308 (5.7)	307 (5.6)	912 (16.8)	2,810 (51.7)	1,097 (20.2)
All pastures combined	55,703	2,741 (4.9)	3,637 (6.5)	10,394 (18.7)	32,106 (57.6)	6,825 (12.3)

Rangeland Health Status

A total of 251 rangeland health assessments of 20 ecological sites were completed. For each of the three rangeland health attributes the greatest number of ratings was in the slight to moderate departure class (Table B-6). There were no ratings indicating extreme to total departure from reference conditions for any of the rangeland health attributes. The distribution of ratings for soil/site stability and hydrologic function were very similar; the distribution of ratings for biotic integrity was the only rangeland health attribute that showed ratings (6.4%) of moderate to extreme departure from the reference conditions given in the ecological site descriptions. Biotic integrity received fewer ratings of none to slight and slight to moderate departure, and more ratings for moderate and moderate to extreme departure from reference conditions than both soil/site stability and hydrologic function. Ratings in the slight to moderate or none to slight departure classes totaled 88.5% for soil/site stability, 82.9% for hydrologic function, and 72.5 percent for biotic integrity.

Fisher's exact test (Zar 1984) was used to compare the distribution of rangeland health assessments for individual ecological sites with five or more observations with the overall distribution for all sites combined (Table B-6). Ten ecological sites had rating distributions that were significantly different from the overall distribution for at least one rangeland health attribute (Table B-6). The Very Shallow 9-15" p.z. ecological site had nearly twice the percentage of assessments in the slight to moderate departure class for all three rangeland health attributes compared to the overall distribution. For the soil/site stability attribute, the percentage of ratings in the none to slight departure class for the Dry Stony 9-15" p.z. ecological sites was more than twice the overall distribution (Table B-6). For the hydrologic function attribute, the Loamy 9-15" p.z. ecological site had a lower percentage of ratings showing slight to moderate departure and a greater percentage of moderate departure ratings than the overall distribution; the Dry Loamy 9-15" p.z. ecological site had twice as many ratings in the slight to moderate departure class compared to the overall distribution. For the biotic integrity attribute nine ecological sites had rating distributions that were significantly different from the overall distribution of ratings (Table B-6). Six ecological sites (viz., Very Shallow 9-15" p.z., Very Shallow 15"+ p.z., Stony 15"+ p.z., Loamy 15"+ p.z., Dry Stony 9-15" p.z., and Cool Stony 9-15" p.z.) had ratings in the slight to moderate and none to slight departure classes that were approximately twice that of the overall distribution. The Stony 9-15" p.z. had a higher percentage of ratings in the moderate departure class than the overall distribution. The acreage of ecological sites in various rangeland health classes is shown in Table B-7.

The distribution of rangeland health assessments for individual pastures did not differ significantly from the overall distribution (Table B-8). The acreage in various rangeland health assessment classes by pasture is shown in Table B-9. Acreage in the combined slight to moderate and none to slight departure classes total 95.3% for the soil/site stability attribute, 92.9% for the hydrologic function attribute, and 87.2% for the biotic integrity attribute.

Table B-6 Summary of 251 rangeland health assessments completed during the rangeland inventory process. Data are percentages of assessments in various rating classes for rangeland health attributes (soil/site stability, hydrologic function, and biotic integrity) at 20 ecological sites, and percentages (and totals) for all sites combined. Rangeland health attribute ratings (i.e., departure from expected conditions) are: M-E (moderate to extreme); M (moderate); S-M (slight to moderate); N-S (none to slight). For ecological sites with $n \geq 5$ the distribution of ratings among classes for each rangeland health attribute was compared to the overall distribution with Fisher exact test. Significant differences ($P \leq 0.05$) between the distribution for a particular ecological site and the overall distribution are indicated in bold.

Ecological Site	n	P value	Soil/Site Stability			P value	Hydrologic Function			P value	Biotic Integrity			
			M	S-M	N-S		M	S-M	N-S		M-E	M	S-M	N-S
Very Shallow, 6-9" p.z.	3	-	-	100.0	-	-	-	100.0	-	-	-	100.0	-	-
Very Shallow, 9-15" p.z.	14	0.006	-	100.0	-	0.006	-	100.0	-	0.006	-	-	100.0	-
Very Shallow, 15"+ p.z.	10	1.000	-	60.0	40.0	0.650	-	60.0	40.0	0.001	-	-	-	100.0
Stony, 6-9" p.z.	1	-	-	100.0	-	-	-	100.0	-	-	-	-	100.0	-
Stony, 9-15" p.z.	52	0.062	13.5	73.1	13.5	0.077	21.2	65.4	13.5	0.011	-	38.5	53.9	7.7
Stony, 15"+ p.z.	6	1.000	-	66.7	33.3	0.061	-	-	100.0	0.015	-	-	-	100.0
Sandy, 6-9" p.z.	2	-	-	-	100.0	-	-	100.0	-	-	-	-	100.0	-
Loamy Bottom, 9-15" p.z.	9	1.000	11.1	44.4	44.4	0.261	33.3	66.7	-	0.213	22.2	-	77.8	-
Loamy, 6-9" p.z.	5	0.372	-	20.0	80.0	0.221	20.0	-	80.0	0.286	-	-	20.0	80.0
Loamy, 9-15" p.z.	39	0.300	23.1	38.5	38.5	0.013	41.0	20.5	38.5	0.220	17.9	23.1	30.8	28.2
Loamy, 15"+ p.z.	18	0.298	22.2	66.7	11.1	0.344	22.2	66.7	11.1	0.001	-	-	100.0	-
Dry Stony, 9-15" p.z.	27	0.021	14.8	18.5	66.7	0.071	14.8	22.2	63.0	0.003	-	14.8	85.2	-
Dry Loamy, 6-9" p.z.	7	0.192	-	100.0	-	0.298	42.9	57.1	-	0.001	100.0	-	-	-
Dry Loamy, 9-15" p.z.	13	0.130	23.1	76.9	-	0.015	-	100.0	-	0.001	-	100.0	-	-
Cool Stony, 6-9" p.z.	6	0.061	-	-	100.0	0.242	-	16.7	83.3	0.182	-	-	100.0	-

Table B-6—Continued.

Ecological Site	n	P value	Soil/Site Stability			P value	Hydrologic Function			P value	Biotic Integrity			
			M	S-M	N-S		M	S-M	N-S		M-E	M	S-M	N-S
Cool Stony, 9-15" p.z.	26	0.333	-	69.2	30.8	0.079	-	50.0	50.0	0.001	-	11.5	-	88.5
Cool Stony, 15"+ p.z.	5	0.106	-	-	100.0	0.106	-	-	100.0	0.167	-	-	100.0	-
Cool Loamy, 9-15" p.z.	6	0.567	-	33.3	66.70	0.567	-	33.3	66.7	0.351	-	-	33.3	66.7
Ponderosa Pine	1	-	-	100.0	-	-	-	100.0	-	-	-	-	100.0	-
Riparian	1	-	100.0	-	-	-	100.0	-	-	-	-	100.0	-	-
All sites combined	251		11.6 (29)	56.2 (141)	32.3 (81)		17.1 (43)	50.2 (126)	32.7 (82)		6.4 (16)	21.1 (53)	47.8 (120)	24.7 (62)

Table B-7 Summary of acreage in various rangeland health assessment classes by ecological site. Data are the number of acres in various rating classes for rangeland health attributes (soil/site stability, hydrologic function, and biotic integrity), and number of acres (and percent) for all sites combined. Rangeland health attribute ratings (i.e., departure from expected conditions) are: M-E (moderate to extreme); M (moderate); S-M (slight to moderate); N-S (none to slight). (T indicates < 0.1 percent.)

Ecological Site	Total Acres	Soil/Site Stability			Hydrologic Function			Biotic Integrity			
		M	S-M	N-S	M	S-M	N-S	M-E	M	S-M	N-S
Very Shallow, 6-9" p.z.	165 (0.4)	-	165 (0.4)	-	-	165 (0.4)	-	-	165 (0.4)	-	-
Very Shallow, 9-15" p.z.	14,029 (32.8)	-	14,029 (32.8)	-	-	14,029 (32.8)	-	-	14,029 (32.8)	-	-
Very Shallow, 15"+ p.z.	1,720 (4.0)	-	1,200 (2.8)	520 (1.2)	-	1,200 (2.8)	520 (1.2)	-	-	-	1,720 (4.0)
Stony, 6-9" p.z.	129 (0.3)	-	129 (0.3)	-	-	129 (0.3)	-	-	-	129 (0.3)	-
Stony, 9-15" p.z.	5,514 (12.9)	713 (1.7)	3,685 (8.6)	1,116 (2.6)	855 (2.0)	3,543 (8.3)	1,116 (2.6)	-	1,842 (4.3)	3,182 (7.4)	490 (1.1)
Stony, 15"+ p.z.	343 (0.8)	-	270 (0.6)	73 (0.2)	-	-	343 (0.8)	-	-	-	343 (0.8)
Sandy, 6-9" p.z.	164 (0.4)	-	-	164 (0.4)	-	164 (0.4)	-	-	-	164 (0.4)	-
Loamy Bottom, 9-15" p.z.	84 (0.2)	3 (T)	27 (0.1)	54 (0.1)	23 (0.1)	61 (0.1)	-	20 (T)	-	64 (0.1)	-
Loamy, 6-9" p.z.	1,457 (3.4)	-	81 (0.2)	1,376 (3.2)	81 (0.2)	-	1,376 (3.2)	-	-	81 (0.2)	1,376 (3.2)
Loamy, 9-15" p.z.	4,399 (10.3)	701 (1.6)	1,392 (3.3)	2,306 (5.4)	1,436 (3.4)	657 (1.5)	2,306 (5.4)	735 (1.7)	573 (1.3)	1,080 (2.5)	2,011 (4.7)
Loamy, 15"+ p.z.	1,411 (3.3)	347 (0.8)	1,006 (2.3)	58 (0.1)	347 (0.8)	1,006 (2.3)	58 (0.1)	-	-	1,411 (3.3)	-
Dry Stony, 9-15" p.z.	5,153 (12.0)	136 (0.3)	315 (0.7)	4,702 (11.0)	136 (0.3)	432 (1.0)	4,585 (10.7)	-	136 (0.3)	5,017 (11.7)	-
Dry Loamy, 6-9" p.z.	796 (1.9)	-	796 (1.9)	-	124 (0.3)	672 (1.6)	-	796 (1.9)	-	-	-
Dry Loamy, 9-15" p.z.	780 (1.8)	78 (0.2)	702 (1.6)	-	-	780 (1.8)	-	-	780 (1.8)	-	-
Cool Stony, 6-9" p.z.	2,714 (6.3)	-	-	2,714 (6.3)	-	2 (0.0)	2,714 (6.3)	-	-	2,714 (6.3)	-

Table B-7—Continued.

Ecological Site	Total Acres	Soil/Site Stability			Hydrologic Function			Biotic Integrity			
		M	S-M	N-S	M	S-M	N-S	M-E	M	S-M	N-S
Cool Stony, 9-15" p.z.	3,180 (7.4)	-	2,186 (5.1)	994 (2.3)	-	2,037 (4.8)	1,143 (2.7)	-	348 (0.8)	2,832 (6.6)	-
Cool Stony, 15"+ p.z.	371 (0.9)	-	-	371 (0.9)	-	-	371 (0.9)	-	-	371 (0.9)	-
Cool Loamy, 9-15" p.z.	307 (0.7)	-	123 (0.3)	184 (0.4)	-	123 (0.3)	184 (0.4)	-	-	123 (0.3)	184 (0.4)
Ponderosa Pine	67 (0.2)	-	67 (0.2)	-	-	67 (0.2)	-	-	-	67 (0.2)	-
Riparian	30 (0.1)	30 (0.1)	-	-	30 (0.1)	-	-	-	30 (0.1)	-	-
All sites combined	42,813	2,008 (4.7)	26,173 (61.1)	14,632 (34.2)	3,032 (7.1)	25,067 (58.5)	14,714 (34.4)	1,551 (3.6)	17,903 (41.8)	17,235 (40.3)	6,124 (14.3)

Table B-8 Summary of 251 rangeland health assessments completed during the rangeland inventory process. Data are percentages of assessments in various rating classes for rangeland health attributes (soil/site stability, hydrologic function, and biotic integrity) at 12 pastures, and percentages (and totals) for all pastures combined. Rangeland health attribute ratings (i.e., departure from expected conditions) are: M-E (moderate to extreme); M (moderate); S-M (slight to moderate); N-S (none to slight). *P* values are from Fisher exact test for count data comparing the distribution of ratings among classes for rangeland health attributes for each pasture with to the overall distribution.

Pasture	<i>n</i>	<i>P</i> value	Soil/Site Stability			<i>P</i> value	Hydrologic Function			<i>P</i> value	Biotic Integrity			
			M	S-M	N-S		M	S-M	N-S		M-E	M	S-M	N-S
Upper Parke	24	0.711	12.5	66.7	20.8	1.000	16.7	50.0	33.3	0.717	-	29.2	45.8	25.0
Lower Parke	20	0.819	20.0	55.0	25.0	0.607	30.0	40.0	30.0	0.765	10.0	30.0	45.0	15.0
Whiskey Jim.	31	0.650	9.7	67.7	22.6	1.000	16.1	51.6	32.3	1.000	3.2	22.6	48.4	25.8
Vantage Highway	25	0.857	20.0	52.0	28.0	0.867	24.0	48.0	28.0	0.804	4.0	32.0	44.0	20.0
Wild Horse Crossing	12	1.000	8.3	58.3	33.3	1.000	8.3	50.0	41.7	0.263	-	-	66.7	33.3
North Wild Horse	15	1.000	6.7	60.0	33.3	0.776	6.7	53.3	40.0	0.605	-	6.7	53.3	40.0
South Wild Horse	25	0.685	20.0	56.0	24.0	0.498	28.0	52.0	20.0	1.000	4.0	24.0	52.0	20.0
Upper Skookumchuck	23	0.349	8.7	39.1	52.2	0.544	17.4	34.8	47.8	0.810	13.0	17.4	39.1	30.4
East Whiskey Dick	16	0.776	6.3	50.0	43.8	1.000	25.0	50.0	25.0	0.830	18.8	12.5	50.0	18.8
West Whiskey Dick	32	0.574	6.3	53.1	40.6	0.887	12.5	50.0	37.5	0.926	9.4	15.6	46.9	28.1
Rocky Coulee	14	1.000	7.1	57.1	35.7	0.379	-	71.4	28.6	1.000	-	21.4	57.1	21.4
Lone Star	14	1.000	7.1	57.1	35.7	0.758	7.1	64.3	28.6	0.903	14.3	28.6	35.7	21.4
All pastures combined	251		11.6 (29)	56.2 (141)	32.3 (81)		17.1 (43)	50.2 (126)	32.7 (82)		6.4 (16)	21.1 (53)	47.8 (120)	24.7 (62)

Table B-9 Summary of acreage in various rangeland health assessment classes by pasture. Data are the number (and percent overall) of acres in various pastures and rating classes for rangeland health attributes (soil/site stability, hydrologic function, and biotic integrity) and for all sites combined. Rangeland health attribute ratings (i.e., departure from expected conditions) are: M-E (moderate to extreme); M (moderate); S-M (slight to moderate); N-S (none to slight). (T indicates < 0.1 percent.)

Pasture	Total Acres	Soil/Site Stability			Hydrologic Function			Biotic Integrity			
		M	S-M	N-S	M	S-M	N-S	M-E	M	S-M	N-S
Upper Parke	1,793 (4.2)	167 (0.4)	1,313 (3.1)	313 (0.7)	172 (0.4)	1,182 (2.8)	439 (1.0)	0 (0.0)	518 (1.2)	864 (2.0)	411 (1.0)
Lower Parke	1,715 (4.0)	264 (0.6)	1,122 (2.6)	329 (0.8)	302 (0.7)	1,070 (2.5)	343 (0.8)	80 (0.2)	334 (0.8)	1,269 (3.0)	32 (0.1)
Whiskey Jim.	3,130 (7.3)	266 (0.6)	2,292 (5.4)	572 (1.3)	293 (0.7)	2,214 (5.2)	623 (1.5)	4 (T)	979 (2.3)	1,445 (3.4)	702 (1.6)
Vantage Highway	5,771 (13.5)	314 (0.7)	4,328 (10.1)	1,129 (2.6)	738 (1.7)	3,904 (9.1)	1,129 (2.6)	348 (0.8)	684 (1.6)	4,474 (10.5)	265 (0.6)
Wild Horse Crossing	1,506 (3.5)	95 (0.2)	970 (2.3)	441 (1.0)	95 (0.2)	928 (2.2)	483 (1.1)	0 (0.0)	0 (0.0)	1,211 (2.8)	295 (0.7)
North Wild Horse	5,297 (12.4)	234 (0.5)	4,127 (9.6)	936 (2.2)	234 (0.5)	3,941 (9.2)	1,122 (2.6)	0 (0.0)	6 (T)	3,302 (7.7)	1,989 (4.6)
South Wild Horse	3,653 (8.5)	479 (1.1)	2,324 (5.4)	850 (2.0)	621 (1.5)	2,304 (5.4)	728 (1.7)	121 (0.3)	295 (0.7)	2,873 (6.7)	364 (0.9)
Upper Skookumchuck	3,209 (7.5)	40 (0.1)	1,615 (3.8)	1,554 (3.6)	150 (0.4)	1,622 (3.8)	1,437 (3.4)	169 (0.4)	196 (0.5)	1,896 (4.4)	948 (2.2)
East Whiskey Dick	3,649 (8.5)	21 (T)	882 (2.1)	2,746 (6.4)	219 (0.5)	839 (2.0)	2,591 (6.1)	347 (0.8)	151 (0.4)	2,100 (4.9)	1,051 (2.5)
West Whiskey Dick	7,699 (18.0)	67 (0.2)	4,412 (10.3)	3,220 (7.5)	174 (0.4)	4,332 (10.1)	3,193 (7.5)	265 (0.6)	232 (0.5)	5,315 (12.4)	1,887 (4.4)
Rocky Coulee	2,964 (6.9)	55 (0.1)	1,695 (4.0)	1,214 (2.8)	0 (0.0)	1,767 (4.1)	1,197 (2.8)	0 (0.0)	290 (0.7)	1,966 (4.6)	706 (1.6)
Lone Star	2,427 (5.7)	6 (T)	1,139 (2.7)	1,282 (3.0)	34 (0.1)	1,126 (2.6)	1,267 (3.0)	259 (0.6)	228 (0.5)	1,183 (2.8)	757 (1.8)
All pastures combined	42,813	2,008 (4.7)	26,219 (61.2)	14,586 (34.1)	3,032 (7.1)	25,229 (58.9)	14,552 (34.0)	1,593 (3.7)	3,913 (9.1)	27,898 (65.2)	9,407 (22.0)

Vegetation State Status

For ecological sites that support Wyoming big sagebrush/bluebunch wheatgrass plant communities (16 ecological sites) 229 assessments of current vegetation state were completed (Table B-10). A total of 178 (77.7%) assessments were as rated as representing one of the three plant communities characteristic of State 1 (i.e., plant communities dominated by native species) vegetation; 51 (22.3%) assessments were rated as representing one of the plant communities characteristic of State 2 (i.e., plant communities dominated primarily by invasive annual species). Fisher's exact test (Zar 1984) was used to compare the distribution of vegetation state assessments for individual ecological sites with five or more observations with the overall distribution for all sites combined (Table B-10). The distribution of ratings for five ecological sites showed significant differences relative to the overall distribution. The Loamy 9-15" p.z. ecological site had a lower percentage of ratings in vegetation state 1C (i.e., depauperate Wyoming big sagebrush steppe) and a higher percentage of ratings in vegetation state 2A (i.e., communities dominated by invasive annual plant species). The Loamy 15" p.z. ecological site and the Dry Stony 9-15" p.z. ecological site each had a higher percentage of ratings in vegetation state 1C (i.e., depauperate Wyoming big sagebrush steppe) relative to the overall distribution. significantly more ratings in state 1C (i.e., depauperate Wyoming big sagebrush communities) and fewer ratings in state 1A. All ratings for the Dry Loamy 6-9" p.z. ecological site were in state 2A (i.e., communities dominated by invasive annual plant species). The percentage of vegetation state assessments for the Cool Stony 9-15" p.z. ecological site in vegetation state 1A (i.e., perennial bunchgrasses with sparse Wyoming big sagebrush) was more than twice the percentage in the overall distribution. Acreage of ecological sites in various vegetation states is shown in Table B-11. Acreage of plant communities in Vegetation State 1 accounts for 87.2% of the area that supports Wyoming big sagebrush/bluebunch wheatgrass plant communities. The distribution of assessments of current vegetation state for all ecological sites by individual pastures did not differ significantly relative to the overall distribution (Table B-12). Acreage of ecological sites in various vegetation states by pasture is shown in Table B-13.

Table B-10 Summary of 229 assessments of current vegetation state and associated plant community based on species composition of Wyoming big sagebrush/bluebunch wheatgrass stands in various ecological sites. Data are number (and percent) of sites in various vegetation states by ecological site and all ecological sites combined. (*P* values (where *n* ≥ 5) are from Fisher exact test for count data comparing distribution of vegetation state ratings for individual ecological sites with the overall distribution of ratings. Bold entries indicate *P* ≤ 0.05.)

Ecological Site	<i>n</i>	<i>P</i> value	Vegetation State				
			State 1			State 2	
			1A ^a	1B ^b	1C ^c	2A ^d	2B ^e
Stony, 6-9" p.z.	1	-	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)
Stony, 9-15" p.z.	52	0.231	21 (40.4)	8 (15.4)	15 (28.8)	8 (15.4)	0 (0.0)
Stony, 15"+ p.z.	6	0.182	6 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Sandy, 6-9" p.z.	7	0.217	0 (0.0)	0 (0.0)	5 (71.4)	2 (28.6)	0 (0.0)
Loamy, 6-9" p.z.	5	0.683	4 (80.0)	0 (0.0)	0 (0.0)	1 (20.0)	0 (0.0)
Loamy, 9-15" p.z.	39	0.042	19 (48.7)	0 (0.0)	5 (12.8)	15 (38.5)	0 (0.0)
Loamy, 15"+ p.z.	18	0.050	2 (11.1)	0 (0.0)	13 (72.2)	3 (16.7)	0 (0.0)
Loamy Bottom, 9-15" p.z.	1	-	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Dry Stony, 6-9" p.z.	9	0.540	4 (44.4)	0 (0.0)	5 (55.6)	0 (0.0)	0 (0.0)
Dry Stony, 9-15" p.z.	27	0.001	0 (0.0)	0 (0.0)	22 (81.5)	5 (18.5)	0 (0.0)
Dry Loamy, 6-9" p.z.	7	0.005	0 (0.0)	0 (0.0)	0 (0.0)	7 (100.0)	0 (0.0)
Dry Loamy, 9-15" p.z.	14	0.568	1 (7.1)	0 (0.0)	3 (21.4)	0 (0.0)	10 (71.4)
Cool Stony, 6-9" p.z.	6	0.546	5 (83.3)	0 (0.0)	1 (16.7)	0 (0.0)	0 (0.0)
Cool Stony, 9-15" p.z.	26	0.002	23 (88.5)	0 (0.0)	3 (11.5)	0 (0.0)	0 (0.0)
Cool Stony, 15"+ p.z.	5	0.167	5 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Cool Loamy, 9-15" p.z.	6	0.182	6 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
All ecological sites combined	229		97 (42.4)	8 (3.5)	73 (31.9)	41 (17.9)	10 (4.4)
^a Perennial bunchgrasses with sparse Wyoming big sagebrush ^b Native perennial bunchgrasses dominate ^c Depauperate Wyoming big sagebrush steppe ^d Invasive annual species dominate ^e Invasive annuals co-dominant with Wyoming big sagebrush							

Table B-11 Summary of acreage in current vegetation state of Wyoming big sagebrush/bluebunch wheatgrass stands by ecological site. Data are the number of acres (and percent of overall acreage) in various vegetation states by ecological site and for all ecological sites combined. (T indicates < 0.1%; see Table 9 for vegetation state definitions.)

Ecological Site	Total Acres	Vegetation State				
		State 1			State 2	
		1A	1B	1C	2A	2B
Stony, 6-9" p.z.	129 (0.4)	0 (0.0)	0 (0.0)	129 (0.4)	0 (0.0)	0 (0.0)
Stony, 9-15" p.z.	5,514 (17.2)	2,214 (6.9)	402 (1.3)	2,173 (6.8)	725 (2.3)	0 (0.0)
Stony, 15"+ p.z.	343 (1.1)	343 (1.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Sandy, 6-9" p.z.	736 (2.3)	0 (0.0)	0 (0.0)	572 (1.8)	164 (0.5)	0 (0.0)
Loamy, 6-9" p.z.	1,457 (4.6)	1,376 (4.3)	0 (0.0)	0 (0.0)	81 (0.3)	0 (0.0)
Loamy, 9-15" p.z.	4,399 (13.7)	2,796 (8.7)	0 (0.0)	274 (0.9)	1,329 (4.2)	0 (0.0)
Loamy, 15"+ p.z.	1,411 (4.4)	58 (0.2)	0 (0.0)	1,242 (3.9)	111 (0.3)	0 (0.0)
Loamy Bottom, 9-15" p.z.	3 (T)	3 (T)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Dry Stony, 6-9" p.z.	4,545 (14.2)	1,963 (6.1)	0 (0.0)	2,582 (8.1)	0 (0.0)	0 (0.0)
Dry Stony, 9-15" p.z.	5,153 (16.1)	0 (0.0)	0 (0.0)	4,952 (15.5)	201 (0.6)	0 (0.0)
Dry Loamy, 6-9" p.z.	796 (2.5)	0 (0.0)	0 (0.0)	0 (0.0)	796 (2.5)	0 (0.0)
Dry Loamy, 9-15" p.z.	935 (2.9)	155 (0.5)	0 (0.0)	78 (0.2)	0 (0.0)	702 (2.2)
Cool Stony, 6-9" p.z.	2,714 (8.5)	2,712 (8.5)	0 (0.0)	2 (T)	0 (0.0)	0 (0.0)
Cool Stony, 9-15" p.z.	3,180 (9.9)	3,064 (9.6)	0 (0.0)	116 (0.4)	0 (0.0)	0 (0.0)
Cool Stony, 15"+ p.z.	371 (1.2)	371 (1.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Cool Loamy, 9-15" p.z.	307 (1.0)	307 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
All ecological sites combined	31,993	15,362 (48.0)	402 (1.3)	12,120 (37.9)	3,407 (10.6)	702 (2.2)

Table B-12 Summary of 229 assessments of current vegetation state and associated plant community based on species composition of Wyoming big sagebrush/bluebunch wheatgrass stands in various pastures. Data are number (and percent) of sites in various vegetation states by individual pasture and all pastures combined. (*P* values are from Fisher exact test for count data comparing distribution of vegetation state ratings for individual pastures with the overall distribution of ratings.)

Pasture	<i>n</i>	<i>P</i> value	Vegetation State				
			State 1			State 2	
			1A ^a	1B ^b	1C ^c	2A ^d	2B ^e
Upper Parke	20	1.000	8 (40.0)	1 (5.0)	6 (30.0)	4 (20.0)	1 (5.0)
Lower Parke	17	0.861	5 (29.4)	0 (0.0)	7 (41.2)	4 (23.5)	1 (5.9)
Whiskey Jim	27	0.966	13 (48.1)	1 (3.7)	8 (29.6)	4 (14.8)	1 (3.7)
Vantage Highway	23	1.000	9 (39.1)	1 (4.3)	8 (34.8)	4 (17.4)	1 (4.3)
Wild Horse Crossing	10	0.836	6 (60.0)	0 (0.0)	3 (30.0)	1 (10.0)	0 (0.0)
North Wild Horse	12	0.857	7 (58.3)	0 (0.0)	3 (25.0)	1 (8.3)	1 (8.3)
South Wild Horse	22	1.000	8 (36.4)	1 (4.5)	8 (36.4)	4 (18.2)	1 (4.5)
Upper Skookumchuck	23	1.000	10 (43.5)	1 (4.3)	6 (26.1)	5 (21.7)	1 (4.3)
East Whiskey Dick	17	0.604	5 (29.4)	0 (0.0)	7 (41.2)	5 (29.4)	0 (0.0)
West Whiskey Dick	30	0.970	14 (46.7)	1 (3.3)	8 (26.7)	6 (20.0)	1 (3.3)
Rocky Coulee	12	0.773	6 (50.0)	1 (8.3)	4 (33.3)	0 (0.0)	1 (8.3)
Lone Star	16	1.000	6 (37.5)	1 (6.3)	5 (31.3)	3 (18.8)	1 (6.3)
All pastures combined	229		97 (42.4)	8 (3.5)	73 (31.9)	41 (17.9)	10 (4.4)
^a Perennial bunchgrasses with sparse sagebrush ^b Native perennial bunchgrasses dominate ^c Depauperate big sagebrush steppe ^d Invasive annual species dominate ^e Invasive annuals co-dominant with sagebrush							

Table B-13 Summary of acreage in current vegetation states of Wyoming big sagebrush/bluebunch wheatgrass stands by pasture. Data are the number of acres and percent of overall acreage) in various vegetation states by individual pasture and for all pastures combined. (See Table 11 for vegetation state definitions; T indicates < 0.1 percent.)

Pasture	Total Acres	Vegetation State				
		State 1			State 2	
		1A	1B	1C	2A	2B
Upper Parke	1,116 (3.5)	440 (1.4)	14 (T)	452 (1.4)	172 (0.5)	38 (0.1)
Lower Parke	1,008 (3.2)	138 (0.4)	0 (0.0)	544 (1.7)	286 (0.9)	40 (0.1)
Whiskey Jim	2,078 (6.5)	1,122 (3.5)	62 (0.2)	521 (1.6)	322 (1.0)	51 (0.2)
Vantage Highway	3,302 (10.3)	762 (2.4)	36 (0.1)	1,578 (4.9)	686 (2.1)	240 (0.8)
Wild Horse Crossing	977 (3.1)	314 (1.0)	0 (0.0)	593 (1.9)	70 (0.2)	0 (0.0)
North Wild Horse	2,271 (7.1)	1,387 (4.3)	0 (0.0)	840 (2.6)	38 (0.1)	6 (T)
South Wild Horse	2,103 (6.6)	800 (2.5)	13 (T)	910 (2.8)	374 (1.2)	6 (T)
Upper Skookumchuck	2,017 (6.3)	1,120 (3.5)	16 (0.1)	654 (2.0)	211 (0.7)	16 (0.1)
East Whiskey Dick	6,349 (19.8)	3,463 (10.8)	0 (0.0)	2,309 (7.2)	577 (1.8)	0 (0.0)
West Whiskey Dick	5,534 (17.3)	2,952 (9.2)	60 (0.2)	2,036 (6.4)	397 (1.2)	89 (0.3)
Rocky Coulee	1,915 (6.0)	1,122 (3.5)	101 (0.3)	558 (1.7)	0 (0.0)	134 (0.4)
Lone Star	3,323 (10.4)	1,742 (5.4)	100 (0.3)	1,125 (3.5)	274 (0.9)	82 (0.3)
All pastures combined	31,993	15,362 (48.0)	402 (1.3)	12,120 (37.9)	3,407 (10.6)	702 (2.2)

The following tables summarize, by individual pasture, some of the information gathered during the rangeland inventory for the Wild Horse CRM and for the Quilomene/Whiskey Dick Wildlife Area grazing permit. Data included in the tables was used in the above summaries range condition, rangeland health, and vegetation state assessments.

Table B-14 Summary of rangeland health and range condition assessments from the Upper Parke pasture. Columns show ecological sites, precipitation zones, acreage, estimated production, similarity index (i.e., the percentage of a specific vegetation state plant community presently on the site), and range condition. Rangeland Health Attribute ratings (i.e., departure from expected conditions) are: N-S (none to slight); S-M (slight to moderate); M (moderate); M-E (moderate to extreme). Vegetation State refers to the sagebrush-steppe state and transition model shown in Figure 1-1.

Ecological Site	Precipitation Zone (in.)	Acres	Vegetation Production		Similarity Index (%)	Range Condition	Rangeland Health Attributes			Vegetation State
			Total (lbs./ac.)	Forage (lb./ac.)			Soil and Site Stability	Hydrologic Function	Biotic Integrity	
Cool Loamy	9 to 15	61	1,200	780	45	Fair	N-S	N-S	N-S	1A
Cool Stony	15+	11	800	624	53	Good	N-S	N-S	S-M	1A
Cool Stony	9 to 15	210	900	819	77	Excellent	N-S	N-S	N-S	1A
Cool Stony	9 to 15	13	500	350	41	Fair	S-M	S-M	M	1A
Cool Stony	9 to 15	57	900	657	63	Good	S-M	N-S	N-S	1A
Cool Stony	9 to 15	35	900	760	63	Good	S-M	N-S	N-S	1A
Dry Loamy	9 to 15	38	300	177	6	Poor	S-M	S-M	M	2B
Dry Stony	9 to 15	2	350	195	34	Fair	S-M	S-M	S-M	1C
Forested	15+	11	750	735	-	-	-	-	-	-
Forested	15+	67	400	372	-	-	S-M	S-M	S-M	-
Loamy	15+	111	1,300	1,105	38	Fair	S-M	S-M	S-M	1C
Loamy	15+	40	1,000	800	45	Fair	S-M	S-M	S-M	1C
Loamy	15+	19	1,100	880	66	Good	N-S	N-S	S-M	1A
Loamy	15+	3	1,200	660	15	Poor	M	M	S-M	1C
Loamy	15+	3	900	558	9	Poor	S-M	S-M	S-M	2A
Loamy	9 to 15	12	1,100	682	45	Fair	N-S	N-S	S-M	1C
Loamy	9 to 15	4	1,100	495	17	Poor	M	M	M	2A
Loamy Bottom	9 to 15	3	500	485	10	Poor	S-M	S-M	S-M	-
Stony	15+	34	600	480	58	Good	S-M	N-S	N-S	1A
Stony	9 to 15	14	400	88	79	Excellent	S-M	S-M	M	1B
Stony	9 to 15	284	750	457	27	Fair	S-M	S-M	M	1C
Stony	9 to 15	160	550	187	11	Poor	M	M	M	2A
Stony	9 to 15	5	800	504	19	Poor	S-M	M	M	2A
Very Shallow	15+	14	300	210	84	Excellent	S-M	S-M	N-S	-
Very Shallow	9 to 15	593	150	95	73	Good	S-M	S-M	S-M	-
Rock	15+	92	0	0	-	-	-	-	-	-

Table B-15 Summary of rangeland health and range condition assessments from the Lower Parke pasture. Columns show ecological sites, precipitation zones, acreage, estimated production, similarity index (i.e., the percentage of a specific vegetation state plant community presently on the site), and range condition. Rangeland Health Attribute ratings (i.e., departure from expected conditions) are: N-S (none to slight); S-M (slight to moderate); M (moderate); M-E (moderate to extreme). Vegetation State refers to the sagebrush-steppe state and transition model shown in Figure 1-1.

Ecological Site	Precipitation Zone (in.)	Acres	Vegetation Production		Similarity Index (%)	Range Condition	Rangeland Health Attributes			Vegetation State
			Total (lbs./ac.)	Forage (lb./ac.)			Soil and Site Stability	Hydro-logic Function	Biotic Integrity	
Cool Stony	9 to 15	3	900	819	77	Excellent	N-S	N-S	N-S	1A
Cool Stony	9 to 15	14	900	760	63	Good	S-M	N-S	N-S	1A
Dry Loamy	9 to 15	40	300	177	6	Poor	S-M	S-M	M	2B
Dry Stony	9 to 15	42	450	404	42	Fair	N-S	N-S	S-M	2A
Dry Stony	9 to 15	114	300	225	65	Good	N-S	N-S	S-M	1C
Dry Stony	9 to 15	12	300	120	20	Poor	M	M	M	1C
Loamy	15+	71	1,000	800	45	Fair	S-M	S-M	S-M	1C
Loamy	9 to 15	155	1,100	682	45	Fair	N-S	N-S	S-M	1C
Loamy	9 to 15	22	650	214	66	Fair	S-M	M	M-E	2A
Loamy	9 to 15	15	900	675	70	Good	N-S	N-S	N-S	1A
Loamy	9 to 15	12	900	774	65	Good	S-M	S-M	S-M	1A
Loamy	9 to 15	15	1,100	495	17	Poor	M	M	M	2A
Loamy Bottom	9 to 15	16	1,500	1,425	10	Poor	S-M	M	M-E	-
Riparian	9 to 15	30	500	500	-	-	M	M	M	-
Stony	9 to 15	72	750	457	27	Fair	S-M	S-M	M	1C
Stony	9 to 15	70	700	434	34	Fair	S-M	S-M	S-M	1C
Stony	9 to 15	50	450	269	29	Fair	S-M	S-M	S-M	1C
Stony	9 to 15	94	600	402	51	Good	S-M	S-M	S-M	1A
Stony	9 to 15	207	550	187	11	Poor	M	M	M	2A
Very Shallow	9 to 15	661	150	95	73	Good	S-M	S-M	S-M	-
Rock	9 to 15	35	-	-	-	-	-	-	-	-

Table B-16 Summary of rangeland health and range condition assessments from the Whiskey Jim pasture. Columns show ecological sites, precipitation zones, acreage, estimated production, similarity index (i.e., the percentage of a specific vegetation state plant community presently on the site), and range condition. Rangeland Health Attribute ratings (i.e., departure from expected conditions) are: N-S (none to slight); S-M (slight to moderate); M (moderate); M-E (moderate to extreme). Vegetation State refers to the sagebrush-steppe state and transition model shown in Figure 1-1.

Ecological Site	Precipitation Zone (in.)	Acres	Vegetation Production		Similarity Index (%)	Range Condition	Rangeland Health Attributes			Vegetation State
			Total (lbs./ac.)	Forage (lb./ac.)			Soil and Site Stability	Hydro-logic Function	Biotic Integrity	
Cool Loamy	9 to 15	109	1,200	780	45	Fair	N-S	N-S	N-S	1A
Cool Stony	15+	4	800	624	53	Good	N-S	N-S	S-M	1A
Cool Stony	9 to 15	377	900	819	77	Excellent	N-S	N-S	N-S	1A
Cool Stony	9 to 15	331	500	350	41	Fair	S-M	S-M	M	1A
Cool Stony	9 to 15	11	700	560	46	Fair	S-M	S-M	N-S	1A
Cool Stony	9 to 15	36	900	760	63	Good	S-M	N-S	N-S	1A
Cool Stony	9 to 15	7	900	657	63	Good	S-M	N-S	N-S	1A
Dry Loamy	9 to 15	51	300	177	6	Poor	S-M	S-M	M	2B
Dry Stony	9 to 15	48	450	404	42	Fair	N-S	N-S	S-M	2A
Dry Stony	9 to 15	12	350	195	34	Fair	S-M	S-M	S-M	1C
Dry Stony	9 to 15	10	300	225	65	Good	N-S	N-S	S-M	1C
Forested	9 to 15	5	750	735	-	-	-	-	-	-
Loamy	15+	5	1,000	800	45	Fair	S-M	S-M	S-M	1C
Loamy	15+	4	1,200	660	15	Poor	S-M	S-M	S-M	1C
Loamy	9 to 15	15	750	337	38	Fair	M	M	S-M	1A
Loamy	9 to 15	11	1,100	682	45	Fair	N-S	N-S	S-M	1C
Loamy	9 to 15	84	900	774	65	Good	S-M	S-M	S-M	1A
Loamy	9 to 15	59	900	675	70	Good	N-S	N-S	N-S	1A
Loamy	9 to 15	87	1,100	495	17	Poor	M	M	M	2A
Loamy Bottom	9 to 15	4	500	485	10	Poor	S-M	S-M	S-M	-
Loamy Bottom	9 to 15	4	1,200	1,164	8	Poor	S-M	M	M-E	-
Stony	15+	8	600	480	58	Good	S-M	N-S	N-S	1A
Stony	9 to 15	62	400	88	79	Excellent	S-M	S-M	M	1B
Stony	9 to 15	261	750	457	27	Fair	S-M	S-M	M	1C
Stony	9 to 15	139	450	269	29	Fair	S-M	S-M	S-M	1C

Table B-16—Continued.

Ecological Site	Precipitation Zone (in.)	Acres	Vegetation Production		Similarity Index (%)	Range Condition	Rangeland Health Attributes			Vegetation State
			Total (lbs./ac.)	Forage (lb./ac.)			Soil and Site Stability	Hydro-logic Function	Biotic Integrity	
Stony	9 to 15	79	700	434	34	Fair	S-M	S-M	S-M	1C
Stony	9 to 15	45	700	644	73	Good	S-M	S-M	S-M	1A
Stony	9 to 15	36	600	402	51	Good	S-M	S-M	S-M	1A
Stony	9 to 15	164	550	187	11	Poor	M	M	M	2A
Stony	9 to 15	23	800	504	19	Poor	S-M	M	M	2A
Very Shallow	15+	95	300	210	84	Excellent	S-M	S-M	N-S	-
Very Shallow	9 to 15	949	150	95	73	Good	S-M	S-M	S-M	-
Rock	9 to 15	123	-	-	-	-	-	-	-	-

Table B-17 Summary of rangeland health and range condition assessments from the Vantage Highway pasture. Columns show ecological sites, precipitation zones, acreage, estimated production, similarity index (i.e., the percentage of a specific vegetation state plant community presently on the site), and range condition. Rangeland Health Attribute ratings (i.e., departure from expected conditions) are: N-S (none to slight); S-M (slight to moderate); M (moderate); M-E (moderate to extreme); NC (not completed). Vegetation State refers to the sagebrush-steppe state and transition model shown in Figure 1-1.

Ecological Site	Precipitation Zone (in.)	Acres	Vegetation Production		Similarity Index (%)	Range Condition	Rangeland Health Attributes			Vegetation State
			Total (lbs./ac.)	Forage (lb./ac.)			Soil and Site Stability	Hydro-logic Function	Biotic Integrity	
Cool Loamy	9 to 15	3	1,200	780	45	Fair	N-S	N-S	N-S	1A
Cool Stony	9 to 15	140	900	819	77	Excellent	N-S	N-S	N-S	1A
Cool Stony	9 to 15	50	700	560	46	Fair	S-M	S-M	N-S	1A
Cool Stony	9 to 15	4	500	350	41	Fair	S-M	S-M	M	1A
Dry Loamy	9 to 15	17	600	600	74	Good	M	S-M	M	1C
Dry Loamy	9 to 15	240	300	177	6	Poor	S-M	S-M	M	2B
Dry Stony	9 to 15	245	350	195	34	Fair	S-M	S-M	S-M	1C
Dry Stony	9 to 15	424	300	225	65	Good	N-S	N-S	S-M	1C
Dry Stony	9 to 15	373	300	225	65	Good	N-S	N-S	S-M	1C
Dry Stony	9 to 15	73	300	120	20	Poor	M	M	M	1C
Loamy	9 to 15	348	650	214	66	Fair	S-M	M	M-E	2A
Loamy	9 to 15	117	450	404	42	Fair	N-S	N-S	S-M	2A
Loamy	9 to 15	250	900	774	65	Good	S-M	S-M	S-M	1A
Loamy	9 to 15	64	900	675	70	Good	N-S	N-S	N-S	1A
Loamy	9 to 15	132	1,100	495	17	Poor	M	M	M	2A
Loamy Bottom	9 to 15	3	750	337	38	Fair	M	M	S-M	1A
Stony	9 to 15	36	400	88	79	Excellent	S-M	S-M	M	1B
Stony	9 to 15	307	450	269	29	Fair	S-M	S-M	S-M	1C
Stony	9 to 15	93	650	227	25	Fair	S-M	M	M	1C
Stony	9 to 15	46	700	434	34	Fair	S-M	S-M	S-M	1C
Stony	9 to 15	144	700	644	73	Good	S-M	S-M	S-M	1A
Stony	9 to 15	104	600	402	51	Good	S-M	S-M	S-M	1A
Stony	9 to 15	89	550	187	11	Poor	M	M	M	2A
Very Shallow	15+	8	300	180	69	Good	N-S	N-S	N-S	-
Very Shallow	9 to 15	2461	150	95	73	Good	S-M	S-M	S-M	-
Rock	9 to 15	202	-	-	-	-	-	-	-	-

Table B-18 Summary of rangeland health and range condition assessments from the Wild Horse Crossing pasture. Columns show ecological sites, precipitation zones, acreage, estimated production, similarity index (i.e., the percentage of a specific vegetation state plant community presently on the site), and range condition. Rangeland Health Attribute ratings (i.e., departure from expected conditions) are: N-S (none to slight); S-M (slight to moderate); M (moderate); M-E (moderate to extreme). Vegetation State refers to the sagebrush-steppe state and transition model shown in Figure 1-1.

Ecological Site	Precipitation Zone (in.)	Acres	Vegetation Production		Similarity Index (%)	Range Condition	Rangeland Health Attributes			Vegetation State
			Total (lbs./ac.)	Forage (lb./ac.)			Soil and Site Stability	Hydrologic Function	Biotic Integrity	
Cool Stony	15+	54	800	624	53	Good	N-S	N-S	S-M	1A
Cool Stony	9 to 15	101	700	560	46	Fair	S-M	S-M	N-S	1A
Dry Stony	9 to 15	284	300	225	65	Good	N-S	N-S	S-M	1C
Loamy	15+	214	1,000	800	45	Fair	S-M	S-M	S-M	1C
Loamy	15+	39	1,100	880	66	Good	N-S	N-S	S-M	1A
Loamy	15+	95	1,200	660	15	Poor	M	M	S-M	1C
Loamy	15+	70	900	558	9	Poor	S-M	S-M	S-M	2A
Loamy	9 to 15	64	900	675	70	Good	N-S	N-S	N-S	1A
Stony	15+	42	600	480	58	Good	S-M	N-S	N-S	1A
Stony	9 to 15	14	700	644	73	Good	S-M	S-M	S-M	1A
Very Shallow	15+	88	300	210	84	Excellent	S-M	S-M	N-S	-
Very Shallow	9 to 15	441	150	90	73	Good	S-M	S-M	S-M	-
Rock	-	64	-	-	-	-	-	-	-	-

Table B-19 Summary of rangeland health and range condition assessments from the North Wild Horse pasture. Columns show ecological sites, precipitation zones, acreage, estimated production, similarity index (i.e., the percentage of a specific vegetation state plant community presently on the site), and range condition. Rangeland Health Attribute ratings (i.e., departure from expected conditions) are: N-S (none to slight); S-M (slight to moderate); M (moderate); M-E (moderate to extreme). Vegetation State refers to the sagebrush-steppe state and transition model shown in Figure 1-1.

Ecological Site	Precipitation Zone (in.)	Acres	Vegetation Production		Similarity Index (%)	Range Condition	Rangeland Health Attributes			Vegetation State
			Total (lbs./ac.)	Forage (lb./ac.)			Soil and Site Stability	Hydro-logic Function	Biotic Integrity	
Cool Stony	15+	289	800	624	53	Good	N-S	N-S	S-M	1A
Cool Stony	9 to 15	470	700	560	46	Fair	S-M	S-M	N-S	1A
Dry Loamy	9 to 15	6	300	177	6	Poor	S-M	S-M	M	2B
Dry Stony	9 to 15	238	300	225	65	Good	N-S	N-S	S-M	1C
Loamy	15+	368	1,000	800	45	Fair	S-M	S-M	S-M	1C
Loamy	15+	234	1,200	660	15	Poor	M	M	S-M	1C
Loamy	15+	38	900	558	9	Poor	S-M	S-M	S-M	2A
Loamy	9 to 15	145	900	675	70	Good	N-S	N-S	N-S	1A
Stony	15+	186	600	480	58	Good	S-M	N-S	N-S	1A
Stony	15+	72	700	420	51	Good	N-S	N-S	N-S	1A
Stony	9 to 15	191	700	644	73	Good	S-M	S-M	S-M	1A
Stony	9 to 15	34	600	402	51	Good	S-M	S-M	S-M	1A
Very Shallow	15+	924	300	210	84	Excellent	S-M	S-M	N-S	-
Very Shallow	15+	192	300	180	69	Good	N-S	N-S	N-S	-
Very Shallow	9 to 15	1910	150	95	73	Good	S-M	S-M	S-M	-
Rock	-	241	-	-	-	-	-	-	-	-

Table B-20 Summary of rangeland health and range condition assessments from the South Wild Horse pasture. Columns show ecological sites, precipitation zones, acreage, estimated production, similarity index (i.e., the percentage of a specific vegetation state plant community presently on the site), and range condition. Rangeland Health Attribute ratings (i.e., departure from expected conditions) are: N-S (none to slight); S-M (slight to moderate); M (moderate); M-E (moderate to extreme); NC (not completed). Vegetation State refers to the sagebrush-steppe state and transition model shown in Figure 1-1.

Ecological Site	Precipitation Zone (in.)	Acres	Vegetation Production		Similarity Index (%)	Range Condition	Rangeland Health Attributes			Vegetation State
			Total (lbs./ac.)	Forage (lb./ac.)			Soil and Site Stability	Hydro-logic Function	Biotic Integrity	
Cool Stony	9 to 15	66	700	560	46	Fair	S-M	S-M	N-S	1A
Dry Loamy	9 to 15	155	700	511	42	Fair	NC	NC	NC	1A
Dry Loamy	9 to 15	6	300	177	6	Poor	S-M	S-M	M	2B
Dry Stony	9 to 15	28	450	404	42	Fair	N-S	N-S	S-M	2A
Dry Stony	9 to 15	11	350	195	34	Fair	S-M	S-M	S-M	1C
Dry Stony	9 to 15	531	300	225	65	Good	N-S	N-S	S-M	1C
Dry Stony	9 to 15	30	300	120	20	Poor	M	M	M	1C
Loamy	15+	69	1,000	800	45	Fair	S-M	S-M	S-M	1C
Loamy	15+	15	1,200	660	15	Poor	M	M	S-M	1C
Loamy	9 to 15	209	750	337	38	Fair	M	M	S-M	1A
Loamy	9 to 15	121	650	214	66	Fair	S-M	M	M-E	2A
Loamy	9 to 15	160	900	675	70	Good	N-S	N-S	N-S	1A
Loamy	9 to 15	44	900	774	65	Good	S-M	S-M	S-M	1A
Loamy	9 to 15	179	1,100	495	17	Poor	M	M	M	2A
Loamy Bottom	9 to 15	6	3,000	1,800	40	Fair	N-S	S-M	S-M	-
Stony	15+	1	700	420	51	Good	N-S	N-S	N-S	1A
Stony	9 to 15	13	400	88	79	Excellent	S-M	S-M	M	1B
Stony	9 to 15	208	700	434	34	Fair	S-M	S-M	S-M	1C
Stony	9 to 15	25	450	269	29	Fair	S-M	S-M	S-M	1C
Stony	9 to 15	21	650	227	25	Fair	S-M	M	M	1C
Stony	9 to 15	106	700	644	73	Good	S-M	S-M	S-M	1A
Stony	9 to 15	59	600	402	51	Good	S-M	S-M	S-M	1A
Stony	9 to 15	46	550	187	11	Poor	M	M	M	2A
Very Shallow	15+	13	300	210	84	Excellent	S-M	S-M	N-S	-
Very Shallow	15+	124	300	180	69	Good	N-S	N-S	N-S	-
Very Shallow	9 to 15	1562	150	95	73	Good	S-M	S-M	S-M	-
Rock	9 to 15	25	-	-	-	-	-	-	-	-

Table B-21 Summary of rangeland health and range condition assessments from the Upper Skookumchuck pasture. Columns show ecological sites, precipitation zones, acreage, estimated production, similarity index (i.e., the percentage of a specific vegetation state plant community presently on the site), and range condition. Rangeland Health Attribute ratings (i.e., departure from expected conditions) are: N-S (none to slight); S-M (slight to moderate); M (moderate); M-E (moderate to extreme); NC (not completed). Vegetation State refers to the sagebrush-steppe state and transition model shown in Figure 1-1.

Ecological Site	Precipitation Zone (in.)	Acres	Vegetation Production		Similarity Index (%)	Range Condition	Rangeland Health Attributes			Vegetation State
			Total (lbs./ac.)	Forage (lb./ac.)			Soil and Site Stability	Hydro-logic Function	Biotic Integrity	
Cool Stony	6 to 9	8	550	467	90	Excellent	N-S	N-S	S-M	1A
Cool Stony	9 to 15	30	700	560	46	Fair	S-M	S-M	N-S	1A
Cool Stony	9 to 15	148	1,100	770	53	Good	N-S	N-S	N-S	1A
Cool Stony	9 to 15	59	1,000	550	18	Poor	N-S	N-S	N-S	1C
Dry Loamy	6 to 9	61	300	60	11	Poor	S-M	M	M-E	2A
Dry Loamy	6 to 9	59	400	104	21	Poor	S-M	S-M	M-E	2A
Dry Loamy	9 to 15	16	300	177	6	Poor	S-M	S-M	M	2B
Dry Stony	6 to 9	13	300	195	44	Fair	NC	NC	NC	1C
Dry Stony	6 to 9	102	400	280	64	Good	NC	NC	NC	1A
Dry Stony	9 to 15	117	300	150	35	Fair	N-S	S-M	S-M	1C
Dry Stony	9 to 15	18	450	404	42	Fair	N-S	N-S	S-M	2A
Dry Stony	9 to 15	98	300	225	65	Good	N-S	N-S	S-M	1C
Loamy	6 to 9	110	1,000	800	88	Excellent	N-S	N-S	N-S	1A
Loamy	9 to 15	49	650	214	66	Fair	S-M	M	M-E	2A
Loamy	9 to 15	201	900	675	70	Good	N-S	N-S	N-S	1A
Loamy	9 to 15	80	900	315	24	Poor	S-M	S-M	M	1C
Loamy	9 to 15	24	1,100	495	17	Poor	M	M	M	2A
Stony	9 to 15	287	600	420	54	Good	N-S	N-S	S-M	1C
Stony	9 to 15	227	750	675	70	Good	N-S	N-S	N-S	1A
Stony	9 to 15	173	700	525	63	Good	N-S	N-S	N-S	1A
Stony	9 to 15	108	900	720	67	Good	N-S	N-S	S-M	1A
Stony	9 to 15	16	600	240	50	Good	M	M	S-M	1B
Stony	9 to 15	13	700	504	66	Good	S-M	S-M	S-M	1A
Very Shallow	6 to 9	76	100	20	37	Fair	S-M	S-M	M	-
Very Shallow	6 to 9	216	150	90	60	Good	NC	NC	NC	-
Very Shallow	9 to 15	1231	150	95	73	Good	S-M	S-M	S-M	-
Very Shallow Desert Pavement	6 to 9	10	100	50	86	Excellent	NC	NC	NC	-
Rock	9 to 15	421	-	-	-	-	-	-	-	-

Table B-22 Summary of rangeland health and range condition assessments from the East Whiskey Dick pasture. Columns show ecological sites, precipitation zones, acreage, estimated production, similarity index (i.e., the percentage of a specific vegetation state plant community presently on the site), and range condition. Rangeland Health Attribute ratings (i.e., departure from expected conditions) are: N-S (none to slight); S-M (slight to moderate); M (moderate); M-E (moderate to extreme); NC (not completed). Vegetation State refers to the sagebrush-steppe state and transition model shown in Figure 1-1.

Ecological Site	Precipitation Zone (in.)	Acres	Vegetation Production		Similarity Index (%)	Range Condition	Rangeland Health Attributes			Vegetation State
			Total (lbs./ac.)	Forage (lb./ac.)			Soil and Site Stability	Hydro-logic Function	Biotic Integrity	
Alkali Bottom	6 to 9	21	3,000	2,430	46	Fair	NC	NC	NC	-
Cool Stony	6 to 9	1458	550	467	90	Excellent	N-S	N-S	S-M	1A
Cool Stony	6 to 9	2	350	105	30	Fair	N-S	S-M	S-M	1C
Cool Stony	9 to 15	81	700	560	46	Fair	S-M	S-M	N-S	1A
Dry Loamy	6 to 9	230	400	104	21	Poor	S-M	S-M	M-E	2A
Dry Loamy	6 to 9	51	300	60	11	Poor	S-M	M	M-E	2A
Dry Stony	6 to 9	1587	300	195	44	Fair	NC	NC	NC	1C
Dry Stony	6 to 9	954	400	280	64	Good	NC	NC	NC	1A
Dry Stony	9 to 15	163	300	225	65	Good	N-S	N-S	S-M	1C
Dry Stony	9 to 15	21	300	120	20	Poor	M	M	M	1C
Loamy	6 to 9	960	1,000	800	88	Excellent	N-S	N-S	N-S	1A
Loamy	6 to 9	81	800	280	6	Poor	S-M	M	S-M	2A
Loamy	9 to 15	66	650	214	66	Fair	S-M	M	M-E	2A
Loamy	9 to 15	10	900	675	70	Good	N-S	N-S	N-S	1A
Loamy Bottom	6 to 9	76	2,500	2,250	16	Poor	NC	NC	NC	-
Loamy Bottom	9 to 15	4	3,000	1,800	40	Fair	N-S	S-M	S-M	-
Sandy	6 to 9	235	400	220	38	Fair	NC	NC	NC	1C
Sandy	6 to 9	172	350	259	38	Fair	NC	NC	NC	1C
Sandy	6 to 9	149	500	405	58	Good	N-S	S-M	S-M	2A
Stony	6 to 9	129	500	300	46	Fair	S-M	S-M	S-M	1C
Very Shallow	6 to 9	2718	150	90	60	Good	NC	NC	NC	-
Very Shallow	6 to 9	49	100	20	37	Fair	S-M	S-M	M	-
Very Shallow	9 to 15	195	150	95	73	Good	S-M	S-M	S-M	-
Very Shallow Desert Pavement	6 to 9	201	100	50	86	Excellent	NC	NC	NC	-
Rock	6 to 9	609	-	-	-	-	-	-	-	-

Table B-23 Summary of rangeland health and range condition assessments from the West Whiskey Dick pasture. Columns show ecological sites, precipitation zones, acreage, estimated production, similarity index (i.e., the percentage of a specific vegetation state plant community presently on the site), and range condition. Rangeland Health Attribute ratings (i.e., departure from expected conditions) are: N-S (none to slight); S-M (slight to moderate); M (moderate); M-E (moderate to extreme); NC (not completed). Vegetation State refers to the sagebrush-steppe state and transition model shown in Figure 1-1.

Ecological Site	Precipitation Zone (in.)	Acres	Vegetation Production		Similarity Index (%)	Range Condition	Rangeland Health Attributes			Vegetation State
			Total (lbs./ac.)	Forage (lb./ac.)			Soil and Site Stability	Hydro-logic Function	Biotic Integrity	
Cool Loamy	9 to 15	11	1,200	780	45	Fair	N-S	N-S	N-S	1A
Cool Loamy	9 to 15	120	1,100	671	53	Good	S-M	S-M	S-M	1A
Cool Stony	15+	13	800	624	53	Good	N-S	N-S	S-M	1A
Cool Stony	6 to 9	577	550	467	90	Excellent	N-S	N-S	S-M	1A
Cool Stony	9 to 15	766	700	560	46	Fair	S-M	S-M	N-S	1A
Cool Stony	9 to 15	55	750	525	45	Fair	N-S	N-S	N-S	1C
Dry Loamy	6 to 9	158	400	104	21	Poor	S-M	S-M	M-E	2A
Dry Loamy	6 to 9	12	300	60	11	Poor	S-M	M	M-E	2A
Dry Loamy	9 to 15	89	300	177	6	Poor	S-M	S-M	M	2B
Dry Stony	6 to 9	376	300	195	44	Fair	NC	NC	NC	1C
Dry Stony	6 to 9	243	400	280	64	Good	NC	NC	NC	1A
Dry Stony	9 to 15	65	450	404	42	Fair	N-S	N-S	S-M	2A
Dry Stony	9 to 15	45	350	195	34	Fair	S-M	S-M	S-M	1C
Dry Stony	9 to 15	1265	300	225	65	Good	N-S	N-S	S-M	1C
Loamy	15+	13	1,000	800	45	Fair	S-M	S-M	S-M	1C
Loamy	6 to 9	142	1,000	800	88	Excellent	N-S	N-S	N-S	1A
Loamy	9 to 15	95	650	214	33	Fair	S-M	M	M-E	2A
Loamy	9 to 15	548	900	675	70	Good	N-S	N-S	N-S	1A
Loamy	9 to 15	19	900	774	65	Good	S-M	S-M	S-M	1A
Loamy	9 to 15	36	1,100	495	17	Poor	M	M	M	2A
Loamy	9 to 15	16	900	315	24	Poor	S-M	S-M	M	1C
Loamy Bottom	9 to 15	27	3,000	1,800	40	Fair	N-S	S-M	S-M	-
Sandy	6 to 9	35	400	220	38	Fair	NC	NC	NC	1C
Stony	9 to 15	60	400	88	79	Excellent	S-M	S-M	M	1B
Stony	9 to 15	231	600	420	54	Good	N-S	N-S	S-M	1C

Table B-23—Continued.

Ecological Site	Precipitation Zone (in.)	Acres	Vegetation Production		Similarity Index (%)	Range Condition	Rangeland Health Attributes			Vegetation State
			Total (lbs./ac.)	Forage (lb./ac.)			Soil and Site Stability	Hydrologic Function	Biotic Integrity	
Stony	9 to 15	221	700	504	66	Good	S-M	S-M	S-M	1A
Stony	9 to 15	117	700	644	73	Good	S-M	S-M	S-M	1A
Stony	9 to 15	85	600	402	51	Good	S-M	S-M	S-M	1A
Stony	9 to 15	79	750	675	70	Good	N-S	N-S	N-S	1A
Stony	9 to 15	11	700	525	63	Good	N-S	N-S	N-S	1A
Stony	9 to 15	31	550	187	11	Poor	M	M	M	2A
Very Shallow	15+	66	300	210	84	Excellent	S-M	S-M	N-S	-
Very Shallow	15+	196	300	180	69	Good	N-S	N-S	N-S	-
Very Shallow	6 to 9	422	150	90	60	Good	NC	NC	NC	-
Very Shallow	9 to 15	2400	150	95	73	Good	S-M	S-M	S-M	-
Very Shallow	9 to 15	130	150	150	55	Good	S-M	S-M	S-M	-
Rock		434	-	-	-	-	-	-	-	-

Table B-24 Summary of rangeland health and range condition assessments from the Rocky Coulee pasture. Columns show ecological sites, precipitation zones, acreage, estimated production, similarity index (i.e., the percentage of a specific vegetation state plant community presently on the site), and range condition. Rangeland Health Attribute ratings (i.e., departure from expected conditions) are: N-S (none to slight); S-M (slight to moderate); M (moderate); M-E (moderate to extreme); NC (not completed). Vegetation State refers to the sagebrush-steppe state and transition model shown in Figure 1-1.

Ecological Site	Precipitation Zone (in.)	Acres	Vegetation Production		Similarity Index (%)	Range Condition	Rangeland Health Attributes			Vegetation State
			Total (lbs./ac.)	Forage (lb./ac.)			Soil and Site Stability	Hydro-logic Function	Biotic Integrity	
Cool Loamy	9 to 15	3	1,100	671	53	Good	S-M	S-M	S-M	1A
Cool Stony	6 to 9	46	550	467	90	Excellent	N-S	N-S	S-M	1A
Cool Stony	9 to 15	2	750	525	45	Fair	N-S	N-S	N-S	1C
Cool Stony	9 to 15	1	700	560	46	Fair	S-M	S-M	N-S	1A
Dry Loamy	9 to 15	55	600	600	74	Good	M	S-M	M	1C
Dry Loamy	9 to 15	134	300	177	6	Poor	S-M	S-M	M	2B
Dry Stony	6 to 9	11	300	195	44	Fair	NC	NC	NC	1C
Dry Stony	9 to 15	490	300	225	65	Good	N-S	N-S	S-M	1C
Loamy	9 to 15	659	900	675	70	Good	N-S	N-S	N-S	1A
Loamy	9 to 15	152	900	774	65	Good	S-M	S-M	S-M	1A
Loamy Bottom	9 to 15	17	3,000	1,800	40	Fair	N-S	S-M	S-M	-
Stony	9 to 15	101	400	88	79	Excellent	S-M	S-M	M	1B
Stony	9 to 15	261	700	644	73	Good	S-M	S-M	S-M	1A
Very Shallow	9 to 15	1018	150	95	73	Good	S-M	S-M	S-M	-
Very Shallow	9 to 15	25	150	150	55	Good	S-M	S-M	S-M	-
Rock		74	-	-	-	-	-	-	-	-

Table B-25 Summary of rangeland health and range condition assessments from the Lone Star pasture. Columns show ecological sites, precipitation zones, acreage, estimated production, similarity index (i.e., the percentage of a specific vegetation state plant community presently on the site), and range condition. Rangeland Health Attribute ratings (i.e., departure from expected conditions) are: N-S (none to slight); S-M (slight to moderate); M (moderate); M-E (moderate to extreme); NC (not completed). Vegetation State refers to the sagebrush-steppe state and transition model shown in Figure 1-1.

Ecological Site	Precipitation Zone (in.)	Acres	Vegetation Production		Similarity Index (%)	Range Condition	Rangeland Health Attributes			Vegetation State
			Total (lbs./ac.)	Forage (lb./ac.)			Soil and Site Stability	Hydro-logic Function	Biotic Integrity	
Cool Stony	6 to 9	623	550	467	90	Excellent	N-S	N-S	S-M	1A
Cool Stony	9 to 15	113	700	560	46	Fair	S-M	S-M	N-S	1A
Dry Loamy	6 to 9	225	400	104	21	Poor	S-M	S-M	M-E	2A
Dry Loamy	9 to 15	6	600	600	74	Good	M	S-M	M	1C
Dry Loamy	9 to 15	82	300	177	6	Poor	S-M	S-M	M	2B
Dry Stony	6 to 9	595	300	195	44	Fair	NC	NC	NC	1C
Dry Stony	6 to 9	664	400	280	64	Good	NC	NC	NC	1A
Dry Stony	9 to 15	394	300	225	65	Good	N-S	N-S	S-M	1C
Loamy	6 to 9	164	1,000	800	88	Excellent	N-S	N-S	N-S	1A
Loamy	9 to 15	34	650	214	33	Fair	S-M	M	M-E	2A
Loamy	9 to 15	86	900	675	70	Good	N-S	N-S	N-S	1A
Sandy	6 to 9	65	400	220	38	Fair	NC	NC	NC	1C
Sandy	6 to 9	65	350	259	38	Fair	NC	NC	NC	1C
Sandy	6 to 9	15	500	405	58	Good	N-S	S-M	S-M	2A
Stony	9 to 15	100	400	88	79	Excellent	S-M	S-M	M	1B
Stony	9 to 15	92	700	644	73	Good	S-M	S-M	S-M	1A
Very Shallow	6 to 9	40	100	20	37	Fair	S-M	S-M	M	-
Very Shallow	6 to 9	1100	150	90	60	Good	NC	NC	NC	-
Very Shallow	9 to 15	453	150	95	73	Good	S-M	S-M	S-M	-
Very Shallow Desert Pavement	6 to 9	210	100	50	86	Excellent	NC	NC	NC	-
Rock		308	-	-	-	-	-	-	-	-

Appendix C. Rangeland Vegetation Monitoring Plan

The grazing committee, which includes WDFW, will employ both short-term and long-term monitoring to determine whether our objectives are being met. Short-term monitoring will include trigger, utilization, implementation, and cover monitoring. Long-term monitoring will include photo-monitoring, trend, forage palatability, and grass phenology monitoring. Each of these methods is described below.

Trigger and utilization monitoring will be done primarily in key areas. A trigger will be defined as a resource condition threshold at which time livestock are to be moved from a pasture. Key areas are relatively small portions of the pastures selected because of their location, use, or value as a monitoring point for grazing use. It is assumed that these areas, if properly selected, will reflect the current management of the pasture as a whole. Trend monitoring on PSE ownership will also occur within key areas. Trend monitoring on WDFW and DNR ownership will occur on randomly selected sites, the techniques used for site selection are described below.

Triggers: Several utilization triggers have been developed by the grazing committee to determine the proper date for livestock removal from each pasture. These triggers are listed below. When any of these utilization targets is reached, the livestock operator will be required to remove the herd.

- 35 percent use on key species within zone of accessibility
- 60 percent use on key species within 100 yards of developed stock water
- 4 inches of stubble height for key grass species within the riparian zone
- 35 percent use of browse species within the riparian zone

Utilization: Forage utilization cages will be placed and monitored to document wildlife use and livestock use. Cages will be monitored prior to turnout, immediately after livestock removal, and after the end of the growing season. In addition, utilization mapping will be conducted to identify key monitoring areas. Grazed class utilization transects will also be monitored in key areas.

Photo-monitoring: A series of photo monitoring points will be established; photos will be taken at least twice annually to document change in vegetation condition over time.

Phenology: Six stations have been established across the CRM area to track bluebunch wheatgrass phenology throughout the growing season. These stations are located along Vantage Hwy and Beacon Ridge Road at varying elevations from 600-ft to 3600-ft. Each station will be visited weekly from April 1st to the end of the growing season. Monitoring sites include the Gingko Petrified Forest State Parke boat launch (600-ft), 2 stops along Vantage Highway (1,200 and 1,800-ft), the WDFW corrals (2,400-ft), and 2 stops along Beacon Ridge Road (3,000 and 3,600-ft). Plants from both north- and south-facing hillsides will be monitored, where possible.

Other Annual Monitoring: Grazing committee members will also record livestock numbers and timing within each pasture, the type of growing season, observations of which plant species elk and cattle are consuming, and conduct step-point transects for plant cover, and step-boot transects for basal gaps at the trend monitoring sites (Herrick et al. 2005).

Trend: The National Research Council developed the rangeland health model to promote a standard method of evaluating rangelands (NRC 1994). Rangeland health is defined as “the degree to which the integrity of the soil, vegetation, water, and air, as well as the ecological processes of the rangeland ecosystem are balanced and sustained” (Task Group on Unity in Concepts and Terminology 1995). Because direct measures of site integrity and ecological processes are difficult and costly to gather, biological and physical components are used as indicators of these processes. Pellant et al. (2005) developed a standardized, qualitative assessment protocol that focuses on three key ecosystem attributes: soil and site stability, hydrologic function, and biotic integrity. To provide the quantitative data necessary to evaluate success in achieving the goals of the CRM, the grazing committee will use a recently developed monitoring approach that provides indicators of the three ecosystem attributes mentioned above (Herrick et al. 2005). This approach includes several long-term methods including photo points (for a visual record of vegetation conditions), line-point intercept (for species cover and composition), and belt transect (for measuring perennial invasive plants), as well as a short-term method (measuring the amount of plant cover remaining after grazing) to monitor rangeland health.

The following attributes will be used as indicators of upward trend: 1) Increased native plant community complexity (species richness or plant functional type richness), 2) Increased cover of native perennial bunchgrass “decreasers”, such as bluebunch wheatgrass, Idaho fescue, and Cusick’s bluegrass, 3) Decreased bare ground, and 4) increased soil biological crust cover.

Locations for monitoring on WDFW and WDNR land will be identified using a stratified random selection process based on pastures and ecological sites with a minimum of two monitoring sites per pasture and in riparian areas that accessible to livestock. Locations for monitoring on PSE-owned land were placed in key monitoring areas and should be representative of conditions throughout the pasture. The standard transect layout consists of a radial arrangement of three 50 meter transects that cover an area of approximately one hectare (about 2.5 acres). Transects begin 5 meters from the plot center so that vegetation trampling and soil surface disturbance along the transects (where data is collected) is minimized. The azimuth of the first transect is randomly determined; the remaining two transects are oriented at 120 degree increments. Where the site permits in riparian zones, parallel transects will be established perpendicular to the drainage at 20-25 meter spacing. Greenline transects (Winward, 2000) may be established at sites where the riparian zone is too narrow to permit perpendicular transects. The plot center and beginning and end points of each transect are identified with rebar stakes covered with PVC for safety and visibility. When data are being collected a 50-meter measuring tape is anchored as close to the ground as possible between the beginning and end point

stakes. This plot arrangement is used for photo points and for sampling with line-point intercept, basal gap intercept, and belt transect techniques.

Line-point Intercept: For the line-point intercept technique the examiner and recorder begin at the “0” end of the tape (always staying on the same side of the tape). At 1-meter intervals a pin-flag is dropped vertically from a height of about 50 centimeters. Once the pin is flush with the ground surface the PLANTS database species code (<http://plants.usda.gov/>) of every plant species intercepted (and/or herbaceous litter) is recorded on data form. Each canopy species is recorded only once, even though it may be intercepted more than once. At every fifth sample point vegetation height (in centimeters) is measured and recorded. At each sample point a record is kept of whether the pin flag intercepts a plant base or some other soil surface feature (viz., rock, bedrock, embedded litter, duff, moss, lichen crust, or soil).

Summarization and analysis of the line-point intercept data set provides information on several plant community and ecological site components: plant foliar cover (total as well as by species and plant functional type); plant species composition; average plant height; the amount of bare ground, rock, and bedrock; the amount of soil surface covered by moss, lichen crust, embedded litter, or duff; and the amount of litter covering the soil surface (total litter as well as litter between plant canopies and litter under plant canopies). Effect of the livestock grazing treatment on these parameters will be assessed by comparison of the initial data set with a similar data set gathered after the final year of the grazing treatment. In general, increases in the values that describe foliar and basal cover of desirable species, and a decrease in the amount of bare ground have a positive effect on rangeland health attributes.

Belt Transect: The standard transect layout described above is also used for belt transects for measuring biennial and perennial invasive species. A 50-meter measuring tape is anchored as close to the ground as possible between the beginning and end point stakes. Beginning at the “0” end of the tape a 2-meter section of PVC pipe is centered directly over the tape. The observer and recorder slowly walk the length of the transect and tally the number of perennial invasive species observed inside the sample area (i.e., 2-meters X 50-meters; 100 m²). This procedure is repeated on all transects at each monitoring plot. Density of perennial invasive species is calculated by dividing the total count of each species by the transect area. Results can be expressed as number of plants/hectare or number of plants/acre. The density of perennial invasive species is a sensitive indicator of the biotic integrity of individual pastures and ecological sites.

Species Richness Plots: Plant species richness is the total number of species in an area, and is an indicator of biodiversity. Species richness will be measured by laying out a 10-m by 30-m macroplot along each of the three transects, and recording all plant species within the macroplot.

Land EKG: Six Land EKG® transects have been installed on the Wild Horse Wind Farm and two in the Parke Creek drainage (Orchard, 2006). Land EKG® is intended to evaluate and graphically portray land health information based on a rapid assessment of

ecological processes in a manner that can be done by individuals with a wide range of expertise. The method combines permanent photo points along a 200 ft. transect with estimates of nutrient cycling, water cycling, plant community, and energy flow attributes within 3 nested zones associated with the transect line and (4) 4.8 sq. ft. hoops.

Appendix D. Photo-monitoring on the Whiskey Dick WA, 1981 – 2003.

1980

Cattle grazing permit on the Whiskey Dick unit cancelled.

1981

Forty permanent photo plots were established to monitor habitat recovery trends.

Photos show 1 year rest after livestock removal

1984

Photos show 4 years rest after livestock removal.

1987

A new grazing program was implemented in Rocky Coulee/ Hell's Kitchen (pastures currently referred to as Rocky Coulee and Lone Star).

Grazing began April 1987: a 3-year lease – 60 days, 300 AUMs on 9,000 ac.

Five of the forty permanent photo points are within this new lease (sites 33-37).

Photos show livestock effects after first season of grazing on Rocky Coulee & Hell's Kitchen, and seven years rest on Whiskey Dick.

2003

Photos show 14 years rest after livestock removal from Rocky Coulee/ Hell's Kitchen (photo points 33 and 36), and 23 years rest on Whiskey Dick.

Although no leases were issued, occasional trespass grazing did occur on the Whiskey Dick unit between 1980 and 2003.

Of the 40 photo points, 5 have been selected to show the range of habitat response over a 25 year period. GPS coordinates are in NAD83 State Plane.

Point #4	Upper Whiskey Dick Creek bottom	Northing 5207743/ Easting 716955
Point #10	Junction of Hartman/Whiskey Dick	Northing 5210243/ Easting 722008
Point #28	Whiskey Dick Creek bottom	Northing 5212400/ Easting 725958
Point #32	Cayuse Canyon, spring area	Northing 5209511/ Easting 726427
Point #33	Lone Star Springs	Northing 5205646/ Easting 723241
Point #36	Rocky Coulee, draw bottom	Northing 5204583/ Easting 723717
Point #38	Bryant Canyon, homestead site	Northing 5212491/ Easting 719805

Figure D-1 Upper Whiskey Dick Creek bottom: Photo point #4

April 1981



May 1984



June 1987



May 2003



Figure D-2 Junction of Hartman/Whiskey Dick: Photo point #10

April 1981



May 1984



June 1987



May 2003



Figure D-3 Whiskey Dick Creek bottom: Photo point #28

April 1981



May 1984



June 1987



May 2003



Figure D-4 Cayuse Canyon, spring area: Photo point #32

May 1981



May 1984



June 1987



May 2003



Figure D-5 Lone Star springs: Photo point #33

May 1981



May 1984



June 1987



May 2003



Figure D-6 Rocky Coulee draw bottom: Photo point #36

May 1981



May 1984



June 1987



May 2003



Figure D-7 Bryant Canyon, homestead site: Photo point #38

May 1981



May 1984



June 1987



May 2003



Appendix E. NRCS 528A: Prescribed Grazing Standards

Native Bunchgrass Guidelines:

- Every pasture is deferred from grazing at least every third year. Deferment means no grazing of the key species during the growing season (approximately March 1st through July 15th)
- Every pasture is grazed no more than 1 in 3 years during the critical period. The critical period is when the key species are in boot stage through seed formation
- No pasture is grazed more than half the growing season.
- The intensity of grazing for every pasture is within proper use standards – no more than 50 percent use during the growing season, no more than 60 percent use during the dormant season. Percent use is measured on a weight basis.

Contingency Planning:

- **Drought:** Reduce numbers – sell older cows (10 percent)
- **Fire:** Plan on 2 year rest and potentially re-seeding depending on intensity

Monitoring Plan:

- Keep records of animal use by pasture including numbers, dates of use
- Establish key grazing areas and key species for each pasture
- Monitor grazing use using grazed class method by pasture annually & keep records
- It is recommended to set up photo monitoring points or nested frequency plots for trend monitoring

Appendix F. Funding Sources for Quilomene and Whiskey Dick WAs Acquisition

Table F-1

Wildlife Area	Acres	Amount	Year	Funding Source
Quilomene	3,889	\$50,000	1956	USFWS-PR
Quilomene	11,179	\$330,000	1972	USNPS-LWCF
Quilomene	343	\$143,000	1974	WA RCO-BONDS
Quilomene	5,143	\$1,800,000	2006	USBPA
Quilomene	2,205	\$770,000	2006	WA APPROP
Quilomene	800	\$400,000	2007	Grant County
Quilomene	9,432	\$4,775,000	2007	WA RCO-WWRP
Whiskey Dick	5,049	\$106,029	1966	USFWS-PR
Whiskey Dick	5,818	\$122,178	1966	USNPS-LWCF
Whiskey Dick	958	\$20,122	1966	USFWS-PR
Whiskey Dick	5,202	\$109,261	1966	WA RCO-BONDS

Appendix G. Public Comments

The 30 day public comment period for the Quilomene/Whiskey Dick Wildlife Area Livestock Grazing Management Plan began on January 22nd, 2009. At the public's request, the comment period was extended to February 27th. Oral and written comments were also provided to WDFW during the public scoping meeting held in Ellensburg on July 15th, 2008. The issues raised by these comments were addressed in the DEIS.

The following are the written comments received about the DEIS. Each comment was carefully considered with respect to the need to modify the DEIS. Important in this process of considering revision of the DEIS is the answer to this question, "Is the DEIS consistent with the Draft LT Murray/Quilomene/Whiskey Dick Wildlife Area Management Plan and does it satisfy the requirements of the State Environmental Policy Act (SEPA) with respect to the particular comment?" If the information and assessments in the DEIS meets the intent of regulations, then no changes in the FEIS are prompted. Major changes are noted on page 2 of Appendix G, and are indicated in the response to specific comments. If there are minor changes dealing with factual corrections, they may be reflected through simple modification in the FEIS.

Table of Contents for Appendix G

Significant Differences between the DEIS and FEIS

EIS Comment Log: Alphabetical list of Agencies, Organizations, and People Who Provided Written Comments

Table G-1. Public Comments and Agency Responses

Copies of Written Comments Received about the DEIS

Significant Differences between the DEIS and FEIS

1. The Upper Skookumchuck pasture has been removed from the grazing rotation.
2. WDFW ownership within the Wild Horse Crossing pasture has been removed from the grazing rotation.
3. The effects analysis has been substantially redrafted for the following sections: 3.1, 3.2, 3.3, 3.4, 3.5, and 3.8.
4. Alternative 2 has been modified to reduce available AUMs, resulting in a “spreading” of effects over the CRM landscape. In the FEIS, Alternative 2 now represents a 10% increase in the number of AUMs, and a 170% increase in acreage over Alternative 1. In the DEIS, Alternative 2 represented a 90% increase in AUMs, and a 150% increase in acreage over Alternative 1.
5. Implementation of the Proposed Action will be phased, and dependent on adequate funding for mitigation measures and monitoring.

EIS Comment Log

1. Comments from Agencies/Tribes

<u>Agency/Tribe</u>	<u>Name of Source</u>	<u>Letter Received</u>	<u>Response No.</u>
Washington Department Ecology	Todd Bolster, Environmental Planner, Water Quality Program	2-23-09	1
Colville Confederated Tribes	Christopher Fisher Fisheries Biologist	2-26-09	2
Grant County Public Utility District	Benjamin Lenz Fisheries Scientist	2-26-09	2
WSU Yakima County Extension	Frank Hendrix Animal Sciences, Range and Riparian Management	2-26-09	3
Washington State University, Kittitas County Extension	Tipton Hudson County Director, Rangeland & Livestock Management	3-02-09	4
Washington Department of Natural Resources	Milton Johnston SW Region Assistant Manager	2-19-09	5
Bureau of Land Management	Karen Kelleher Field Manager	3-03-09	6
Kittitas County Conservation District	Anna Lael District Manager	2-27-09	7
Washington State Recreation and Conservation Office	Scott Robinson Section Manager	2-23-09	8

2. Comments from Elected Officials

<u>Elected Official</u>	<u>Legislative District</u>	<u>Letter Received</u>	<u>Response No.</u>
Rep. Bill Hinkle	13 th	2-27-09	9
Rep. Janéa Holmquist	13 th	2-27-09	9
Rep. Judy Warnick	13 th	2-27-09	9

3. Comments from Organizations

<u>Organization</u>	<u>Name of Source</u>	<u>Letter Received</u>	<u>Response No.</u>
Cascade Land Conservancy	Jill Arango Conservation Director	2-17-09	10
Rocky Mountain Elk Foundation	Jack Blackwell Vice President of Lands and Conservation	2-18-09	11

Organization	Name of Source	Letter Received	Response No.
S. Martinez Livestock, Inc	Carol Clerf-Martinez	2-20-09	12
Western Watershed Project	Kenneth Cole	2-27-09	13
The Nature Conservancy	Julie Conley Field and Data Coordinator	2-27-09	14
Conservation Northwest	Seth Cool Conservation Associate	2-27-09	15
Ellensburg Chamber of Commerce	Ron Cridlebaugh Executive Director	2-26-09	16
Solar \$	Mark Crowley President	2-26-09	66
Puget Sound Energy	Jennifer Diaz Wild Horse Wind Facility Environmental and Communications Manager	2-23-09	17
The Trust for Public Lands	Peter Dykstra Washington State Director	3-02-09	18
Little Lonesome Ranch	Ken Eaton	2-20-09	19
Kittitas County Farm Bureau	Urban Eberhart, President	2-27-09	66
Washington Cattleman's Association	Jack Field, Vice President	2-25-09	66
Western Watersheds Project	Katie Fite Biodiversity Director	3-02-09	20
Washington Native Plant Society	Catherine Hovanic Executive Director	2-27-09	21
Lincoln County Cattleman's	David Hubbard President	2-26-09	66
The Big Game Management Roundtable	James Huckabay Secretary	2-26-09	22
The Lorox Society	Rob Kavanaugh	2-23-09	23
Friends of Wildlife & Wind Power	Robert Kruse	3-02-09	24
Yakima Valley Audubon Society	Michael Martin Conservation Chair	2-27-09	25
Washington CRM Task Group	Ken Mills, Coordinator	2-27-09	26

Organization	Name of Source	Letter Received	Response No.
Kittitas County Cattleman's Association	Fred Schnebly Secretary	2-17-09	27
Grant County Cattlemen's Association	Bill Sieverkropp	2-23-09	28
Double R Ranch	Rick Stott Executive Vice President	2-26-09	66
Washington Farm Bureau	John Stuhlmiller Director Government Relations	2-27-09	29

4. Comments from Individuals

Individual	Letter Received	Response No.
Rob Acheson	2-17-09	30
John Ashbaugh	2-26-09	31
Linda Ashbaugh	2-26-09	32
David Bowen	2-18-09	33
John Browne	2-27-09	34
Mark Charlton	2-27-09	35
Linda Clerf-Martinez	2-26-09	36
Timothy Coleman	2-27-09	37
John Crandall	2-27-09	38
Roger Dane	2-02-09	39
Dan Devox	2-27-09	40
Dave Duncan	2-24-09	41
John Eaton	2-19-09	42
Margaret Ellsworth	2-27-09	43
Bill Essman	2-25-09	44
Sam Fuchs	2-23-09	45
Lynn Henderson	2-27-09	46
Janice Hill	2-20-09	47
James Huckabay	2-26-09	48
Laurie Jackson	2-27-09	49
Donald Johnson	2-05-09	50
Richard Lichtenberg	2-23-09	51
Michael Marsh	2-27-09	52
C.F. Martinsen	2-23-09	53
Wayne McMeans	2-20-09	54
Phil Millam	2-27-09	55
Rod Parks	2-13-09	56
Gwen Rawlings	3-02-09	57
Dave Robinson	2-27-09	58
Jim Scarborough	2-23-09	59
Joe Schons	2-23-09	60
Katrina Strathmann	2-27-09	61
Bob Tuck	2-27-09	62
Bob Tuck	2-27-09	63
Aja Woodrow	2-23-09	64
George Wooten	3-02-09	65

5. Comments from Individuals (Form Letter #1)

<u>Individual</u>	<u>Letter Received</u>	<u>Response No.</u>
Troy Accord	2-27-09	66
Rob Acheson	2-27-09	
Scott Barr	2-26-09	
James Beeks	2-27-09	
Nancy Belsby	2-27-09	
Janin Cameron	2-26-09	
Pat Clerf	2-26-09	
Daniel Coonrad	2-27-09	
Mike Hajny	2-26-09	
Kathleen Hendrix	2-26-09	
Bill & Melva Schmidt	2-27-09	
Katie Stingley	2-27-09	
Marty Stingley	2-27-09	
Ruley Stingley	2-27-09	
Rustin Stingley	2-27-09	
Ryan Stingley	2-27-09	
Vic Stokes	2-27-09	
Donald Weber	2-27-09	

6. Comments from Individuals (Form Letter #1 - Modified)

<u>Individual</u>	<u>Letter Received</u>	<u>Response No.</u>
George Cameron	2-27-09	67
Russ Stingley	2-27-09	68

7. Comments from Individuals (Form Letter #2 – Conservation Northwest)

<u>Individual</u>	<u>Letter Received</u>	<u>Response No.</u>
Gordon Adams	2-27-09	69
Frank Backus	2-27-09	
Steve Bailey	2-27-09	
White Bear	2-27-09	
Peter & Mary Alice Below	2-27-09	
Linda Bergen	2-27-09	
Richard Bergner	2-27-09	
Vicki Biltz	2-27-09	
Mark Blitzer	2-27-09	
Dan Bliven	2-27-09	
Jodi Broughton	2-27-09	
Nicole Brown	2-27-09	
Pamela Bryant	2-27-09	
Rebecca Buell-Silsbee	2-27-09	
Colby Chester	2-27-09	
Julie Clinton	2-27-09	
Patricia Coffey	2-27-09	
Travis Coletti	2-27-09	
Mark Conley	2-27-09	
George Cook	2-27-09	
Keith Cowan	2-27-09	

Individual	Letter Received	Response No.
Colleen Curtis	2-27-09	69
Jeff Daffron	2-27-09	
Shane Daugherty	2-27-09	
Jenn Dean	2-27-09	
Erin Derrington	2-27-09	
Paula Derrington	2-27-09	
Craig Dickison	2-27-09	
Tim Durnell	2-27-09	
Darla Eaton	2-27-09	
Sandra Emerson	2-27-09	
Elaine Erickson	2-27-09	
Mark Evans	2-27-09	
Maureen Finn	2-27-09	
Lynn Finnel	2-27-09	
Kirk Francis	2-27-09	
John Fries	2-27-09	
Christian Fulghum	2-27-09	
Martha Fulton	2-27-09	
Susan Gill	2-27-09	
Stacey Glenewinkel	2-27-09	
Lise Grace	2-27-09	
Patricia Gracian	2-27-09	
Donald Graham	2-27-09	
Judith Green	2-27-09	
Vivian Gross	2-27-09	
Ronald Groves	2-27-09	
Barbara Guthrie	2-27-09	
Sarah Haas	2-27-09	
Matt Haber	2-27-09	
Wendy Harris	2-27-09	
Charles Hawkins	2-27-09	
Jill Hein	2-27-09	
Amy Heyneman	2-27-09	
Patrick Hickey	2-27-09	
William Howald	2-27-09	
Thomas Huddleston	2-27-09	
Lura Irish	2-27-09	
Roger Jackson	2-27-09	
Leif Jakobsen	2-27-09	
James Johnson	2-27-09	
Ilze Jones	2-27-09	
Phillip Joyner	2-27-09	
Tim Kadrmas	2-27-09	
Mike Keary	2-27-09	
Michelle Keefer	2-27-09	
David Kerlick	2-27-09	
Sandra King	2-27-09	
Jeanne Kinnard	2-27-09	
Eugene Kiver	2-27-09	
Jessica Klinkert	2-27-09	
Henry & Judy Koepfle	2-27-09	
Frank Kuske	2-27-09	
Henry Lagergren	2-27-09	
Consuelo Larrabee	2-27-09	
Mary Pat Larsen	2-27-09	

Individual	Letter Received	Response No.
Brenda Lewis	2-27-09	69
Jerry Liebermann	2-27-09	
Nancy Enz Lill	2-27-09	
George Lockeman	2-27-09	
Chuck Martin	2-27-09	
Helene McComrick	2-27-09	
Emily McMahan	2-27-09	
Jessica McNamara	2-27-09	
Bridget McNassar	2-27-09	
Tim McNulty	2-27-09	
David Meyer	2-27-09	
Jeanne Miller	2-27-09	
Brita Mjos	2-27-09	
April Moore	2-27-09	
Susan Morgan	2-27-09	
Carolyn Morillo	2-27-09	
Paul Myhre	2-27-09	
Sally Neary	2-27-09	
Michael O'Brien	2-27-09	
E. O'Halloran	2-27-09	
Kevin O'Halloran	2-27-09	
Janna Ost	2-27-09	
Donna Patz	2-27-09	
Julia Paulsen	2-27-09	
Taylor Pittman	2-27-09	
Sherry Prince	2-27-09	
Peggy Printz	2-27-09	
Kaci Radcliffe	2-27-09	
Mary Raines	2-27-09	
LaVerne Ramsey	2-27-09	
Daniel Rebson	2-27-09	
Felicia Reilly	2-27-09	
Peter Rimbos	2-27-09	
James Roberts	2-27-09	
Patrice Roberts	2-27-09	
Zandra Saez	2-27-09	
Keith Schackmuth	2-27-09	
Lin Skavdahl	2-27-09	
Richard Smith	2-27-09	
Stephanie Smith	2-27-09	
Dale Speicher	2-27-09	
Robert & Gail Stagman	2-27-09	
Ron Stepchuk	2-27-09	
Tamara Stephas	2-27-09	
Dina Stoeber	2-27-09	
Brian Sullivan	2-27-09	
Joe Talbert	2-27-09	
Aaron Theisen	2-27-09	
Kristi Theisen	2-27-09	
Bob Triggs	2-27-09	
John Tuxill	2-27-09	
Peter Uglesich	2-27-09	
Ken Vanden Heuvel	2-27-09	
Jason Wakeham	2-27-09	

Individual	Letter Received	Response No.
John Weatherman	2-27-09	69
Thomas Weber	2-27-09	
Roxy Whalley	2-27-09	
Stuart White	2-27-09	
Cathy Wickwire	2-27-09	
Therese Wittman	2-27-09	
Gordon Wood	2-27-09	
Kenneth Wu	2-27-09	
Bryan Wyberg	2-27-09	
Jose Yenderrozos	2-27-09	
Yinghua Zhang	2-27-09	
Daniel Zizza	2-27-09	

8. Comments from Individuals (Form Letter #2 – Conservation Northwest - Modified)

Individual	Letter Received	Response No.
Becky Barker	2-27-09	70
Tana Beus	2-27-09	71
Eric Burr	2-27-09	72
Marilyn Closterman	2-27-09	73
Brenna Forester	2-27-09	74
Dawn Garcia	2-27-09	75
Erik Hagstrom	2-27-09	76
Nancy Jacobs	2-27-09	77
Colleen McShane	2-27-09	78
Erin Moore	2-27-09	79
John Pearce, Sr	2-27-09	80
Jim Mulligan	2-27-09	81
Charles Nafziger	2-27-09	82
Logan Riggs	2-27-09	83
Fred Struck	2-27-09	84
Liann Sundquist	2-27-09	85
Steve Varga	2-27-09	86
Laura Vitale	2-27-09	87
David Williams	2-27-09	88
Sharon Wilson	2-27-09	89

Table G-1 Public Comments and Agency Responses

Response No.	Name	Affiliation	Comment(s)	Agency Response
1-1	Bolster, Todd	Washington Department of Ecology	EIS should further evaluate potential impacts of grazing on water quality and riparian habitat.	The stocking rate and rotational use prescribed in Alternatives 1 and 2 are adequate protections for water quality based on scientific literature relating specific water quality parameters to factors controllable in a grazing plan. With minimal anticipated impacts, further evaluation cannot be accomplished short of testing during implementation.
1-2	Bolster, Todd	Washington Department of Ecology	EIS should explain further how proposed management practices will protect water quality, riparian areas, and aquatic habitats.	The stocking rate and rotational use prescribed in Alternatives 1 and 2 are adequate protections for water quality based on scientific literature relating specific water quality parameters to factors controllable in a grazing plan. The impact of cattle grazing to riparian areas depends entirely on the timing, duration, frequency, and intensity of grazing. Spatial distribution is also critical and is closely related to these three factors. Livestock residence times in a given management unit are very short, such that the opportunity for the type of disturbance to riparian vegetation that could result in sedimentation associated with vegetation loss is minimal. A rotational grazing system that includes one full year of rest out of three is generally sufficient to achieve stream management objectives for water quality and riparian vegetation. 30 to 60 day recovery intervals (time between defoliations) are recommended for protecting long-term protection of vegetation community dynamics. (Moseley, et al 1999). The proposed grazing rotation prescribes more generous rest periods than this minimum recommendation. From a holistic perspective, facilitating adequate growth (through appropriate rest periods) and reproduction mechanisms of riparian vegetation ensures streambank stability and water quality. Hydrologic function and soil stability is closely tied to healthy vegetation. We can measure specific "micro-indicators" of water quality and study factors that affect each of those to help develop management strategies, but the strongest correlation is with properly functioning vegetation.
1-3	Bolster, Todd	Washington Department of Ecology	Previously grazed riparian areas still in recovery are not identified specifically	All riparian areas will be monitored to evaluate whether livestock grazing is having a negative effect on riparian function. Some, particularly those with perennial surface water, will be managed with temporary exclusion fencing to ensure even short-term cattle use does not impact streambank stability.
1-4	Bolster, Todd	Washington Department of Ecology	Grazing plan relies on prescribed grazing and pasture amenities to restrict livestock access to surface water rather than stream fencing; fencing is inadequate	See Agency Responses 1-2, 1-3, and 1-6.

Response No.	Name	Affiliation	Comment(s)	Agency Response
1-5	Bolster, Todd	Washington Department of Ecology	DEIS acknowledges problems from direct livestock access to streams, but doesn't say how the proposed management will exclude livestock from streams and riparian area	The effects of direct access lie on a continuum with season-long annual use compounded by excessive stocking rates and poor distribution management on one end and rest-rotational use at light stocking rates on the other. The problems associated with direct stream access are largely alleviated by restricting the duration of use such that riparian vegetation is ensured an adequate recovery period from defoliation. The grazing plan ensures both light utilization of riparian vegetation (where it exists) and sufficient recovery time.
1-6	Bolster, Todd	Washington Department of Ecology	6. Livestock will use riparian areas regardless of management efforts if there are no fences	Developing off-site or hardened water access is a condition for implementation of the grazing plan. Off-stream water is a proven management strategy to reduce direct deposition of manure into surface water by as much as 90%. Riparian function is primarily related to healthy riparian-type vegetation. Riparian vegetation is protected by allowing an adequate recovery period from defoliation (whether by domestic or wild herbivores). The grazing plan ensures both light utilization of riparian vegetation (where it exists) and sufficient recovery time.
1-7	Bolster, Todd	Washington Department of Ecology	Adherence to NRCS grazing standard 528 for prescribed grazing controlling amount, distribution, and timing of animal use may not provide adequate water quality protections.	It is unclear what "adequate" is. The grazing plan is designed to protect riparian vegetation and preserve riparian functions, one of which is capturing normal levels of sediment and bacteria that are present in all lotic systems. The plans for Alternatives 1 and 2 limit the time domestic livestock are present, avoid direct deposition of manure into surface waters as much as is possible, and ensure that livestock use does not occur every year.
1-8	Bolster, Todd	Washington Department of Ecology	The DEIS does not say how adequate riparian buffers will be maintained without exclusion fence. No specification for buffer size.	Scientific literature is inconclusive on the ideal width for buffers. In many studies, very narrow buffers (1-3 meters) are sufficient to eliminate 99% of sediment and bacteria from overland flow. In other cases, very wide buffers are not sufficient, allowing significant bacterial concentrations in overland flow. Buffer width is best determined by other management considerations, such as changes in vegetation type based on the extent of the riparian zone or soil transitions. In these circumstances, with little opportunity for overland flow, the primary function of a buffer is as exclusion fence to prevent direct deposition rather than mitigating for upland non-point-source pollutants.

Response No.	Name	Affiliation	Comment(s)	Agency Response
1-9	Bolster, Todd	Washington Department of Ecology	“When livestock have unlimited access to streams, studies have shown that animal wastes are directly deposited into the stream or within close proximity to the stream. In large part the deposition of animal waste into or next to the stream is related to a physiological response to drinking the water or coming into contact with cool flowing water.”	Fecal bacteria show up in surface water in one of two ways: direct deposition or overland flow. 1. Direct deposition - The amount of time cattle have access to a riparian area has greater significance than stocking density to potential for bacteria input. In the proposed grazing plan, stocking density is very low, but residence time in a given management unit is short to encourage improved spatial distribution. The presence of an alternative water source has been shown to decrease direct deposition of manure in streams by as much as 90%, even if the stream is not fenced such that cattle are excluded. Each of the individual management units must have a hardened water access point prior to turning cattle into the wildlife area. This is primarily to protect riparian vegetation, but functions to dramatically reduce bacteria levels as well. The same physical entrapment that removes sediment and nutrients is also the primary mechanism for removing fecal bacteria from the water column. High bacteria counts in a stream are commonly back to background levels within three minutes as they are recaptured by the streambed. These bacteria are then subject to re-suspension when the streambed is disturbed, usually by high flows. Therefore, it is still important to minimize direct deposition. Once instream, bacterial survival is affected by turbidity, conductivity, pH, predators, antibiosis (most often an antagonistic relationship where the bacteria are negatively affected by metabolic byproducts of another organism), organic matter, algal toxins, dissolved nutrients, and temperature (Sherer, et al. 1992).
1-10	Bolster, Todd	Washington Department of Ecology	Fecal contamination of streams is a threat even when livestock are removed. Stream sediments serve as a reservoir for fecal coliforms.	There is little or no overland flow on this site: rainfall averages 7-21 inches, depending on elevation. Essentially all of the precipitation is winter snowfall and the primary opportunity for runoff is during snowmelt. Research consistently shows that transportation decreases significantly with initial soil moisture, i.e., moisture levels at the time of deposition. Manure deposition on the project site will occur between April 1 and June 30. The average total precipitation during this three month time period is less than 2", according to the National Weather Service. Soil is a very effective filter of bacteria, with 92-97% of <i>e. coli</i> filtered out in the first half inch of soil, and most of the rest in the next inch and a half. As long as soils are not saturated at the time of deposition, there is little opportunity for lateral movement. Bacteria in the soil survive no more than 7-21 days, depending on temperature and moisture conditions. Bacteria in a fecal pat live much longer. Conditions during summer and fall are hot and dry with full sun exposure and promote a shorter lifespan. The onset of fall precipitation, still minimal, does not occur until sometime in late October. Rainfall events that are high-intensity and short duration have the potential to move fecal material, but if soils are not saturated prior to the rainfall event, very little runoff occurs and bacteria remain

Response No.	Name	Affiliation	Comment(s)	Agency Response
				onsite.
1-11	Bolster, Todd	Washington Department of Ecology	The greatest threat to water quality is caused by consistent livestock activity in the riparian area.	We agree; this is what the rest-rotation grazing plan that complies with NRCS standards and HB1309 standards is designed to avoid.
1-12	Bolster, Todd	Washington Department of Ecology	“Cattle’s preference for the riparian corridor increases the potential elusive effects caused by browsing, trampling, and sloughing. When the associated water quality impacts are viewed cumulatively, the potential harm to the stream is immense. Changes in stream velocity, alteration of the stream bank, compaction of the riparian area, excess nutrients and pathogens, decreased dissolved oxygen, and attachment of pollutants to soils cause an interrelated and compounding set of effects, which can accumulatively result in multiple forms of water pollution.”	The effects of adjusting timing, duration, and intensity of use cannot be overstated. It is difficult to predict exact results prior to implementation, but we must draw principles from the wealth of research literature regarding grazing effects. The grazing plan is specifically designed to manage cattle in a manner that is very, very different from that which causes these effects. In order to avoid any possible expression of these effects, one would have to exclude all large ungulates from the wildlife area. In addition, if elk use combined with the proposed low level of careful cattle use causes these effects, WDFW will adjust the grazing plan to avoid them either with exclusion fencing or livestock removal.

Response No.	Name	Affiliation	Comment(s)	Agency Response
1-13	Bolster, Todd	Washington Department of Ecology	Cattle manure entering the stream can cause increased organic matter, oxygen consumption, and eutrophication. Nitrates and nitrites cause human health problems.	See comments on overland flow, 1-10. Moderate grazing intensities generally do not result in increased nutrient concentrations in surface water. Light to moderate grazing use in the riparian area can increase stem density through removing apical dominance of grass tillers and stimulating additional shoots to grow. Increased stem density slows water flow, causing bedload sediment to fall out of suspension. In addition, most phosphorus in rangeland settings is particulate rather than soluble/inorganic and will stay with the sediment deposits. 60-80% of the nitrogen excreted in urine will volatilize, and there is insufficient precipitation in this area to cause leaching of the small amounts left in the top soil layers. Approximately 80% of fecal nitrogen will volatilize if feces remain on the soil surface. The period of grazing use (April through August) is characterized by high temperatures and low relative humidity, maximizing volatilization potential. Nutrient input to surface water is expected to be minimal and far short of the levels necessary to cause these effects.
1-14	Bolster, Todd	Washington Department of Ecology	“Cattle with unlimited access to streams contribute to streambank alteration and retreat. Livestock grazing an intensified levels can initially decrease plant cover, cryptogamic crusts, soil aggregate stability, and soil organic matter, all while increasing compaction and soil crusting. In turn, these watershed scale impacts lead to increased runoff, sedimentation, and stream widening and shallowing.”	Sediment erosion is rarely a problem where vegetative cover and soil organic matter are maintained. The level of grazing proposed in the management units with riparian systems is designed to protect vegetation, avoid increasing bulk density, and ensure adequate ground cover such as residual plant material and litter. The CRM grazing committee recognizes that there is greater potential for compaction and soil loss in shrub-steppe plant communities; the grazing plan incorporates short rotations and extended rest periods to accommodate this inherent quality of the Whiskey Dick and Quilomene Wildlife Areas. Cattle will not have unlimited access to streams. See Agency Response 1-10.

Response No.	Name	Affiliation	Comment(s)	Agency Response
2-1	Fisher, Christopher; Lenz, Benjamin	Colville Federated Tribes; Grant Public Utility District	The stocking density Is the same between current grazing (Alternative 1) and proposed (Alternative 2). IS there impacts to wildlife habitat under the current management and recognizing the densities would be the same, wouldn't you suspect similar impacts to continue?	Stocking densities are similar. Please note also that while Alternative 1 says "No Action", the management applied under this alternative is different from what was applied before acquisition. "Livestock grazing would continue on pastures that have been grazed in the recent past", but not in the same manner as the recent past. Page 15 of the EIS states: "The goals of the 2008 livestock grazing plan would continue for subsequent years under the No Action (Current Management alternative). The rest-rotation principles to be applied under WDFW ownership are the same as those utilized in developing the grazing plan for Alternative 2. In reality, No Action is significantly different from historical use and cannot be legitimately compared with historical conditions and impacts on these lands. The grazing plan is designed to have little to no negative impact.
2-2	Fisher, Christopher; Lenz, Benjamin	Colville Federated Tribes; Grant Public Utility District	A follow up question is that certain Range Management Units will not be grazed i.e. Skookumchuck). Was this area factored into the calculation of AUM density?	No, the Lower Skookumchuck Pasture was not included in stocking rate calculations. Stocking rates were calculated for each pasture, see Table 2-2.
2-3	Fisher, Christopher; Lenz, Benjamin	Colville Federated Tribes; Grant Public Utility District	On pages 21 thru 23 (Table 2-5), the grazing period for each RMU is provided. The Upper Skookumchuck RMU has been proposed for grazing during the month of April in year 4. Realizing that Skookumchuck Creek is inhabited by UCR steelhead (federally listed endangered) and that spawning and incubation for summer steelhead occurs tom Mid-March thru May, wouldn't it be prudent to delay grazing this RMU until June 1st to minimize potential impacts to incubating eggs? Preventing grazing in this unit until June would allow fry to emerge from the redd and avoid negative impacts that may be caused by cattle in the vicinity of the stream channel.	Within WDFW ownership, fish-bearing waters, including those of the Upper Skookumchuck pasture, will be protected from cattle grazing. In 2008 this was done by using a temporary fence to exclude cattle from pasture lands east of the section 14 tributary (shown on Figure 2-2 of the DEIS).
2-4	Fisher, Christopher; Lenz, Benjamin	Colville Federated Tribes; Grant Public Utility District	On figure 2-3, a spring development appears to be located at the headwaters of Skookumchuck Creek (Wild Horse Crossing Range Management Unit. Again, acknowledging that Skookumchuck Creek is inhabited by UCR Steelhead, there is a concern that deleterious impacts from the concentration of livestock will be delivered directly to the stream channel. These impacts may include, but are not limited to diminished base flows, nutrient loading, increased sediment, and increased water temperatures. If this spring is located in the headwaters, is there an option that this particular spring development could be relocated at a distance from the channel where adverse affects could be reduced?	This spring is located on Puget Sound Energy land. In accordance with the PSE's EFSEC site certification agreement, springs will be fenced to exclude livestock.

Response No.	Name	Affiliation	Comment(s)	Agency Response
2-5	Fisher, Christopher; Lenz, Benjamin	Colville Federated Tribes; Grant Public Utility District	Another concern regarding protection of aquatic resources, on page 26 it is written that 162.1 miles of fence will be maintained. What is the frequency with which these fences will be inspected? As stated earlier, most of the waterways within the LT Murray Wildlife Area are small (~10 ft wide at bankful). Accordingly, damage to aquatic resources could be substantial if rangeland infrastructure is not monitored frequently? Who and how frequently would the integrity of the fences be monitored?	Boundary fences will be maintained annually by WDFW. Pasture fencing will be maintained by the permittee, prior to livestock turnout in a particular pasture. Fish-bearing stream reaches will be fenced prior to livestock turnout.
3-1	Hendrix, W. Frank		I am in full support of the Washington Department of Wildlife (WDFW) proposal to authorize managed grazing on WDFW managed lands with the State of Washington and within CRM properties. The proposed action will patten managed grazing on 10 of 13 pasture paddocks. I recommend that this proposal be implemented. I have more than 30 years of research, education and practical experience in managed grazing. Virtually all research done comparing managed grazing to non-grazing has shown an advantage to the environment by grazing. I am a strong supported of the Coordinated Resource Management (CRM) process. I support this CRM because it appears to be working in this case.	Thank you for your comment.
4-1	Hudson, Tip	Washington State University Extension	Supports Alternative 2	Thank you for your comment.
4-2	Hudson, Tip	Washington State University Extension	1.6 "Areas of Controversy and Uncertainty": The beneficial and/or deleterious effects of grazing are not unpredictable. Both have been described in the scientific literature. These impacts are typically described in association with a particular grazing regime. There is ample information on how to apply domestic livestock grazing to avoid these impacts, and it is this information the CRM grazing committee and WDFW have used to develop a defensible grazing plan for the Whiskey Dick and Quilomene WA's.	The FEIS has been redrafted to reflect the comment. See Section 1.6.

Response No.	Name	Affiliation	Comment(s)	Agency Response
4-3	Hudson, Tip	Washington State University Extension	<p>3.1.2.3: This paragraph makes the unqualified statement that no grazing will result in increased litter and that soil protection and soil organic matter is thereby increased. There are at least three considerations relevant to this assertion.1) The proposed livestock utilization would remove only a small fraction (~7%) of the potential litter in the CRM area. Grasses in April- and May-grazed units would experience regrowth prior to dormancy, recovering a significant amount of leaf and stem tissue. At the 35% utilization level, it is not obvious that livestock have been there, i.e., some plants have been bitten but most have not been touched at all. The only source of litter reduction is consumption, and consumption relative to total vegetation production on this landscape is nearly insignificant.2) Increased litter is not always positive. It does protect soil from incident precipitation and it does insulate the soil from direct solar radiation, maintaining a lower soil surface temperature and preventing some evaporation. However, it can also be an impediment to seed recruitment as native bunchgrass seeds may never reach the soil surface, a requirement for germination and subsequent establishment. Recruitment of new plants is important to the long-term health of the ecosystem.3) Litter does not contribute to soil organic matter until it begins to decompose. It cannot decompose effectively until it is in contact with soil and soil moisture. The hoof action of both elk and cattle assists in moving vertical litter, characteristic of bluebunch wheatgrass, closer to the soil surface, enhancing nutrient cycling.</p>	The FEIS has been redrafted to reflect these comments. See Section 3.5.
4-4	Hudson, Tip	Washington State University Extension	<p>The potential impacts to water quantity and instream flow are perhaps overstated. The document says that cattle consume 10-30 gallons of water per day. 30 gallons might represent a dairy cow on dry feed, but a beef cow needs from 6-18 gallons. A lactating cow in cool weather grazing forage that is 90% water may drink 8-10 gallons. In summer, on 30-50% moisture forage, and with a larger calf, she may consume 18 gallons. The subpopulation of elk that are resident animals (present during summer) will use water from the same water sources as livestock.</p>	The FEIS has been redrafted to reflect the comment. See Section 3.1.

Response No.	Name	Affiliation	Comment(s)	Agency Response
5-1	Johnston, Milton	Washington Department of Natural Resources	The Department of Natural Resources supports the proposed action to permit livestock grazing on the Wild Horse CRM area. As a landowner and participant in the CRM, we want to encourage this planning process and the multiple use of this area. The CRM planning group has used sound science to balance the needs of fish and wildlife with the need for livestock grazing. Furthermore, the CRM participants have prescribed sustainable grazing practices to promote good ecological conditions for the upland and riparian plant communities. Monitoring is also established and will be used to ensure sustainable management across the landscape.	Thank you for your comment.
6-1	Kelleher, Karen	Bureau of Land Management	Our office is concerned with the use of the "BLM 2008 Environmental Assessment for the Wild Horse Grazing Management Plan EA # OR134-07-EA~008" in the reference section of the EIS, and referred to throughout the document. The Environmental Assessment (EA) listed above is in a draft form and has not been released to the public for review. The document you are referring to is an incomplete internal working document that should not be referenced or cited. Due to the fact the document has not yet been completed, the BLM does not vouch for its contents. These references and all information they refer to should be removed from this document.	All references to the BLM EA have been removed from the FEIS.
6-2	Kelleher, Karen	Bureau of Land Management	In general, it was noted that the cumulative effects section did not address the effects of actions (both existing and proposed) by Puget Sound Energy on privately-owned adjacent lands and by Department of Natural Resources (DNR) and BLM on adjacent public lands. The cumulative effects sections should, at a minimum, evaluate the effects of all existing and proposed actions within the Coordinated Resource Management (CRM) area regardless of land ownership.	The FEIS has been redrafted to reflect the comment. See the cumulative effects sections for each Affected Environment section.

Response No.	Name	Affiliation	Comment(s)	Agency Response
6-3	Kelleher, Karen	Bureau of Land Management	Under this section, all lands regardless of ownership, within the confines of the CRM area are "WDFW managed pastures". And "accordingly, acreage and proposed livestock numbers given for each pasture reflect all ownerships;" These statements imply that all the lands regardless of ownership are included in the analysis, as the level of use over the landscape regardless of ownership was evaluated. We agree that the analysis should address the entire area including proposed actions regardless of ownership. However, it should also be clarified which actions occur on non-WDFW lands and which agency is responsible for authorizing the action. This conflicts with the description of range improvements. Some improvements that are on BLM land are included in the analysis and some improvements on "non- WDFW managed lands, are not included (2.3.7).	The text in Section 2.3.7 has been redrafted to reflect the comment.
6-4	Kelleher, Karen	Bureau of Land Management	Please specify that range improvements on BLM lands may only be authorized by BLM.	The text in Section 2.3.7 has been redrafted to reflect the comment.
6-5	Kelleher, Karen	Bureau of Land Management	Biological crusts are an integral part of the shrub steppe ecosystem and are found in the interspaces between and adjacent to desirable forage species. As such the statement" Due to the spatial distribution of crust the overall impact to biological crust is expected to be minor or minimal has no meaning. Impacts will happen to the crust and the effects will differ depending on timing, intensity and duration of the grazing. These different impacts need to be addressed.	The FEIS has been redrafted to reflect the comment. See Section 3.1.
6-6	Kelleher, Karen	Bureau of Land Management	It is unclear as to whether desired stocking rates are accurate. The Forage accessibility table 2.3.2 factors in forage on slopes up to 60% yet under environmental consequence 3.1.2 it is stated that "livestock tend to avoid steep slopes and typically consume forage on slopes less than 40 % slopes". It is important to know what portion of the areas are between 40-60% slope, before the impacts to the vegetation can be fully addressed.	The FEIS has been redrafted to reflect the comment. See Sections 2.3.2 and 3.1.2.

Response No.	Name	Affiliation	Comment(s)	Agency Response
6-7	Kelleher, Karen	Bureau of Land Management	The scabland community description is incomplete. Rocky outcrops are described here, not the scabland community. It is implied that scablands are inaccessible but the scab lands are extensive and accessible in some area which the document does not address. It should be stipulated that cattle attractants (water troughs, salt, protein block etc.) will not be put in or near scabland communities so the potential impacts to scabland do not need to be addressed. This would then support the statement that impacts from grazing are unlikely to the sensitive species found in this community.	Text in Section 3.4.1 has been redrafted to reflect the comment.
6-8	Kelleher, Karen	Bureau of Land Management	The information included on Sensitive Species is incomplete. Occurrence information from the Washington Natural Heritage Program has not been addressed; just Native Plant Society surveys.	Text in Section 3.4.1 has been redrafted to reflect the comment.
6-9	Kelleher, Karen	Bureau of Land Management	Consider excluding severely degraded rangeland across the CRM from grazing to allow seeding and weed control efforts to succeed in recovery of wildlife habitat.	Thank you for your comment. Restoration will proceed as funding allows.
6-10	Kelleher, Karen	Bureau of Land Management	3.5.2.1 Alternative 1 Direct and indirect Effects The second paragraph under Big Game is confusing because while the first sentence states potential negative effects of spring, summer and early fall grazing, the next sentences talk about the potential benefits of early season grazing, followed by potential negative effects of frequent grazing in the critical growth period, without making it clear how this alternative applies to these statements. Then it states that the alternative would have "minor, short-term effects on mule deer and elk." The analysis should be more specific about how exactly the alternative applies to the potential effects mentioned above. If a statement is made that early season grazing can improve the quality of winter forage for elk or affect bunchgrass vigor and health, it should be made clear whether or not this alternative will actually do that and some attempt to quantify effects should be made. Does the research on using prescribed grazing to improve winter forage for elk offer quantitative data about increases in nutritional quality or amount of forage? How does this relate to the proposed seasons of use and pasture rotations in terms of acres with potential improvement of winter forage for elk, or in contrast, potential for reduced bunch grass vigor and subsequent reduced forage for elk?	Text in Section 3.5.2.1 has been redrafted to reflect these comments.

Response No.	Name	Affiliation	Comment(s)	Agency Response
6-11	Kelleher, Karen	Bureau of Land Management	Under the shrub-steppe dependent species section, it is first stated that "livestock grazing impacts to sage-grouse would likely be negligible." Then in following sentences, it is stated that "Livestock grazing in riparian areas in Lower Parke, Whisky Jim and Upper Skookumchuck pastures could impact wildlife species, including sage grouse (during brood rearing)". An attempt should be made to quantify the effects. For example, how much potential nesting brood rearing habitat is available on a pasture basis, and how will the season of use and annual pasture rotation affect this in terms of acres of habitat potentially affected? This impact is not addressed in the cumulative impacts where all potential impacts should be evaluated for cumulative effects.	Section 3.5 of the FEIS has been redrafted to include additional discussion and clarification of grazing effects on sage-grouse habitat, particularly in riparian areas. The Proposed Grazing System has been developed to maintain vegetation characteristics for sage-grouse during breeding, brood-rearing, and winter seasons, as suggested by the Sage-grouse Recovery Plan (Stinson et al. 2004). Therefore, effects are expected to be minor and quantification is unnecessary.
6-12	Kelleher, Karen	Bureau of Land Management	This section states that "livestock grazing would be eliminated ... therefore no direct or indirect effects would occur." If grazing has been occurring and is then eliminated by this alternative, there would be direct and indirect effects caused by the cessation of livestock grazing. This effect should be analyzed in both the direct and indirect effects section, and the cumulative effects section.	The FEIS has been redrafted to reflect the comment. See Section 3.5.2.3.
6-13	Kelleher, Karen	Bureau of Land Management	This section should disclose that if grazing is authorized on state lands, there is no mechanism (e.g. fence) in place to prevent cattle from grazing on adjacent non-state lands within each pasture. Without authorizations from the other landowners, such as BLM, this grazing would constitute trespass, and may not be compatible with BLM desired or authorized land uses.	The FEIS has been redrafted to reflect the comment. See Section 3.7.2.
6-14	Kelleher, Karen	Bureau of Land Management	The first three paragraphs of this section are from the BLM draft EA (an internal working document). The EA is not an appropriate ethno-historical reference, and should be replaced with actual source data. The system of trails once used by Native peoples no longer exists due in part to changes in land ownership and access to trails; Indian trails connecting the Kittitas Valley to the Columbia should be spoken of in the past tense.	The FEIS has been redrafted to reflect the comment. See Section 3.8.1.
6-15	Kelleher, Karen	Bureau of Land Management	Under this section you state that no Traditional Cultural Properties (TCP) were found on WDFW lands in the CRM. What kind of survey was the TCP survey? Was it a literature survey, interviews with elders?	The survey was conducted using personnel qualified to review historic and/or archeological resources. The survey report followed the State (DAHP) standards and guidelines for Cultural Resource Survey Reports. Survey results indicate no TCPs were found on WDFW lands in the CRM area.

Response No.	Name	Affiliation	Comment(s)	Agency Response
6-16	Kelleher, Karen	Bureau of Land Management	Please describe the nature of tribal input. Did the Colville Confederated Tribes discuss the TCP review they wrote for the Puget Sound Energy Wind Farm Project? There may be TCPs located on Puget Sound Energy lands that lie adjacent to the CRM area. The potential presence of TCPs in the CRM should be noted and the Colville History & Archaeology Department could be contacted for a reference or further discussions.	The survey was conducted using personnel qualified to review historic and/or archeological resources. The survey report followed the State (DAHP) standards and guidelines for Cultural Resource Survey Reports. Survey results indicate no TCPs were found on WDFW lands in the CRM area.
6-17	Kelleher, Karen	Bureau of Land Management	What is the specific nature of the 13 sites (e.g. lithic scatters, rock features?) identified on WDFW lands in the CRM project area?	The specific nature of the 13 sites is discussed in detail in the Cultural Resources Survey conducted by EWU. The FEIS will be revised to include a general description of the types of sites. The description of the sites will be very limited due to the sensitive nature of the findings.
6-18	Kelleher, Karen	Bureau of Land Management	Were there any impacts from cattle or other agents to archaeological sites? If so, what recommendations were made by Eastern Washington Archaeological and Historical Services to mitigate future impacts?	WDFW has consulted with DAHP and respective tribes and will implement mitigation measure per DAHP requirements.
6-19	Kelleher, Karen	Bureau of Land Management	The Cultural Setting section mentions that members of the Yakama Indian Nation and Colville Confederated Tribes still collect plant and root crops in the CRM project area. What about impacts to traditionally gathered plant resources? These impacts should be addressed. In addition, such resource collecting areas can be thought of as locales having traditional cultural significance to members of the Yakama Indian Nation and Colville Confederated Tribes.	Project implementation is not expected to affect tribal hunting and gathering rights.
6-20	Kelleher, Karen	Bureau of Land Management	Numerous trampling studies have shown that impacts to archaeological sites from trampling are cumulative over time; thus, sites frequented by cattle continue to sustain the impacts of trampling, regardless of the century of past disturbance in the CRM area and should be addressed.	Cultural resource surveys were completed for proposed spring redevelopment sites. Site-specific mitigation plans will be developed, through consultation with DAHP and interested tribes, for these and any other known archeological sites.
6-21	Kelleher, Karen	Bureau of Land Management	With respect to range improvements: Range improvements on BLM lands may only be authorized by BLM. An isolated find was identified near the trough in the Rocky Coulee Pasture on BLM land. The BLM has recommended to the Department of Archaeology and Historic Preservation that a professional archaeologist be on location to monitor the project if reconstruction of this trough occurs and if this reconstruction involves ground disturbance.	WDFW has also recommended to DAHP that a professional archeologist be on location to monitor the project if reconstruction of WDFW-owned water developments occurs and if this reconstruction involves ground disturbance. WDFW is not proposing implement range improvements on BLM lands as part of this proposal.
6-22	Kelleher, Karen	Bureau of Land Management	Figures 1-1,2-3,3-1, and 3-3. Please display BLM and WDFW ownership on these maps to clarify that all actions proposed in the alternatives apply only the	Figures 1-1, 2-3, 3-1, and 3-3 have been redrafted to reflect the comment. See Appendix A.

Response No.	Name	Affiliation	Comment(s)	Agency Response
			WDFW lands.	
7-1	Lael, Anna	Kittitas County Conservation District	First I would like to commend WDFW for their commitment to the Coordinated Resource Management (CRM) planning process. CRM is a procedure designed to achieve compatibility between uses including agriculture, fish and wildlife habitat, forage production and use, forest products, recreation, land development and others. This DEIS clearly documents the Wild Horse CRM group's effort to coordinate activities and maximize resource management opportunities. This process is truly empowering local people (ranchers, agency staff, and other interest groups) to solve land use and natural resource issues through collaborative problem solving. Second, I would like to acknowledge the scientific analysis and monitoring that has been conducted cooperatively by WDFW, Department of Natural Resources (DNR), USDA Natural Resources Conservation Service and other resource professionals. This level of monitoring and analysis is invaluable to the CRM group and their decision-making throughout the process. Finally, I would like to offer my support for Proposed Action (PA) defined in this DEIS.	Thank you for your comment.
8-1	Robinson, Scott	Recreation and Conservation Office	It appears that the grazing pastures which are located on the Land and Water Fund grant area are the West Whiskey Dick, East Whiskey Dick, Rocky Coulee, Lone Star, and portions of Upper Parke, Wild Horse Crossing, Upper Skookumchuck, and Skookumchuck pastures. These pastures must be managed per Land and Water Conservation Fund grant laws and policies. Grazing management practices are eligible activities on Land and Water Fund assisted properties as long as they are compatible with and secondary to the outdoor recreational use.	Thank you for your comment.
8-2	Robinson, Scott	Recreation and Conservation Office	Section 3.7.2 of the DEIS describes the potential impacts to recreational activity as a result of the proposed grazing management area. Direct impacts listed include visual, olfactory, noise, overlap of users, delays and temporary inaccessibility. The DEIS states that minimizing the interference of grazing with recreational use can reduce some of these impacts. Fencing is also identified as an impact as it could obstruct or discourage recreational use. No mitigation measures are identified in Section 3.12 to address the potential recreational impacts caused	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
			by the proposed grazing management area. The best management practices offered are the existing WDFW public conduct code, which does not address how to manage recreational impacts from grazing.	
8-3	Robinson, Scott	Recreation and Conservation Office	WAC 232-12-181(7) requires all lands leased for grazing activity of WDFW land to be open to the public for recreational use which is consistent with the Land and Water Conservation Fund program policies. Per these policies, any non-conforming use which limits recreational use for more than 6 months would constitute a conversion. The DEIS is not clear on the extent that recreational use may be restricted and for what length of time during pasturing. RCO requests clarification on if and when the West Whiskey Dick, East Whiskey Dick, Rocky Coulee, and Lone Star pastures will be closed to the public in order to determine whether the proposed action would be a conversion of use.	There will be no restrictions of recreational use due to livestock grazing.
8-4	Robinson, Scott	Recreation and Conservation Office	It appears that the Vantage Hwy, Whiskey Jim, Lower Parke, Upper Parke, and portions of the Wild Horse Crossing and West Whiskey Dick pastures are located on Skookumchuck Phase 1 and 2 acquisitions. The RCO has consulted with the state's bond council with regards to the use of tax-exempt state bond funded grants for private purposes. Specifically RCO was informed that any private lease issued on properties acquired with WWRP funding assistance would be considered a private use of the property which could adversely affect the state's tax-exempt bond status. Until a general policy can be adopted to address this issue, RCO will not approve any leasing activity on properties acquired with WWRP assistance until it has been established that such leasing does not jeopardize the state's bonding status.	Thank you for your comment.
8-5	Robinson, Scott	Recreation and Conservation Office	It appears there may be a few parcels of land currently owned by WDNR within the grazing management area that may be transferred to WDFW ownership as a part of the upcoming land exchange between the 2 agencies. If any of the lands being transferred to WDFW will be used as replacement properties for any land exchange	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
			conversion for other RCO funded grants, then the applicable grant program policies will also apply.	
9-1	Holmquist, Janea; Hinkle, Bill; Warnick, Judy	Washington State Legislature	We write in support of the Washington Department of Fish and Wildlife's Proposed Alternative (#2) in the Draft Environmental Impact Statement prepared to evaluate effects of livestock management on the Quilomene and Whiskey Dick Wildlife Areas in Kittitas County. The recommended grazing plan serves as a visible model for smart rangeland livestock use, carefully adheres to Ecosystem Standards for State-Owned Lands, and was developed to accommodate multiple goals by an interagency team of rangeland experts. Rangeland livestock production that complements habitat management goals on public lands represents one facet of sustainable agriculture that is important for the conservation and innovative management of wildlands and the economic stability of local beef producers.	Thank you for your comment.
10-1	Arango, Jill	Cascade Land Conservancy	I am writing in support of Grazing Plan Alternative #2 relating to grazing of the Whiskey Dick Wildlife Area in Kittitas County. This plan, which resulted from a three-year coordinated resource management (CRM) planning process, is a thoughtful and scientifically-based grazing plan that: maintains important and historic cattle grazing grounds, reduces the impact of elk on irrigated farm lands, and improves elk habitat.	Thank you for your comment.
10-2	Arango, Jill	Cascade Land Conservancy	The stakeholders involved in drafting Grazing Plan #2 have thoughtfully balanced natural resource protection with local agricultural practices of long standing. This balance, among other things, will help support the County's rural economy and enhance habitat for large wildlife populations. The CRM for Whiskey Dick is a successful and well crafted land planning document that represents a consensus negotiated by local grazers, recreationists and conservationists, and it carefully manages for each of these objectives. This is why it has earned my support.	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
11-1	Blackwell, Jack	Rocky Mountain Elk Foundation & Lands of Conservation	Staff members of The Rocky Mountain Elk Foundation have taken time to review the Draft BIS entitled "Livestock Grazing Management of Quilomene and Whiskey Dick Wildlife Area at the L.T. Murray Wildlife Area Complex" in The RMEF's involvement in recent land acquisitions and interest in the wildlife values of the area brought us into the controversy that surrounds the concept of using livestock grazing as a management tool on public lands. Some of the people that contacted us wanted RMEF to oppose the grazing plan while others wished us to support it.	Thank you for your comment. These are complex issues and it is natural that any organization would have members with a diversity of strong opinions.
11-2	Blackwell, Jack	Rocky Mountain Elk Foundation & Lands of Conservation	We were impressed with the comprehensive nature of the Draft EIS. Seeing that the preferred alternative is to expand the amount of acreage to be leased we felt equal representation was given to some of the negative impacts of livestock. Of importance to RMEF are efforts to minimize negative impacts related to streams, soil compaction, increased transmission of noxious weeds, and vegetative impacts (particularly forage availability for ungulates) on native wildlife.	Thank you for your comment.
11-3	Blackwell, Jack	Rocky Mountain Elk Foundation & Lands of Conservation	We feel that adequate safeguards are planned to minimize the negative effects of livestock grazing on the area's important wildlife resources. Often overlooked by opponents of livestock grazing are the positive effects that can result from a properly managed livestock grazing program. These positive results have been documented in several independent studies, notably those by the researchers at the Starkey, Oregon, facility operated by the U.S. Forest. The studies show that a grazing rotation which considers timing, intensity, and duration of grazing can encourage new plant growth that times of the year which prove beneficial to wild ungulates such as deer, bighorn sheep, and elk. We were pleased to see the Department of Fish and Wildlife staff will be managing the on/off dates, making adjustments to the available Animal Months based on climatic and vegetative conditions, that portable electric fencing will be utilized to provide protection for riparian areas, and that adaptive management strategies will be used to consider other real-time conditions which may change contrary to the original plan. Many people, including some RMEF members, are watching closely, so it is critical the lessee be held to the provisions of the plan.	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
11-4	Blackwell, Jack	Rocky Mountain Elk Foundation & Lands of Conservation	We are also pleased to see the plan includes the construction and use of grazing exclosures to aid in the documentation of forage use. We recommend the installed exclosures include some that are livestock and elk proof (constructed using 8-foot tall woven wire fencing) and others that exclude only livestock (constructed using standard barbed wire fencing). This will allow the Department staff to differentiate between livestock and ungulate grazing impacts. Well documented monitoring results will provide data to help show the public that grazing and wildlife can coexist.	Thank you for your comment. We have no plans for elk exclosures at this time, but they could be added in the future, as funding allows.
11-5	Blackwell, Jack	Rocky Mountain Elk Foundation & Lands of Conservation	One very important, yet often overlooked, result of a well-conducted public land grazing program in rural areas like Kittitas County is the promotion of the partnership between the local community and the Department of Fish and Wildlife. At RMEF, we see the value of that partnership more clearly than most because we work to achieve local (including County Commissioner) support on all our land acquisition projects. Often local sentiment will turn against private lands going into public ownership because of the perceived decrease in the land available for traditional uses such as livestock grazing. In the conservation acquisition business, the support of County Commissioners is critical. County Commissioners oppose a public land acquisition in their county, there is little chance of gathering support in either the State Legislature or in Congress. In Kittitas County, the livestock industry has a long and proud tradition, and there are many examples of well-managed ranchlands which also provide excellent wildlife habitat. If agencies wish to continue to acquire critical habitats when they are available, they need to promote that public-private grazing partnership, where possible.	Thank you for your comment. Local partnerships are very important to WDFW and they are at the core of the CRM process.
11-6	Blackwell, Jack	Rocky Mountain Elk Foundation & Lands of Conservation	Because of the well-thought-out grazing strategies, monitoring protocols, and adaptive management strategies identified by the Department of Fish and Wildlife in the Quilomene Whiskey Dick Draft EIS, RMEF feels there are adequate safeguards to protect the wildlife values on the proposed area. For those reasons, and the continuing effort to be supportive of community values, the Rocky Mountain Elk Foundation supports the Preferred Alternative identified in the Draft EIS.	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
12-1	Clerf-Martinez, Carol	S. Martinez Livestock Inc.	All of the ranges in this study have been grazed for many years in the past. This has contributed to their value for wildlife grazing. The forage must be harvested in a timely manner. Range areas that have restricted domestic grazing soon become overgrown with stagnant, over mature vegetation that is no longer palatable. Managed grazing has been proven beneficial for the health of the range and to minimize the spread of noxious weeds and wildfires.	The lands within the project area have a long history of livestock grazing, beginning in the late 1800s, and continuing through 2008 on the Alternative 1 pastures (Vantage Hwy, Lower Parke, Upper Parke, and Whiskey Jim), and into the 1980s on the Whiskey Dick pastures (Lone Star, Rocky Coulee, East Whiskey Dick, and West Whiskey Dick). This grazing history, along with homesteading, fire exclusion, and number of other factors, contribute to the current condition and wildlife habitat value of this rangeland. WDFW believes that the light stocking rate and rotational system outlined in Alternatives 1 and 2 is compatible with management for ecological integrity and wildlife habitat.
12-2	Clerf-Martinez, Carol	S. Martinez Livestock Inc.	The question was raised as the "potential" of steelhead in Skookumchuck creek. Decisions should be based on sound scientific evidence not just the so called potential. These range creeks generally run intermittently except during spring runoff. The rest of the time there may be water in some places but the water can soon disappear completely for awhile and then to appear again. The blue stream lines on the map are not an indication of actual continuous moving streams.	The lower portion of Skookumchuck Creek runs year around. Spawning surveys have identified trout in the higher elevations as well as steelhead in the lower sections. Water conditions in the creek each year dictate the success of fish spawning.
12-3	Clerf-Martinez, Carol	S. Martinez Livestock Inc.	The sage grouse issue is another controversy. The sage grouse population has not increased even though grazing has been abolished on the Yakima Training Center and the Hanford Reach for many years. These shrub-steppe habitats have now become serious fire hazards.	Numerous habitat conditions influence the growth or decline of a wildlife population. Speculation regarding the habitat dynamics on the Yakima Training Center and Hanford Reach are outside the scope of this project.
13-1	Cole, Kenneth	Western Watersheds Project	WDFW has not adequately examined the effects of livestock grazing on increased weeds and how the herbicides used to control them will impact humans, wildlife and aquatic organisms such as snails, mussels, floaters, fish, and amphibians. WDFW does not describe how much and which herbicides will be used in the event that weed problems arise. Please see: http://www.blm.gov/wo/st/en/prog/more/veg_eis.html	Wildlife Area staff apply herbicides per label requirements. A list of targeted weed species and herbicides can be found in the Draft L.T. Murray Wildlife Area Management Plan, available on-line at: http://wdfw.wa.gov/lands/wildlife_areas/management_plans/pdfs/draft_plans/draft_lt_murray_plan.pdf . Aquatic herbicide is currently applied by Kittitas County Noxious Weed Board Staff.
13-2	Cole, Kenneth	Western Watersheds Project	WDFW has not adequately examined the impacts of livestock grazing on the state candidate species <i>Masticophis taeniatus</i> . The Washington Herpetology Atlas says "conversion of occupied shrub-steppe habitat to agricultural lands, or other uses, is the primary threat to this species. Destruction of hibernacula is also a threat." Very few reports of this species have been made and these animals are extremely rare.	Grazing is not conversion; it is a use of the land. Conversion of the land would be an impact to many species including <i>Masticophis taeniatus</i> . Known hibernacula will be avoided.
13-3	Cole, Kenneth	Western Watersheds Project	WDFW has not adequately examined impact of livestock grazing on possible reestablishment of pronghorn antelope as described in George K. Tsukamoto 2006.	Although an analysis of statewide habitat indicated the area could support Pronghorn Antelope, no decision has been made on re-introducing them into the State of Washington. Therefore, there are no

Response No.	Name	Affiliation	Comment(s)	Agency Response
				effects to analyze at this time.
13-4	Cole, Kenneth	Western Watersheds Project	WDFW has not adequately examined how livestock grazing and associated spring developments and wells will impact water tables and stream connectivity issues to maintain fish and other aquatic species populations.	Proposed water developments largely consist of replacing non-functional or undersized water troughs and hardening the area with gravel to prevent establishment of noxious weeds.
13-5	Cole, Kenneth	Western Watersheds Project	WDFW has failed to produce adequate inventories of aquatic invertebrates to determine if there are sensitive species present and how they will be affected. WDFW must conduct surveys for mussels, floaters and spring, snails among other species.	Per WAC 197-11-440, the Affected Environment section of an EIS should succinctly describe the principal features of the environment that would be affected, or created, by the alternatives. Inventories of species should be avoided, although rare, threatened, or endangered species should be indicated. A discussion of livestock grazing effects to plant, wildlife and fish species of concern can be found in Sections 3.4, 3.5 and 3.6, respectively.
13-6	Cole, Kenneth	Western Watersheds Project	WDFW has failed to produced adequate inventories of amphibians.	See Agency Response 13-5.
13-7	Cole, Kenneth	Western Watersheds Project	WDFW inadequately examines the effect that grazing will have on Short Horned Lizards. The Burke Museum of Natural History and Culture describes the conservation status this way: "Conservation status. Short-horned lizards have a wide range in Washington, but are rarely found and may be uncommon. They are subject to habitat loss due to human development and agriculture."	See Agency Response 13-5. Further, no human or agricultural development is planned on WDFW ownership within the CRM area.
13-8	Cole, Kenneth	Western Watersheds Project	WDFW fails to examine the impact of alternative 2 on bighorn sheep.	Section 3.5.2 of the FEIS has been redrafted to reflect the comment.
13-9	Cole, Kenneth	Western Watersheds Project	WDFW fails to examine the impacts of livestock to TMDL's for streams which pass through the project area.	See Agency Response 1-2.
13-10	Cole, Kenneth	Western Watersheds Project	WDFW fails to adequately examine impacts of livestock grazing to sedimentation of stream habitats in the project area.	Section 3.1 of the FEIS has been redrafted to reflect the comment.
13-11	Cole, Kenneth	Western Watersheds Project	WDFW fails to adequately examine the impacts of livestock grazing on listed steelhead and resident rainbow trout.	Cattle will be excluded from stream reaches with steelhead or rainbow trout in order to eliminate even the unlikely possibility of direct impact to redds. Riparian habitat quality in these reaches is expected to remain the same or improve.

Response No.	Name	Affiliation	Comment(s)	Agency Response
14-1	Conley, Julie	The Nature Conservancy	The Conservancy recognizes the role of sustainable ranching operations in the maintenance of landscape connectivity (Huntsinger and Hopkinson 1996). Through our work we have come to own ranch properties in 11 Western states incorporating managed livestock grazing as a tool to meet conservation objectives when appropriate. We have also partnered with numerous ranching operations to achieve conservation goals.	Thank you for your comment.
14-2	Conley, Julie	The Nature Conservancy	The Greater Wildhorse CRM's efforts to manage an increasingly fragmented shrubsteppe across ownership boundaries to meet multiple objectives are commendable. The grazing strategy proposed appears cautious and designed to prevent chronic, intensive grazing, providing periods of rest and deferment for each pasture. Potential riparian conflicts are recognized and addressed. The stocking rate proposed and the range of AUMs to be harvested are conservative based on the inventory forage estimates reported and allow room for flexibility in the event of adverse conditions.	Thank you for your comment.
14-3	Conley, Julie	The Nature Conservancy	Successful implementation of this plan will require true diligence on the part of the rancher and the grazing committee. They must regularly monitor conditions and make what could be difficult adjustments in a timely manner in response to unpredictable factors such as precipitation and big game forage use. The proposal puts responsibility on the grazers to manage distributional issues within pastures including the use of herding if needed. The bar has been set very high for the permittee and the grazing committee. Can all objectives for sensitive species and economic viability for the rancher be met?	We agree with your comments about the importance of monitoring and adaptive management to make the project successful. WDFW is committed to the process and it will be critical that the CRM group remains active and involved to ensure that all interests are represented.

Response No.	Name	Affiliation	Comment(s)	Agency Response
14-4	Conley, Julie	The Nature Conservancy	Another challenge inherent in the grazing plan lies in Heavy reliance on utilization measures within the plan. Utilization is to play the role of standard and condition of permit (pg 4, pg 27), target, (pg 9), and trigger (pg 132). It is stated that "Pasture moves will be determined by measures of seasonal utilization listed in table 2-3, while considering any additional growth that might occur that year." Utilization is a very imprecise measure subject to high variability amongst observers and prone to bias from many factors. Anticipating additional growth could be near impossible. Obtaining statistically valid utilization data would likely be costly and impractical. Low stocking rates are likely to create selectivity in grazing and heterogeneous patches which might benefit some species but could add complexity to utilization estimate. Given the controversy over grazing on Whiskey Dick, this is an approach guaranteed to seed further conflict.	We respectfully disagree. Utilization will be measured using a standardized technique, such as the Height-Weight or Grazed Class Method (TR 1734-3), which will reduce bias and variability amongst observers. Statistically valid utilization data can be obtained by sampling 30-60 plants per site, depending on utilization variability; this is neither costly nor impractical. However, we agree that anticipating regrowth is difficult, and the grazing plan presented in the FEIS has been redrafted to reflect that 35 - 60% seasonal utilization will be used to trigger pasture moves.
14-5	Conley, Julie	The Nature Conservancy	More important than rigid utilization standard on paper, should be a solid participatory process of adaptive management that provides a respectful give and take between the permittee, the agency, and those concerned about the resource. The process should use the flexibility written in the range of on/off dates and AUMs, utilization targets, and annual monitoring data to read the land and make adjustments as needed. It must begin from a collective understanding that all parties are doing the best they can to learn from experience and meet resource objectives.	Thank you for your comment. WDFW is committed to the adaptive management process.
14-6	Conley, Julie	The Nature Conservancy	The plan could be improved (perhaps this occurs over time) through the formulation of more explicit resource objectives for individual pastures based on the overall CRM objectives and specific state of the ecological sites within those pasture and the species and issues present. Each season's grazing experience may lead to new objectives to meet goals for sensitive species. These objectives and their requisite indicators would be further honed through incorporation of research indentifying underlying pathways in vegetation dynamics and rendered more realistic by greater understanding of thresholds and transitions.	Thank you for your comment. More specific resource objectives will be presented in the final livestock grazing plan.

Response No.	Name	Affiliation	Comment(s)	Agency Response
14-7	Conley, Julie	The Nature Conservancy	The grazing objectives outlined for 2008 included a desire for ecological sites to greater resemble the historic plant community for the site. Such an objective may not be realistic if certain thresholds have been crossed and active restoration coupled with extensive investment is not incorporated in the plan. This is would be true regardless of the presence of livestock grazing or not.	WDFW recognizes that ecological thresholds exist in arid plant communities, as is indicated in the State and Transition Model presented in Appendix B. Plant communities that are dominated by cheatgrass are unlikely to recover to the historic plant community using passive restoration alone.
14-8	Conley, Julie	The Nature Conservancy	The sources for weed introduction to public lands frequented by recreationists, hunters, and livestock alike are many. A comprehensive weed management plan and education campaign should be developed to prevent the further spread of noxious weeds. The grazing plan should detail ways to minimize weed introduction from livestock operations including cleaning of vehicles, an assessment of weeds on the home property of the permittee and holding periods for livestock entering the grazing area. The grazing plan for The Nature Conservancy's Zumwalt Prairie Preserve provides an example of such policies (Freeman 2008).	A comprehensive weed management is included in the Draft L.T. Murray Wildlife Area Management Plan, available on-line at: http://wdfw.wa.gov/lands/wildlife_areas/management_plans/pdfs/draft_plans/draft_lt_murray_plan.pdf . Additional suggestions for minimizing weed introductions are noted for further consideration.
14-9	Conley, Julie	The Nature Conservancy	It is essential that the above plan be adequately funded to ensure a successful adaptive management process.	We agree. Funding for public agencies is always hard to predict, but once a plan is approved, the pace of implementation will be determined by the availability of funding.
14-10	Conley, Julie	The Nature Conservancy	Pg 59 refers to Yakama Nation land as "Federal Holdings". Is this appropriate language?	The FEIS has been redrafted to reflect the comment.
14-11	Conley, Julie	The Nature Conservancy	Pg 66 National Historic Register of places. Should it be National Register of Historic Places?	The FEIS has been redrafted to reflect the comment.
15-1	Cool, Seth	Conservation Northwest	According to research conducted by the Washington Native Plant Society, the ungrazed Whiskey Dick has higher species diversity and more lichen crust and moss cover than the currently grazed Quilomene lands. For example, plots on the Whiskey Dick contained 14.5% lichen crust and moss cover while the Quilomene plots contained 1.1%. The Whiskey Dick plots had more species diversity, with an average of 18.3 species per plot while the Quilomene had 10.4. The Quilomene also had more bare soil per plot than the Whiskey Dick. What is the expected impact of each alternative on the lichen crust and species diversity? I appreciate plans to monitor impacts to vegetation as outlined in Appendix C, but I am concerned that there could be a loss of lichen- Will lichen cover be added as a trigger for livestock removal?	Expected impacts to biological crusts and plant species diversity are addressed in Section 3.1 and 3.4.2 of the FEIS, respectively. The effect of livestock grazing on vegetation and biological crusts depends on the timing, intensity, frequency, and duration of grazing. The short period of use, timing and low stocking level is not expected to significantly effect biological crusts, with the exception of sites around water or supplements. Recent research demonstrates that species richness is similar or higher on grazed versus ungrazed sites (Hickman et al. 2004, Courtois et al. 2004, Laycock et al. 2004, Olff and Ritchie 1998, Frank 2005, Hayes and Holl 2003, Rambo and Faeth 1999, Stohlgren et al. 1999). Lichen cover and species richness will be monitored, and undesirable effects (i.e., reduced site stability or species richness) will prompt the adaptive management process.

Response No.	Name	Affiliation	Comment(s)	Agency Response
15-2	Cool, Seth	Conservation Northwest	In the DEIS, Appendix B has the results of a rangeland inventory. Is rangeland inventory the best available method for determining whether shrub steppe habitat is being managed in the best interest of wildlife? What is the expected change under each alternative?	Rangeland is land on which the native vegetation is mostly graminoids, forbs, or shrubs and is managed as a natural ecosystem; rangeland includes grasslands, savannas, shrublands, many deserts, tundras, alpine communities, marshes, and meadows (SRM 1998). Rangeland inventories assess the health of rangeland plant communities, while collecting information such as forage production that is essential to planning livestock grazing activities. Quantitative monitoring techniques (i.e., Herrick et al, 2005) will be used to assess the impacts of livestock grazing on vegetation and wildlife habitat. The grazing plan proposed for Alternatives 1 and 2 is expected to maintain or improve rangeland health and wildlife habitat conditions.
15-3	Cool, Seth	Conservation Northwest	Alternatives 1 and 2 are not discussed in relation to Alternative 3 (no grazing alternative). For example, section 3.2.2 seems to imply that one year of rest rotation will provide enough benefits to not only cancel out three years of harm, but to actually improve water quality overall. While I understand that introducing rest-rotation could improve water quality in already grazed areas, how would introducing cattle to an ungrazed area will improve water quality), even if rest-rotation is utilized. How do the impacts to riparian areas in Alternative 1 compare to Alternative 3? Under Alternative 3, how many miles of stream habitat would see improved riparian vegetation and improved water quality?	Section 3.4 of the FEIS has been substantially redrafted. Revisions include enhanced comparisons of Alternatives 1, 2, and 3, and a discussion of stream miles effected under each alternative. The FEIS has also been redrafted to indicate that rest-rotation grazing systems are expected to improve riparian vegetation relative to season-long grazing systems.
15-4	Cool, Seth	Conservation Northwest	In Section 3.2.22, the cumulative effects section states that the cumulative effect of Alternative 2 on water resources will be "the same" as Alternative 1. But in Alternative 2 an additional 27,900 acres on the Whiskey Dick WA will be gazed, the riparian areas on the Whiskey Dick move from being protected from cattle by fencing and distance to being actively grazed. Under Alternative 2, how many additional miles of streams will be exposed to grazing vs. under Alternative 1? What type of impacts will occur to riparian areas and to wildlife habitat as a result?	Fish bearing reaches and associated riparian will be protected from livestock grazing under both Alternatives 1 and 2. See also Agency Response 15-3. The FEIS has been redrafted to include stream miles affected under Alternatives 1 and 2.

Response No.	Name	Affiliation	Comment(s)	Agency Response
15-5	Cool, Seth	Conservation Northwest	In my scoping comments, I asked: "How are NEPA requirements being met for the federal lands within the proposal area? Since federal funds were utilized to purchase lands that are included in the Greater Wild Horse Coordinated Resource Management Planning Process and since federal lands are included in the CRM process. However, I cannot find an answer in the DEIS to my question. I reiterate my request for NEPA and for a Section 7 consultation with US Fish and Wildlife Service regarding federally listed species.	The U.S. Bureau of Land Management will be responsible for NEPA and ESA Section 7 consultations on their Federal Lands. This EIS addressed WDFW lands only. WDFW is not using federal funds and no federal permit is required for WDFW to implement the preferred alternative on its lands; therefore, NEPA and Section 7 consultation are not required.
15-6	Cool, Seth	Conservation Northwest	What species of fish, wildlife, and plants are found in these riparian areas and how might cattle impact them? How will such impacts be monitored and what steps will be taken if impacts are found?"	Per WAC 197-11-440, the Affected Environment section of an EIS should succinctly describe the principal features of the environment that would be affected, or created, by the alternatives. Inventories of species should be avoided, although rare, threatened, or endangered species should be indicated. A discussion of grazing effects to riparian plants, in general, is presented in Section 3.4. A discussion of grazing effects to riparian wildlife and fish species of concern can be found in Section 3.5 and 3.6, respectively. Monitoring is addressed in Appendix C. Undesirable effects to habitat will prompt the adaptive management process.
15-7	Cool, Seth	Conservation Northwest	The DEIS acknowledges that livestock can damage riparian areas. But the DEIS has some peculiar references that do not appear to be accurate. For example, the DEIS cites Kauffman et al. 1997 claiming that "rest-rotation grazing in riparian areas has limited impacts." (p4) However, there is no reference the bibliography to Kauffman et al. 1997.	The References section has been redrafted to reflect the comment.
15-8	Cool, Seth	Conservation Northwest	In the DEIS, I was pleased to see statements indicating that cattle will be excluded from streams with temporary fencing. However the details are vague and the amount of fencing depicted in figure 2-2 seems very minimal, showing only minor temporary fencing proposals, limited to the Wild Horse Crossing, Whiskey Jim and Lower Parke nonnative animal grazing areas (NAGAs). Would it be accurate to say that figure 2-2 depicts all temporary fencing that is being proposed? If so, few streams will be protected from livestock. How will the unfenced riparian habitat (streams, springs, etc) be protected from cattle? This would appear to be contrary to the Livestock Grazing Plan, contrary to the Area Management Plan and contrary to the Sage Grouse Recovery Plan. I am particularly concerned about Whiskey Dick Creek and Upper Skookumchuck Creek, which provide migratory and spawning habitat for	Figure 2-2 has been redrafted to indicate the placement of temporary and permanent fences that will be used to exclude livestock from springs and streams.

Response No.	Name	Affiliation	Comment(s)	Agency Response
			federally-listed Summer-run Steelhead.	
15-9	Cool, Seth	Conservation Northwest	Section 3.2.2.1 states that the streams in the Alternative 1 area "naturally lack substantial riparian cover"(p39). The major distinction between areas covered by Alternative 1 and Alternative 2 is presence of cattle (cattle are known to remove riparian vegetation and harm water quality).What evidence is there that cattle grazing did not remove the natural cover in the Alternative 1 areas? Will there be plots of riparian areas that will be fenced off and will the vegetation changes inside these plots be measured?	The FEIS has been redrafted to include additional detail and assessment of riparian and streams within the project area. The majority of the streams within the CRM area are intermittent and have insufficient water flow to support substantial riparian vegetation. The upper reach of Parke Creek (Upper Parke pasture, Alternative 1 area) flows for a short period in the spring, but has insufficient water to maintain riparian vegetation. Evidence for this includes lack of fines and alluvial material. However, the middle reach of Parke Creek (Whiskey Jim pasture), while still intermittent, appears to have more potential for riparian shrubs and trees, but channelization and historic grazing has limited development. Within WDFW ownership, fish-bearing waters (including the middle and lower reaches of Parke Creek) and associated riparian will be fenced to exclude livestock. No permanent exclosures, or a paired study of grazed vs. ungrazed areas, is currently planned.
15-10	Cool, Seth	Conservation Northwest	There seems to be lack of clarity about the total number of AUM's under each alternative. Alternative 2 appears to have more impacts than initially stated and there is little information provided about what benefits to wildlife Alternative 2 provides wildlife above and beyond Alternative 1.	AUMs allowed under each alternative are presented in Table 2-6. The FEIS has been redrafted to include further analysis of the effects to wildlife under each alternative. See Section 3.5.
15-11	Cool, Seth	Conservation Northwest	The DEIS states, on page 2, "by spreading the grazing across a larger landscape, the Wild Horse CRM process allows for a reduction in the grazing intensity and the potential for recovery and restoration in the areas of the landscape that have been grazed in the recent past." This echoes statements made in the Department's 2007 "Livestock Grazing Plan for Whiskey Dick Wildlife Area" and statements made to me by several WDFW managers with whom I have discussed the proposal over the years. However, it appears that Alternative 2 will	The FEIS has been redrafted to reflect the comment. Alternative 2 now represents a 10% increase in AUMs over Alternative 1, but includes 170% more acreage. Therefore, similar grazing effects are now spread across the CRM landscape under Alternative 2.

Response No.	Name	Affiliation	Comment(s)	Agency Response
			result in 90% more average AUM's (435 AUMs to 837 AUMs; p. 40, p. 41, respectively).	
15-12	Cool, Seth	Conservation Northwest	Alternative 2 does not appear to lead to major reductions grazing on the areas included in Alternative 1. In fact it appears that Quilomene plots will be grazed in virtually the same intensity in Alternative 2 as in Alternative 1. (the only minor difference being that Alternative 2 calls for resting South Wild Horse in Year 5, reducing the total AUM's to be grazed on Quilomene sites from 4,411 to 4,276.) It appears that the main difference between the alternatives is that over a 5 year time period, Alternative 2 adds additional 1715 AUMs throughout the landscape, and reduces impact on the Quilomene by only 135 AUMs. Given that Alternative 2 will impact 27,900 more acres of high-quality wildlife habitat and given that Alternative 2 provides minimally less impacts to already grazed areas, what are the benefits to wildlife under, Alternative 2? How will Alternative 2 benefit wildlife more than Alternative 1)?	The FEIS has been redrafted to reflect the comment. Alternative 2 now represents a 10% increase in AUMs over Alternative 1, but includes 170% more acreage.
15-13	Cool, Seth	Conservation Northwest	Why are all areas not rested once at least every three years as prescribed in the NRCS Washington Technical Notes 34 and 35?	These documents recommend that grazing be deferred <i>during the entire growing season</i> one year in three. Dormant use is acceptable. This plan incorporates an entire year of rest periodically to leave abundant standing forage for winter elk use.
15-14	Cool, Seth	Conservation Northwest	Under both Alternatives, North Wild Horse is grazed the entire cycle without rest-rotation. Is it correct that North Wild Horse will not be rested under both alternatives?	Yes. While the grazing schedule for North Wild Horse still complies with NRCS guidelines, this may be adjusted in the final plan depending on availability of other areas outside of the CRM.
15-15	Cool, Seth	Conservation Northwest	Under Alternative 1, North and South Wild Horse are both grazed for the entire cycle. Is it correct that both Wild Horse pastures will not be rested under Alternative 1? This is contrary to the statement on page 1 of the DEIS, "Pastures will be systematically deferred or rested, according to NRCS Prescribed Grazing Standards," It is on the Wild Horse that a sage grouse was recently found. This lack of rest-rotation is contrary' to the recommendations outlined in the Sage Grouse Recovery Plan "Use periodic deferral of grazing and rotational	"Deferred" refers to the delay of livestock grazing in an area until after the growing season, whereas "rested" refers to the absence of livestock grazing in an area for a full year. Dormant season use is allowed annually in a deferred-rotation grazing system. The grazing rotations for North and South Wild Horse still comply with the above-mentioned NRCS guidelines for native bunchgrass grazing in that they incorporate growing season deferral at least twice in the 5-year plan.

Response No.	Name	Affiliation	Comment(s)	Agency Response
			grazing in all rangeland pastures (p 69)	
15-16	Cool, Seth	Conservation Northwest	Six fields are to be grazed during the "critical period", when meristem is elevated for flowering shoot development. In two out of five years, West Whiskey Dick is to be grazed in three out of five years. NRCS guidelines (2.3.1, DEIS) require that bunch-grass range be rested during the critical period in two of every three years.	It is hard to illustrate two three-year cycles in a five-year plan. In addition, not every management unit was available for each year in the plan so the rotation is worked as closely as possible to the rule, but part of the rule may see implementation in year 6.
15-17	Cool, Seth	Conservation Northwest	Why will the North and South Wild Horse be grazed in August; when the steppe grasslands are at their driest? It is likely that livestock will cause more damage to bunchgrasses in their efforts to find nutritious tissues at this time, and the biological crust of mosses, lichens and blue-green algae is most susceptible to damage from trampling in summer months.	In August, domestic mother cows are not lactating much and have lower nutrient requirements. Native bunchgrasses "cure" well and retain their energy values into the fall and winter. Dormant season use has little effect on the plant; the main concern with late summer use is the greater propensity for riparian use, which will be managed with other practices, and greater effects to biological soil crusts. Puget Sound Energy, with assistance from the CRM grazing committee, will monitor impacts to vegetation and biological crusts, and undesirable effects will prompt the adaptive management process.
15-18	Cool, Seth	Conservation Northwest	The DEIS lacks specific detail regarding the impacts to sage grouse under Alternative 2. For example, section 3.5.2.1 has some specific detail about the impacts under Alternative 1, but similar detail is lacking in 3:5.2.2. Section 3.5-2.1 makes reference to section 3.12, but it does not discern between the two alternatives. What additional impacts to sage grouse are expected under Alternative 2 vs. Alternative 1?	The FEIS has been redrafted to reflect the comment, see section 3.5.2.2. The difference between the alternatives is the broader landscape level of grazing, and spreading of effects.

Response No.	Name	Affiliation	Comment(s)	Agency Response
15-19	Cool, Seth	Conservation Northwest	The Sage Grouse Recovery Plan contains a narrative about the impacts of grazing on sage grouse. On the historically degraded Yakima Training Center, "Most of the 200 springs on the YTC were capped and diverted to cattle troughs, and perennial and ephemeral creeks were grazed, degrading summer brood habitat for sage grouse. (p25-26) How will each alternative differ from what occurred on the Yakima Training Center?	The Proposed Grazing System has been developed to maintain vegetation characteristics for sage-grouse during breeding, brood-rearing, and winter seasons, as suggested by the Sage-grouse Recovery Plan (Stinson et al. 2004). Further, all of the springs proposed for redevelopment have been previously developed. Proposed spring redevelopments largely consist of replacing non-functional or undersized water troughs and hardening the area with gravel to prevent establishment of noxious weeds. Temporary fencing will be used to exclude livestock from select stream reaches and wetland areas (See Figure 2-2). BMPs, which include utilization triggers for riparian areas, will minimize effects to unfenced riparian areas. Former grazing on the Yakima Training Center is outside the scope this review.
15-20	Cool, Seth	Conservation Northwest	Alternative 2, however, contains plans to re-develop fourteen springs. What type of sage grouse habitat currently exists at each of the spring? How will spring development impact sage grouse? How will the springs that will be left natural be protected from cattle impacts and be retained for use by sage grouse?	The FEIS has been redrafted to include descriptions and photos of representative springs, see Section 3.1. Re-development of springs means fixing problems associated with them, not eliminating habitat already associated with the springs. Some sites will have fences protecting the spring while others are not expected to have major impacts due to lack of riparian-wetland vegetation surrounding the spring. Effects to unfenced springs and riparian areas will be reduced through implementation of the Proposed Grazing System and BMPs, which include utilization triggers for riparian vegetation.
15-21	Cool, Seth	Conservation Northwest	According to the draft area management plan, "Grazing on the L.T. Murray and the Quilomene/Whiskey Dick was eventually discontinued in order to provide winter and spring forage for big game species, particularly elk (p10). The Grazing Plan notes that research was established in 1988 to monitor the recovery from past livestock grazing. We ask that an analysis of this history and the monitoring data be included in the SEPA analysis, including how each alternative would address past successes and problems. Specifically: Why was past grazing discontinued? What specific short-term and long-term impacts did historic grazing have on the wildlife habitat on the Whiskey Dick? What long-term impacts, attributable to historic livestock grazing, persist today? How have fish and wildlife conditions recovered since livestock were removed and how would each proposal impact recovery?	A series of photo-monitoring points were established in the early 1980s to track livestock grazing effects and to monitor recovery following termination of the permit. There is no formal analysis of this photo-monitoring, and therefore, no specific effects from livestock grazing can be evaluated. A representative selection of photo-monitoring sequences is included in Appendix D.

Response No.	Name	Affiliation	Comment(s)	Agency Response
15-22	Cool, Seth	Conservation Northwest	I understand the legislature provided \$490,000 to pay for the CRM process and that the Governor's October 2008 budget cut this by \$128,000. How will this cut affect each Alternative, what specific improvements might not be funded and how might this affect wildlife? What are the total costs of the project? How much do costs vary between each Alternative, including Alternative 3?	The specific funding that the legislature provided and that you mentioned was for the last biennium, and won't be a factor in implementation of whichever alternative is selected. Funding for public agencies is always hard to predict, but once a plan is approved, the pace of implementation will be determined by the availability of funding.
16-1	Cridlebaugh, Ron	Ellensburg Chamber of Commerce	The Ellensburg Chamber of Commerce is in full support of the Collaborative efforts and approach of the Whiskey Dick CRM. We would like to see the maximum amount of acreage allowed for grazing and monitoring using science based monitoring. The agricultural industry is very important to our community and way of life and therefore every effort possible must be made to ensure our farmers and ranchers have the opportunity to continue the responsible use of public land.	Thank you for your comment.
17-1	Diaz, Jennifer	Puget Sound Energy	Puget Sound Energy is an active member of the Wild Horse CRM planning process and has voluntarily facilitated the CRM group since January 2006. The CRM process provides for collaborative and adaptive management of fragmented or "checkerboard" landownership which maintains traditional uses of the area-like grazing, but in a more sustainable way that balances the need for healthy ecosystems and wildlife habitat enhancement. During the permitting process for the wind facility the agricultural constituents in the community made clear the need for the lands to continue to support traditional livestock grazing. PSE relies on the habitat experts within the State resource conservation agencies and others for the best biological opinion on the habitat benefits of grazing this land and we support Alternative 2 as proposed in the Draft EIS which would allow for viable livestock grazing that is compatible with the goals and objectives of improving range conditions and enhancing wildlife habitat.	Thank you for your comment.

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18-1	Dykstra, Peter	Trust for Public Lands	Most significantly for the purposes of this letter, TPL works in rural communities that depend on traditional agricultural uses of land and habitat protection for their economic and cultural well-being. WDFW's proposed implementation of a grazing management on the Quilomene and Whiskey Dick units will help ensure that these two goals are accomplished in Kittitas County. TPL believes that an appropriate grazing management plan is essential for these lands. As a lead partner with WDFW in acquiring nearly 17,500 acres of land in this area in last few years, TPL is certain that WDFW's commitment to implementing this grazing management plan was essential to completing that land acquisition effort, the Skookumchuck Conservation Project.	Thank you for your comment.
19-1	Eaton, Ken	Little Lonesome Ranch	The land in question here today has been used for grazing for many, many years. The ranchers that used it before, developed springs for water, and rotated the pastures to keep the grass available for their cattle. One very big benefit from this grazing plan will be once again having the water sources repaired and once again providing more sources for watering areas. This will help spread the cattle more evenly over the acreage and also allow for more locations for the deer, elk and game birds that also inhabit this area to drink. The grazing plan #2 should be the plan we use. It outlines very conservative utilization levels and will provide much improved forage quality and watering resources. This plan allows for all four basic ownerships to be managed as one; DFW, DNR, BLM and PSE.	Thank you for your comment.
20-1	Fite, Katie	Western Watersheds Project	Ranchers in Montana lease portions of their range to industry for carbon sequestering. This is known as selling Carbon Credits. State land managers should now consider this option as a viable alternative that could satisfy all interests. Please review scientific information found at www.climate.gov .	Thank you for your comment.
20-2	Fite, Katie	Western Watersheds Project	The EIS analysis has failed to take into account the effects of climate change in causing adverse outcomes of grazing disturbance and management actions. Grazing disturbance (or any vegetation manipulation) causes shifts in the environment that will make lands less resilient in the face of climate change. It will place increased stress on declining and imperiled wildlife, rare plants, and aquatic species.	The potential effects of climate change constitute a broad research question beyond the scope of this review. Monitoring and the adaptive management process will allow changes to the grazing plan should undesirable effects occur (e.g. impacts to rare plants, rangeland health, or wildlife habitat).

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20-3	Fite, Katie	Western Watersheds Project	The analysis also fails to examine the role of grazing disturbance in promoting desertification, emitting global warming gases, and contributing to and exacerbating global warming.	This is outside the scope of this review.
20-4	Fite, Katie	Western Watersheds Project	The full cumulative effects of imposing grazing disturbance on and near lands suffering from expanding industrial wind effects must be examined and revealed.	Grazing already occurs on the wind farm project and was dealt with in their analysis and found to be compatible with the project. The type of grazing planned for the wind farm and proposed for adjacent WDFW lands is designed to have minimal effects on the CRM landscape.
20-5	Fite, Katie	Western Watersheds Project	We stress that the EIS has greatly failed to conduct inventories and analysis related to the effects of grazing disturbance in altering insect prey availability for bats (See USFWS Greater Sage-Grouse Interim Report to understand how grazing may adversely affect insects and insect availability as food for other animals.	See Agency Response 13-5. WDFW's management recommendations for priority invertebrate species (Larsen et al. 1995) caution against intensive grazing and overgrazing. The Proposed Grazing System and BMPs were designed specifically to avoid overgrazing.
20-6	Fite, Katie	Western Watersheds Project	The adverse effects of cattle use on habitat quality include removing and reducing necessary shrub and grass foods for big game, altering escape and thermal cover, and disturbing animals during sensitive periods.	Please refer to Section 3.5 for a discussion of expected effects to wildlife and wildlife habitat.
20-7	Fite, Katie	Western Watersheds Project	WDFW also seeks to impose grazing disturbance during critical wintering periods for big game. Much more detailed analysis must be conducted to understand not only the effects of grazing disturbance on habitat quality and quantity for big game, but also to determine the cumulative effects of imposing grazing disturbance on top of existing (and expanding) industrial wind development and disturbance.	All grazing is proposed for spring and early summer, not during critical wintering periods for big game. The proposed monitoring plan will address habitat quality and quantity and there is no evidence that the wind development has had any adverse affect on big game.
20-8	Fite, Katie	Western Watersheds Project	Key habitats are not adequately mapped and defined, and their conditions and suitability for big game are not revealed. Bighorn sheep also must be considered here. Where are all winter, summer, fawning and other habitats? What is their current ecological condition? How limiting are these habitats in this region?	PHS maps were consulted in order to identify the ranges of big game and bighorn sheep as well as other key habitats. PHS maps are not included in the EIS, due to the sensitive nature of wildlife data. Bighorn sheep have been considered. It is not anticipated that there will be any interactions between bighorn sheep and cattle given the different habitats used as well as the fact that the majority of the population is north of the project area. Domestic sheep are not allowed under this plan so disease transmission is not an issue. The current ecological condition of all rangeland within the CRM area is presented in Appendix B.
20-9	Fite, Katie	Western Watersheds Project	Unlike Montana, Washington does NOT have large intact arid sagebrush or grasslands. Instead, these habitats are extremely limited already, and populations of shrub steppe species are on the verge of extinction. Thus, it is even more critical that the DEIS conduct a comprehensive analysis of all the effects, and determine the environmental risks and likelihood of loss and	Concerns identified in scoping are addressed. See also Agency Response 20-10.

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			extinction for important species affected by this grazing disturbance.	
20-10	Fite, Katie	Western Watersheds Project	We also wish to enter into the record information at Seattle Audubon's Website (since WDFW provides no systematic surveys of its own that detail specific habitat values and species occurrence and population importance in this region. ALL available biological records and surveys including reports must be part of this process, yet this info appears to be largely omitted from the EIS. WDFW appears to be trying to downplay the significance of these fragile lands.	The general requirements of in EIS are found in WAC 197-11-402. Subsection 6 states: "The basic features and analysis of the proposal, alternatives and impacts shall be discussed in the EIS and shall be generally understood without turning to other documents; however, an EIS is not required to include all information conceivably relevant to a proposal..." The EIS includes a scientific reference list of more 10+ pages of scientific documents used in it analysis. In addition, literature submitted by Western Watersheds Project has also been added to the record.
20-11	Fite, Katie	Western Watersheds Project	Greater Sage-Grouse are declining in Washington and in other parts of their range, and are listed as "threatened" by the Washington Department of Fish and Wildlife and as a "species of special concern" by the US Fish and Wildlife Service. Sage-Grouse were formerly found throughout the central Columbia Basin in areas of healthy sagebrush. Much of this sagebrush has been converted to agriculture or degraded by overgrazing. Sage-Grouse have now disappeared from much of their former range, currently occupying 8-10% of their historic range. In 1997, the Washington Department of Fish and Wildlife estimated that there were 900-1000 Greater Sage-Grouse left in Washington, divided into two isolated populations. One population is mostly located on private land in Douglas and Grant Counties, and the other is located on the Yakima Army Training Center grounds. Since the entire population in the state is restricted to these two spots, they are at serious risk to catastrophic fire, intensive grazing, military training impacts, inbreeding, and continued conversion of sagebrush to agriculture. The Conservation Reserve Program helps set aside habitat for Sage-Grouse on private land, and the Washington Department of Fish and Wildlife is currently researching habitat requirements of Greater Sage-Grouse in order to learn how best to protect them in the future. Protection and re-vegetation efforts have had some success, and the Douglas County population has increased since 1992. A state population	We agree.

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			as small as 1000 birds, distributed across only two isolated groups, is still at serious risk, and continued protection and habitat restoration are required to safeguard the future of the Greater Sage-Grouse.	
20-12	Fite, Katie	Western Watersheds Project	WWP is very disappointed in the DEIS. It ignores a broad body of current ecological science. It ignores evaluation of a broad range of alternative actions. It provides meager and in many cases almost no scientific and site-specific information that is essential for an environmental baseline.	The general requirements of in EIS are found in WAC 197-11-402. Subsection 6 states: “The basic features and analysis of the proposal, alternatives and impacts shall be discussed in the EIS and shall be generally understood without turning to other documents; however, an EIS is not required to include all information conceivably relevant to a proposal...” The EIS includes a scientific reference list of more 10+ pages of scientific documents used in it analysis. In addition, literature submitted by Western Watersheds Project has also been added to the record. See also Agency Response 20-27.
20-13	Fite, Katie	Western Watersheds Project	We have been informed that contractors prepared a Draft, and that many changes were subsequently made, and scientific information contradicting a politically imposed grazing scheme was removed or minimized.	WDFW did contract with a consultant to assist WDFW in the development of a draft EIS. However, as per our agreement with contractor – their draft was not developed to be complete or “public ready.” WDFW has added information to strengthen and support baseline information and agency process to insure that SEPA requirement were fully met. The statement that “scientific information contradicting a politically imposed grazing scheme was removed of minimized” is not true.

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20-14	Fite, Katie	Western Watersheds Project	Since both Contractors and WDFW have been over this with a fine tooth comb, we can not understand how the DEIS continues to downplay and to ignore a broad body of current ecological science related to the adverse effects of livestock grazing on shrub steppe habitat.	WDFW has considered ecological studies. The literature reviewed in preparing the grazing plan (and cited in the FEIS) included three of most frequently referenced papers addressing impacts of livestock grazing in the western U.S.: Belsky et al. (1999), Donahue (1999), and Fleischner (1994). Most adverse effects from grazing resulted in overstocking rates and or extended grazing periods. WDFW plans are for light grazing (<35% use) and short rotation periods.
20-15	Fite, Katie	Western Watersheds Project	We are very disappointed at the lack of site-specific analysis of the effects of livestock grazing on uplands, riparian areas, ecological processes. There is no site-specific analysis of the many facilities either.	The FEIS has been redrafted to include additional details and analyses for uplands, riparian areas, and proposed spring redevelopments. See Sections 3.4 and 3.1 respectively.
20-16	Fite, Katie	Western Watersheds Project	There is not adequate and systematically collected baseline information provided on: Location of habitats for all important and sensitive species. This is necessary to understand the relative rarity of vegetation community and habitat types in the landscape. In areas where such attributes are found, are there other complicating/adverse factors that may impede species use of an area? For example, where are there tall vertical structures that may impact or limit sage grouse use or movement in relation to sites with appropriate sagebrush and native grass and forb cover? Where are there predator perches on powerlines?	Per WAC 197-11-440, the Affected Environment section of an EIS should succinctly describe the principal features of the environment that would be affected, or created, by the alternatives. Section 3.5 describes habitat requirements for special status and PHS wildlife species, as well as expected effects under each alternative. A map of general vegetation types is included in Figure 3-1.
20-17	Fite, Katie	Western Watersheds Project	There is not adequate and systematically collected baseline information provided on: Condition of habitats in relation to species-specific needs. It is necessary to conduct current analyses of composition and structure of habitats that fulfill a species-specific requirements. For example, sage-grouse require adequate sagebrush cover and 9 inches of residual herbaceous cover for successful nesting (Gregg et al. 1994, Connelly et al. 2004). Where is this currently found? How will it be altered by the grazing schemes? Where in the Whiskey Dick area and surrounding lands, are sagebrush communities found that contain these features? Sage-grouse require 15-25% and at times greater sagebrush canopy cover of taller statured sagebrush for successful nesting. Where are these vegetation components found? Where are a combination of understory residual cover and sagebrush canopy cover and structure found? Where will these attributes be found if grazing to levels of 35% are imposed?	Per WAC 197-11-440, the Affected Environment section of an EIS should succinctly describe the principal features of the environment that would be affected, or created, by the alternatives. A discussion of species-specific habitat condition is not required, and would be both cost and time-prohibitive to produce. Refer to Sections 3.5 and 3.6 for an analysis of expected effects to fish and wildlife species of concern, including sage-grouse.

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20-18	Fite, Katie	Western Watersheds Project	There is not adequate and systematically collected baseline information provided on: Status and trends of populations of important and sensitive species. This must be based on current systematic surveys.	Status and trends of important and sensitive wildlife species can be found on-line at http://wdfw.wa.gov/wildlife/management/endangered.html . The proposed grazing plan follows applicable PHS and recovery plan recommendations (Stinson et al. 2004; Knutson and Naef 1997; Nordstrom and Whalen 1995; Vander Haegan 2003).
20-19	Fite, Katie	Western Watersheds Project	There is not adequate and systematically collected baseline information provided on: Degree and severity of factors (roads, facilities, cheatgrass/weed expanses or other unsuitable habitat) currently fragmenting habitats for important and sensitive shrubsteppe species. Where are all existing powerlines, roads, livestock facilities (fences, water developments, wells, etc.). Where are all expanses of cheatgrass or other weeds that have occurred as the result of fire, livestock grazing- or a combination of both? How much of a loss - and fragmentation - of habitat do they represent?	Figures 1-1, 1-2, 2-2, 2-3, 3-1, 3-4 in the FEIS show roads, fences, water developments, wells, etc. within the CRM project area. There are no "expanses of cheatgrass or other weeds". Areas that have burned on the wildlife area in the past have returned to native shrub-steppe habitat with little management. Weedy areas ranging up to several acres can be found proximal to locations of concentrated livestock use, primarily adjacent to water sources. These areas represent less than 2 percent of the project area.
20-20	Fite, Katie	Western Watersheds Project	We are deeply disappointed that WDFW has not followed the legal requirements of SEPA, and has forsaken its agency mission. WDFW is charged with "protecting, restoring, and enhancing fish and wildlife and their habitats, while providing sustainable fish and wildlife-related recreational and commercial opportunities". Best available science demonstrates that this grazing proposal will degrade and destroy, rather than protect, restore and enhance wildlife populations and their habitats.	See Agency Responses 20-10 and 20-23.
20-21	Fite, Katie	Western Watersheds Project	The Grazing Plan rubberstamps a large-scale and highly significant new grazing disturbance proposal, large-scale and still undefined in scope livestock facility construction (including spring "development", de-watering, unknown amounts of "temporary" fencing in unknown locations). These and other EIS actions will destroy the unique and irreplaceable values of the remarkable shrub steppe habitats of Whiskey Dick.	The FEIS has been redrafted to include additional descriptions of spring redevelopment work (Section 3.1) and locations of temporary fences (Figure 2-2). WDFW believes that this grazing plan is compatible with the maintenance of quality shrub-steppe habitat.
20-22	Fite, Katie	Western Watersheds Project	SEPA requires that WDFW fully disclose the full environmental impacts of agency actions. WDFW must conduct science-based analyses that fully examine all direct, indirect, cumulative effects, and all connected and foreseeable actions.	WDFW has conducted an honest and scientifically based analysis of the proposed project. See also Agency Response 20-10.

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20-23	Fite, Katie	Western Watersheds Project	The Whiskey Dick grazing scheme is highly uncertain. It is embedded within a larger Working Landscapes scheme to impose new grazing use to benefit private cattle interests on fragile arid WDFW lands, including shrubsteppe and canyon grasslands, across the fish and wildlife habitat lands of the Columbia Basin.	WDFW policy (#C-6003) allows for carefully managed grazing to facilitate coordinated resource management. Coordinated Resource Management (CRM) is used to assist in the Working Landscape goal. In addition, the Legislature supported the implementation of this CRM through dedicated funding. The fundamental methods used to develop the grazing approach in this area have been in place and in practice for many years, where predictable outcomes have been observed. WDFW has added mitigation measures, including monitoring and adaptive management, to minimize uncertainty.
20-24	Fite, Katie	Western Watersheds Project	The unique and critical ecological role of the WDFW lands, as well as the conflicts between private cattle grazing disturbance and the Department's mission and the Purposes for which these lands were acquired, necessitates preparation of a much more honest and rigorous EIS before the effects of grazing can be understood in the Whiskey Dick-Quilomene region.	WDFW has conducted an honest and scientifically based analysis of the proposed project. Further, SEPA does not establish that WDFW lands require a different or enhanced level of evaluation in an EIS.
20-25	Fite, Katie	Western Watersheds Project	Grazing will degrade winter habitat for big game, not "improve" it. Grazing disturbance here will also degrade and destroy year-round habitat for all upland game birds and shrubsteppe biota including many rare and sensitive species.	The effect of livestock grazing on existing vegetation and wildlife habitat depends on the timing, intensity, frequency, and duration of grazing. The short period of use, timing and low stocking level will not weaken the native plant communities or degrade big game winter habitat. In addition, the grazing plan is consistent with WDFW management recommendations for shrub-steppe species and habitats. For example, WDFW management recommendations for sage thrasher and sage sparrow state "livestock grazing at low to moderate levels has not been shown to be detrimental" (Vander Haegen 2004a, 2004b), and recommend allowing more than 50 percent of the current year's perennial bunchgrass production to persist through the following breeding season. Management recommendations for striped whipsnake (Nordstrom and Whalen 1997) encourage conservation of rodent burrow systems. This is accomplished through the grazing plan with light stocking. Optimal habitats near talus slopes, rocky canyons, and dry rocky streambeds are unlikely to attract livestock use.
20-26	Fite, Katie	Western Watersheds Project	The DEIS does not provide adequate environmental and scientific baseline provided to inform analysis and understanding of the effects of imposing cattle grazing and trampling disturbance on grazing-degraded lands recently acquired Skookumchuck and other lands.	Please see Section 3.1.2 Environmental Consequences and the discussion in the following sections that disclose the impacts related to compaction (trampling) and the actions proposed to minimize these impacts.
20-27	Fite, Katie	Western Watersheds Project	The DEIS does not provide adequate environmental and scientific baseline provided to inform analysis and understanding of the effects of imposing cattle grazing and trampling disturbance on irreplaceable recovering shrubsteppe at Whiskey Dick that has been free of grazing disturbance for a quarter century.	Please refer to the entirety of Chapter 3 of the EIS where extensive information regarding the Affected Environment (i.e., "environmental baseline") is provided. As previously stated, WAC, agency policy and legislative funding to implement the proposed project would indicated a high level acceptance that managed grazing is compatible with WDFW mandates as well as agency goals and objectives.

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20-28	Fite, Katie	Western Watersheds Project	There is not an adequate range of science-based alternatives. There is not an adequate analysis of the No Grazing Alternative. What is termed "No Action" is actually not No Action.	Per WAC 197-11-786 a "Reasonable alternative" means an action that could feasibly attain or approximate a proposal's objectives, but at a lower environmental cost or decreased level of environmental degradation. Reasonable alternatives may be those over which an agency with jurisdiction has authority to control impacts, either directly or indirectly through requirement of mitigation measures. In addition, the development of the draft EIS was coordinated with WDFW's SEPA Coordinator and based on feedback WDFW did consider a reasonable range of alternatives.
20-29	Fite, Katie	Western Watersheds Project	Grazing was illegally imposed on certain lands in 2008. There is no evidence that a valid permit existed	The court found that the record of decision did not contain adequate evidence of a previous permit to support use of a SEPA exemption. The agency has since amended this current record to provide the documentation needed.
20-30	Fite, Katie	Western Watersheds Project	There are not adequate details provided on where and how lands were used in the past, what stocking rates were in each and every area, what intensity of use/utilization occurred, where it was measured, sampling and techniques that were used, when it was measured in relation to all grazing episodes, who measured use, etc. Intensities of use, stream bank collapse and alteration - bacterial/manure pollution of waters, elevated water temperatures, etc. are not provided. Analysis of "NO Action" based on a single year is deeply flawed.	Existing information regarding past land use and stocking rates is provided in FEIS, see Section 3.4.1.
20-31	Fite, Katie	Western Watersheds Project	Where was grazing conducted in 2007 - wasn't that only on the wind farm private lands?	Grazing in 2007 occurred on the Vantage Highway, Whiskey Jim, Lower Parke and Upper Parke Creek pastures, prior to their acquisition by WDFW.
20-32	Fite, Katie	Western Watersheds Project	The EIS attempts to pull the wool over a reader's eyes. There are some lists of "pastures", tables of vegetation info from a general ag-type vegetation survey. There is no systematic analysis of ecological conditions and rangeland health as they relate to stocking rates, use levels, and other components of the scheme. This is especially true in relation to the lands that are actually going to bear the brunt of the cattle grazing and trampling disturbance. This is greatly inadequate from an ecological standpoint	The vegetation survey measured rangeland health and condition. Rangeland health is defined as "the degree to which the integrity of the soil and ecological process of the rangeland ecosystems are maintained (Pellant et al. 2005). Rangeland condition is the degree of departure from the historic climax plant community. Methods for this survey are presented in Appendix B. The FEIS has been redrafted to include additional analysis of the proposed grazing plan on rangeland health and condition. See Section 3.4.

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20-33	Fite, Katie	Western Watersheds Project	The discussion of the Affected Environment, and especially the biological and aquatic values, is extraordinarily limited and deficient. There is no way to understand the effects of an action without comprehensive current animal and plant site-specific surveys and inventories. There is no systematically examined inventory and analysis of the occurrence of wildlife species and other native biota across the project area over all seasons of the year. There is no identification and analysis of important and sensitive species habitats, nor of their ecological condition related to each species habitat needs. Skookumchuck acquisition documents state at least 13 federal or state listed or priority species are present.	Per WAC 197-11-440, the Affected Environment section of an EIS should succinctly describe the principal features of the environment that would be affected, or created, by the alternatives. Inventories of species should be avoided, although rare, threatened, or endangered species should be indicated. Plant species of concern are addressed in Section 3.4. A discussion of grazing impacts to wildlife and fish species of concern can be found in Section 3.5 and 3.6, respectively.
20-34	Fite, Katie	Western Watersheds Project	There is no identification of the degree and severity of fragmentation, or barriers to species movement and use of habitats under the alternatives (Connelly et al.2004, Dobkin and Sauder , 2003). There is no analysis of fragmentation of habitats that already exists, or that would be increased for each species of concern under the grazing and development scheme.	WDFW has been working to reduce fragmentation and create contiguous ownership for the benefit of wildlife. The acquisition of private lands adjacent to existing wildlife areas and the proposed effort to coordinate management of this large landscape under dramatically improved grazing strategies are a major step toward defragmentation and habitat improvement.
20-35	Fite, Katie	Western Watersheds Project	There is no analysis of persistence and viability of populations under a range of alternative actions. Where are viable populations of those 13 species still present in the Project area? In the County? In the state?	This is outside the scope of this project. Effects to species of concern within the project area are addressed in the Vegetation, Wildlife, and Fish sections.
20-36	Fite, Katie	Western Watersheds Project	The EIS has not shown that habitat for sage grouse or wintering big game will be adequately provided under the grazing schemes. It has not provided any specific restoration actions to deal with the cheatgrass and other weeds that have been caused in large part by livestock grazing disturbances. Instead, it would place new infrastructure and a competing, intensive use on large areas of lands already known to be highly damaged by livestock disturbance, and disturb and destroy a unique area of ungrazed shrubsteppe.	We are implementing a grazing regime with a short period of spring and early summer use with a light grazing intensity (<35%) to minimize potential for noxious weed spread. The FEIS has been redrafted to include additional discussion of grazing effects on sage-grouse and big game. Cheatgrass has been present in Washington since the late 1800s, and now is common throughout the shrub-steppe region. It is unlikely that the light grazing we are prescribing will result in increases in cheatgrass abundance, but we will rely on our monitoring data to determine if an increase occurs and adjust the grazing plan as necessary.
20-37	Fite, Katie	Western Watersheds Project	There are no alternatives, other than the No Grazing Alt, that adequately address serious ecological concerns related to the purposes for which the lands were purchased.	In Washington State the primary threat to shrub steppe habitat has been and continues to be conversion. The next most serious threat to shrub steppe habitat has been fragmentation. The overriding purpose for purchasing the property is to prevent conversion or fragmentation. All alternatives achieve that purpose.

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20-38	Fite, Katie	Western Watersheds Project	There is no alternative that addresses grazing only the private lands including those of the grazing promoting wind farm. Since the wind farm has been such an avid promoter of the CRM process, this certainly seems to be a logical alternative action. In fact, hasn't the wind farm in 2007 and 2008 allowed grazing to occur to accommodate the cattleman in this grazing scheme? Since the wind farm is a member of the CRM, any monitoring or other info including financial records of subsidies involved in this grazing use (facilities, weed spraying, rehabbed lands disturbed and costs of the lost rehab efforts, etc.) should be provided.	Alternative 3 addresses grazing only on the wind farm. The wind farm has some of most important shrub steppe habitat within its boundaries. It has abundant springs and is flatter with deeper soils. These attributes make it more attractive to some important species most notably sage-grouse. One of the primary purposes of the CRM for WDFW is the ability to influence grazing practices on neighboring private lands and DNR Trust lands. Under the current CRM proposal the entire landscape is being managed consistent with WDFW's recommendations under the Sage Grouse Recovery Plan.
20-39	Fite, Katie	Western Watersheds Project	What are the effects of cattle trampling on bare soils, on springs of special sensitivity, etc. - on ALL lands of the CRM? We are concerned that one of the reasons the wind farm has so ardently promoted harmful grazing disturbance is so that species of concern like sage-grouse may be extirpated. If grazing extirpated these native animals, then grouse and other shrubsteppe species would not be a concern to the developers that are now expanding industrial wind facilities in the area.	Impacts from livestock grazing and trampling to soils and riparian areas are addressed in Section 3.1 and 3.4 of the FEIS, respectively. Puget Sound Energy's participation in the Wild Horse CRM planning process pre-dated the documentation of sage-grouse on PSE land in 2007. Furthermore, grazing on PSE follows the Sage Grouse Recovery Plan guidelines (Stinson et al. 2004).
20-40	Fite, Katie	Western Watersheds Project	Who are all the private land owners in this landscape? Are all involved in the CRM? WWP met with local residents in the area that strongly opposed the grazing undertaking, including by the hand-selected stockman operation.	See the Kittitas County landownership map, Figure 1-2. All of the landowners within the 62,000 acre CRM are represented. The CRM meetings were well attended by a wide variety of local citizens. The first meetings had about 50 participants. The operator was selected by bid.
20-41	Fite, Katie	Western Watersheds Project	Please provide a detailed analysis, and include an Appendix that shows, the various grants, and what they were specifically meant to do. Detail the amount of federal, state and other funds used for all land acquisitions in the project area.	The FEIS has been redrafted to include a summary table of requested material. See Appendix F. Beyond that there is nothing here to analyze that would be pertinent to the decision.
20-42	Fite, Katie	Western Watersheds Project	What has been is the effectiveness of acquisitions in conserving "at risk" species habitats and populations? How has fragmentation increased since lands were acquired?	Acquisitions can only protect certain high priority areas, but they are the only way to permanently protect habitat from development and fragmentation. Fragmentation has not occurred within the Skookumchuck acquisition, but it continues on private lands in the vicinity.
20-43	Fite, Katie	Western Watersheds Project	Regarding the CRM process: Please provide an analysis of how this process may adversely deal with environmental issues and allocation of "resources".	See CRM Handbook, available on-line: http://www.crmwashington.org/publications

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20-44	Fite, Katie	Western Watersheds Project	The CRM plan is not based on best available science, including for sage-grouse and other critically important and imperiled species, We are concerned that a similar process involving Cattlemen, WDFW, and various ag reps. was responsible for driving the Columbia Basin pygmy rabbit Distinct Population Segment to extinction in Washington State. A full analysis of the disastrous consequences of the CRM at Sagebrush Flat and its role in the demise of the Columbia Basin rabbit must be included. There are strong parallels with Whiskey Dick. New livestock facilities and intensified livestock use are being thrust upon lands acquired for fish and wildlife, in a situation where populations of shrub steppe wildlife are already at low levels. The CRM here too appears to will push rare species to extinction. Such effects must be fully assessed.	The conversion of deep soil shrub steppe to agriculture was the cause of the demise of Pygmy Rabbits, not the Sagebrush Flats CRM. The Sagebrush Flats CRM was formed when the property was DNR Trust Land. The properties purpose at the time was generating revenue for the DNR Trust. Sagebrush Flats was proposed as a Natural Area Preserve by DNR. The Natural Area preserve proposal by DNR would have excluded grazing. It met so much political opposition that DNR asked whether WDFW would consider accepting the land as a wildlife area where grazing could be considered. WDFW agreed. The agreement to work with cattlemen was the determining factor allowing Sagebrush Flats to come out of Trust Land status and into conservation status. The strongest parallel between Whiskey Dick and Sagebrush Flats is that WDFW's willingness to work within a community-based context allows lands to be moved into a conservation status. WDFW's biologists found the Pygmy Rabbits at Sagebrush Flats, WDFW suggested that a CRM be formed to influence DNR grazing practices to benefit Pygmy Rabbits, WDFW worked with statisticians to determine that Sagebrush Flats was too small to too support a viable population of Pygmy Rabbits. We concluded that without other conservation measures on neighboring private lands that the Pygmy Rabbit was doomed to extinction. Once again the community-based approach was and is necessary to preserve, protect and perpetuate fish and wildlife. Due to our willingness to work with the Douglas County community, WDFW was approached by the Foster Creek Conservation District about creating a Douglas County HCP that would work to integrate private landowners into a conservation plan for Salmon, Steelhead, Sage Grouse and Pygmy Rabbits.
20-45	Fite, Katie	Western Watersheds Project	There has been no ESA consultation on the Whiskey Dick plan, or other recent WDFW grazing disturbance in endangered species habitats. This is despite the involvement of multiple federal agencies. Science shows that this action will impair water quality, decrease sustainable perennial flows, result in copious amount of water-polluting livestock waste deposited in and near the project area, remove and reduce stabilizing riparian area vegetation, de-stabilize soils across the watershed making them more vulnerable to erosion in wind and water, and otherwise adversely affect waters. It will also harm aquifer processes - and development of facilities for livestock may increase demands on declining aquifers. Grazing disturbance dries out and desertifies arid lands. See Sheridan CEQ 198L, Dregne et al. 1986, Steinfeld et al. 1986). This grazing scheme will reduce	WDFW actions related to the proposed project have not triggered a federal nexus that would result in our agency's involvement in an ESA consultation. See Agency Response 15-5.

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			perennial flows in drainage networks a Columbia Basin stream and aquifer system under great stress already. Full ESA consultation over such effects is essential - and it has not occurred. Effects may be direct, indirect and cumulative.	
20-46	Fite, Katie	Western Watersheds Project	There has been no science-based analysis, grounded in current biological and ecological science, that shows the CRM "Goal" is compatible with sage-grouse conservation, migratory bird conservation, Townsend's ground squirrel needs, loggerhead shrike needs, striped whipsnake needs, recovery of aquatic systems, rare plants, watersheds, native aquatic species, and other important values.	Section 3.5 of the FEIS contains a science-based analysis of each alternative on special status wildlife species. Section 3.4 of the FEIS contains an analysis of each alternative on rare plants and WDFW Priority habitats. Section 3.6 contains an analysis of each alternative on special status fish species. All three of these sections have been substantially redrafted for the FEIS.
20-47	Fite, Katie	Western Watersheds Project	The DEIS schizophrenically waffles back and forth between referencing noxious weeds and invasive species. It often downplays and glosses over cheatgrass and other "non-noxious" invasive species that rapidly spread with grazing disturbance. NO real baseline is established.	Noxious weeds are defined by the state weed board. Invasive weeds is a more general term identifying species that are often establish quickly after ground disturbance. Cheatgrass is not defined by the state weed board as a noxious species, but is an invasive weed. We are implementing a grazing regime with a short period of use with low stocking levels and grazing intensity (<35%) to minimize potential for spreading weeds.
20-48	Fite, Katie	Western Watersheds Project	There is no evidence that the grazing schemes and lack of restoration actions (passive and active) are compatible with "enhanced habitat for wildlife that use the area". Where, specifically, and how, will habitat be enhanced for sage-grouse by developing undeveloped springs, grazing native bunchgrass lands ungrazed for decades?	Proposed water developments largely consist of replacing non-functional or undersized water troughs and hardening the area with gravel to prevent establishment of noxious weeds. No new springs will be developed. Under the current CRM proposal the entire landscape is being managed consistent with the Sage Grouse Recovery Plan (Stinson et al. 2004).

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20-49	Fite, Katie	Western Watersheds Project	As WDFW continues on its juggernaut to impose grazing disturbance on nearly all lands acquired for wildlife. It has not examined the consequences [direct, indirect and cumulative) of its current grazing - How many acres? Where? What are conditions? What imperiled species are affected? NO HCP has been completed, despite WDFW promising that such an action would occur.	The premise is incorrect. In WDFW's Region Three, the grazed lands are a small percentage of total lands owned by WDFW. Within the Whiskey Dick-Quilomene-Colockum complex about 2/3 of the shrub steppe lands between Vantage and Wenatchee will remain ungrazed. Of the 1/3 that is within the CRM area only about 30% of that zone would be grazed on a given year. Of the land to be grazed during a given year each pasture would be grazed for only a few weeks. A very, very small juggernaut. We do not expect to create any mortality to ESA listed species.
20-50	Fite, Katie	Western Watersheds Project	The plan does not provide the environmental baseline, or the current ecological and biological science, to demonstrate that it complies with agency Goals and Objectives. see DEIS at 7-BJ.	See Agency Response 20-27.
20-51	Fite, Katie	Western Watersheds Project	The EIS contains no alternatives, other than No grazing, that protect, restore and enhance wildlife populations and habitats.	This FEIS contains two grazing alternatives and one no grazing alternative, for a reasonable range of alternatives. See also Agency Response 20-90.
20-52	Fite, Katie	Western Watersheds Project	There is no difference in stocking rates or other components between the 2 limited and narrow grazing alternatives.	The FEIS has been redrafted to "spread" grazing effects over the CRM landscape. Alternative 2 now represents a 10% increase in the number of AUMs, and a 170% increase in acreage over Alternative 1. In the DEIS, Alternative 2 represented a 90% increase in AUMs, and a 150% increase in acreage over Alternative 1.
20-53	Fite, Katie	Western Watersheds Project	Imposing intensive cattle grazing disturbance on remnant shrubsteppe habitat critical for persistence of sage-grouse, native reptiles, and other imperiled species in Washington state is not protecting, restoring and enhancing habitat. Imposing grazing on acquired lands already acknowledged by WDFW to have been seriously damaged by grazing use and targeted for prolonged rest when acquired - is not protecting, restoring and enhancing habitat.	The alternatives considered in this FEIS do allow "intensive cattle grazing disturbance". The level of grazing being proposed would represent only a small fraction of the historic levels of grazing.
20-54	Fite, Katie	Western Watersheds Project	The other Goals and Objectives found in DEIS at are not shown to be fulfilled. For example, an Objective is "Ensure ... WDFW activities, programs, facilities and lands are consistent with local, state, and federal regulations that protect fish, wildlife, and their habitats and contribute to recovery".	Fulfillment of all the goals and objectives of WDFW are not necessary to inclusion of this project, only those pertinent to the project. WDFW activities are consistent with regulatory requirements.

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20-55	Fite, Katie	Western Watersheds Project	There is great uncertainty over fences - old fencing is found across the lands - ad in places shown on the mapping, upright fencing no longer existed in 2006, and it appears fences may have been prematurely repaired in violation of SEPA). IN sites visits, we observed tangles of wires on the ground -or completely missing in areas of WD now claimed to be pastures. Was fence prematurely repaired/built? The Action Alternatives would impose large expanses of barbed wire. It us not even certain HOW MUCH barbed wire fencing currently is present [including on private lands, how much electric fencing, will be used, and where all fences will be located. The DEIS fails to even reveal the location of all fencing proposed - such as the maze of "temporary" fencing. Until detailed mapping, analysis and site-specific info and mapping for each and every CRM area livestock facility is provided, the complete footprint and adverse effects of the project cannot be determined.	No fences were prematurely repaired or built. Boundary fence for the wildlife area is maintained on an annual basis. The existing boundary and pasture fences are displayed in Figure 2-2 in the FEIS. Figure 2-2 has been redrafted to show the location of all proposed fencing, both temporary and permanent. Miles of each type of fencing is also discussed in Section 2.3.7 of the FEIS. The FEIS also discusses the fact that temporary fencing will occur as needed to protect fish bearing waters. The project area has few fish-bearing waters and they are displayed in Figure 3-3 and discussed in section 3.6.1 of the FEIS.
20-56	Fite, Katie	Western Watersheds Project	Serious hazards of existing and proposed/foreseeable fencing to wintering wildlife are not examined or mitigated. Snow levels increase fencing hazards no matter what the wire spacing. Grouse and raptors collide with fences and die. Both permanent and band-aid "temporary" fencing can greatly intensify livestock use in all unfenced areas - promoting rapid losses of habitat. Intensified use will result in mortality of nestlings, loss of eggs, and disturbance of nesting birds making eggs and nestlings more vulnerable to predation. There will be "take" of nests and eggs of migratory birds, and other sensitive or imperiled species.	Boundary fences are already a part of the Wildlife Area and on new purchases will be built to protect the lands from trespass grazing. Temporary fences are meant to control and properly distribute livestock rather than intensify use in an area. Section 3.5 has been redrafted to include additional discussion of expected effects to wildlife from proposed fencing.
20-57	Fite, Katie	Western Watersheds Project	Agencies can not ensure compliance with the Migratory Bird Treaty Act until the EIS fully provides info and analysis on all components of the grazing scheme, structures and destructive activities salt, supplements, water haul, herding activities) as facilities are built, or as lands are inundated with large herds of privately owned livestock during critical breeding and nesting periods.	This is outside the scope of the project.

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20-58	Fite, Katie	Western Watersheds Project	One-time disturbance events by the cattle operation in or near ferruginous hawk or other raptor nests may cause abandonment, loss of eggs or chicks if adults are displaced for a significant period of time. Equipment may run over and kill young bird and/or eggs, flush adults making eggs and chicks more vulnerable to predators /brood parasites, etc. Livestock will be turned out right on top of ground squirrel burrows with young, and in drought years competition for food may be severe. There is not even identification of key habitats in all pastures for all species - and surveys to determine population status.	There are no known ferruginous hawk nests in the area (historical or recent). Most raptors nest on structures above the ground. Livestock will not be turned out on ground squirrel colonies. The intent of proposed utilization monitoring is to prevent overuse, particularly in drought years.
20-59	Fite, Katie	Western Watersheds Project	There is no evidence that this action complies with BLM sensitive species policy, where actions are not supposed to contribute to the need to List a species. There is no evidence that this loose and uncertain grazing scheme complies with BLM's Conservation Policy for Greater Sage-grouse - which BLM has told a federal court in Boise carries the weight of law.	BLM provides direction on their ownerships, not WDFW.
20-60	Fite, Katie	Western Watersheds Project	There is no evidence that this loose and uncertain grazing scheme complies with agency analyses and commitments made in association various Biological Assessments, Biological Opinions for Listed and anadromous species, Total Maximum Daily Loads (TMDLs) for the Columbia or tributary systems, commitments made under BPA and other grants, etc. There is uncertainty over sediment production, elevated water temperatures, elevated soil, manure, cattle hormone and other pollution that will be produced from inflicting grazing across 62,000 acres - or nearly 100 square miles. There is no analysis of how ground and surface water loss and depletion will affect water quality, water quantity, perennial flows, and pollution loads.	See Agency Response 1-2.
20-61	Fite, Katie	Western Watersheds Project	There is no assessment of the Water Loss Footprint (loss, removal, waste of water) of this undertaking - including water wasted and lost in trampling, livestock wastes, through gutting wild land springs and killing surface flows in range "developments". This may add up to permanent losses of surface flows, and greater evaporation loss as well. The period of grazing use spans the period from maximum runoff to when streams may become intermittent as hot summer temperatures set in [March-August).	Proposed water developments largely consist of replacing non-functional or undersized water troughs and hardening the area with gravel to prevent establishment of noxious weeds. Section 3.2 addresses livestock grazing effects to water quantity.

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20-62	Fite, Katie	Western Watersheds Project	The scheme is certain to introduce more sediment, manure pollutants, likely herbicide pollutants due to increased cattle-caused weeds, into runoff and riverine systems already greatly stressed by irrigated agriculture, other ranching and industrial pollution, impoundments, etc. It will also alter the baseline for any TMDLs, Biological Opinions, Biological Assessments, or other ESA consultation or commitments to state and federal water quality laws as well.	The stocking rate and rotational use prescribed in Alternative 2 are adequate protections for water quality based on scientific literature relating specific water quality parameters to factors controllable in a grazing plan. A review of scientific literature can be found in Mosley et al. 1999. The impact of cattle grazing to riparian areas depends entirely on the timing, duration, frequency, and intensity of grazing. Spatial distribution is also critical and is closely related to these three factors. Livestock residence times in a given management unit are very short, such that the opportunity for the type of disturbance to riparian vegetation that could result in sedimentation associated with vegetation loss is minimal. In this way, the livestock utilization of riparian areas and associated surface water mimics, or is less significant than, wild ungulate use. A rotational grazing system that includes one full year of rest out of three is generally sufficient to achieve stream management objectives for water quality and riparian vegetation. 30 to 60 day recovery intervals (time between defoliations) are recommended for protecting long-term protection of vegetation community dynamics. (Moseley, et al 1999). The proposed grazing rotation prescribes more generous rest periods than this minimum recommendation. From a holistic perspective, facilitating adequate growth (through appropriate rest periods) and reproduction mechanisms of riparian vegetation ensures streambank stability and water quality. Hydrologic function and soil stability is closely tied to healthy vegetation. We can measure specific "micro-indicators" of water quality and study factors that affect each of those to help develop management strategies, but the strongest correlation is with properly functioning vegetation.
20-63	Fite, Katie	Western Watersheds Project	The CRM group, of which federal agencies are participants and even funders to the cattleman Stingley operation grazing on these lands through EQIP and other funds, has not consulted with US Fish and Wildlife Service and NOAA on the adverse effects of this action to threatened and endangered aquatic systems, and the threatened and endangered species that inhabit them.	We suggest you ask the federal agencies.
20-64	Fite, Katie	Western Watersheds Project	The grazing system is claimed to be "objective-driven", but there is no certainty and no scientific basis (ecological, biological) for any claims that the system of Alts. 1 and 2 comply with objectives for WDFW, WDNR BLM, or other lands, or that agencies are fulfilling mandates for these lands. This makes any application of loose and highly uncertain Adaptive Management even more risky.	The Washington Administrative Code (WAC) 232-12-181 - Livestock Grazing on the Department of Fish and Wildlife Lands - and the Fish and Wildlife Commission Policy C-6003 demonstrate that managed grazing has been determined compatible with WDFW mandate. WDFW cannot speak to WDNR or BLM objectives or mandates. Additionally Alternatives 1 and 2 both meet the stated purpose and need of the draft EIS.

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20-65	Fite, Katie	Western Watersheds Project	"Objectives" for a cattle operation (which is what the CRM/NRCS single-minded plan is all about) have nothing to do with protecting, maintaining or enhancing habitats and populations – and thus being "objectives" for wildlife.	Most of the Whiskey Dick Wildlife Area was purchased for Elk Habitat. Most of WDFW's ownership in the Whiskey Dick-Quilomene-Colockum complex will remain from an elk winter range perspective. The CRM intends to use grazing to create forage attractive to elk during spring "green up". On any given year 90% of the WDFW land in the landscape between Wenatchee and Vantage will remain ungrazed and available for elk winter forage. Those ungrazed areas will also provide optimal nesting and brood rearing habitat.
20-66	Fite, Katie	Western Watersheds Project	There is no range of grazing actions examined so that the "best" technique can be selected. There is only reliance on a single NRCS scheme	NRCS recommendations are based on the biological requirements of native bunchgrasses such as bluebunch wheatgrass and Idaho fescue.
20-67	Fite, Katie	Western Watersheds Project	The set of assumptions on which the NRCS cattle scheme is based is not provided, nor is the limited and single-minded cattle production-oriented science backing it up.	NRCS Prescribed Grazing Standard 528 is based on the biological requirements of native bunchgrasses such as bluebunch wheatgrass and Idaho fescue. For more information see Guinn (1994) and Rouse (1994).
20-68	Fite, Katie	Western Watersheds Project	There is no analysis of contradictory science that shows biological conflicts - such as timing of use – with native biota. There is no valid analysis of basic conflicts of NRCS "range" claims and use periods to be imposed with science related to microbiotic crusts (BLM Technical Bulletin Belnap et al. 2001, bluebunch wheatgrass physiological requirements [BLM Technical Bulletin Anderson 1991), and a broad body of science related to ecological effects of grazing, and grazing as a direct, indirect and cumulative cause of species decline and endangerment.	The FEIS has been redrafted to include the <i>timing</i> of grazing in the analysis of effects on biological soil crusts and native bunchgrasses. See Sections 3.1 and 3.4, respectively.
20-69	Fite, Katie	Western Watersheds Project	There are also contradictions even in the range info provided. It is claimed that utilization is to be 35% [Appendix C). That is how much the private Stingley cows get to consume – averaged across the landscape.	Utilization measurements will not be averaged across the landscape. Utilization data will be collected both in areas with predicted high use (ie, within 100-m of water), and more representative use, and will be reported by strata.
20-70	Fite, Katie	Western Watersheds Project	The utilization level does NOT take into account the amount "consumed" after the spring summer cattle grazing episode ends. The amount that would be consumed by wildlife, eaten by grasshoppers, broken off by hail, after the cows have removed 35% is not provided.	Consumption by wildlife and insects is unknown; therefore, forage allocated to cattle is very conservative. Under Alternative 1, 11% of the "palatable" forage, or 6% of the total biomass, will be allocated for livestock consumption on average each year within the Alternative 1 Area; under Alternative 2, 4% of "palatable" forage, or 3% of total biomass, will be allocated for livestock consumption on average each year within the Alternative 2 Area.

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20-71	Fite, Katie	Western Watersheds Project	In many areas of the landscape, use will be much more severe than 35%. Utilization is an average, and monitoring sites are typically quite distant from areas of intensive use or heavier cattle damage. Many plants may be grazed to B0o/o or more - and Anderson (1991) elucidates the damaging and severe and even lethal effects this may have on native bunchgrasses like bluebunch wheatgrass. There is little to no regrowth on native grasses and forbs after the period grazing ends - so if cattle graze these lands to 350/o, there will be ZERO "available" for wildlife under the scheme laid out here. Thus, if 35 % is supposed to accommodate watershed and other needs, wildlife will be allowed to consume zero. Additionally, livestock often break off, trample and destroy vegetation and 1,0 o/o or more of veg biomass is likely to be affected by this.	See Agency Responses 20-69 and 20-70. The grazing plan in Alternatives 1 and 2 follows NRCS Prescribed Grazing guidelines for native bunchgrasses (i.e. bluebunch wheatgrass). Utilization measurements take into account both the consumption and destruction of vegetation (Coulloudon et al. 1999).
20-72	Fite, Katie	Western Watersheds Project	There is also no upland browse or "breakage"/nipping limitation to protect native shrubs, and provide structural complexity and diversity.	The predominant upland native shrub is big sagebrush; cattle do not typically graze this species in the spring or summer (Uresk and Rickard, 1976; Van Yuren, 1984). Use of more palatable upland browse species is expected to be light, as forage quality of preferred grass species is high during the grazing period.
20-73	Fite, Katie	Western Watersheds Project	There is no set method and set pattern of livestock herding laid out. There is no analysis of repetitive grazing and trampling events that may occur through herding, rotating use, trespass, etc. There is no time limit set on herding, no info if livestock will be herded through "rested" pastures. Thus, it is very likely that livestock may be trailed through and destroy, trample, and consume much more vegetation, including in association with exceedingly fragile spring and seep areas and native uplands. This would be on top of whatever is measured when they are supposed to move on.	The permittee is responsible for herding livestock. Herding will occur along roads, where feasible, within as short a time frame as possible.
20-74	Fite, Katie	Western Watersheds Project	Under the loose and highly uncertain "adaptive management" grazing scheme here, there is no specific action or set of actions triggered by exceedances. If use ends up being 50% in half the areas - will lands be closed to grazing for the next several years? Will livestock numbers be halved? What action will be taken of runoff waters gully riparian areas and cut headcuts deeper? What actions, if any would occur? Specific sideboards must be set.	Specific sideboards for hypothetical situations are not realistic. Monitoring data will be collected in order to determine whether there are "exceedances", and whether changes to the grazing plan are necessary. Adaptive management is the accepted protocol for responding to unforeseen events.

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20-75	Fite, Katie	Western Watersheds Project	What are specific grounds for termination of the permit?	Chronic and/or egregious non-compliance with the terms and conditions of the permit will be grounds for termination.
20-76	Fite, Katie	Western Watersheds Project	How many acres of new and expanded weed infestations (and thus increased amounts of herbicide use) would be allowed to occur before the scheme is terminated? This is "adaptive" lack of accountability, and a path of great risk for lands and values.	Monitoring will determine if the objectives are being met. If not the permit will be terminated.
20-77	Fite, Katie	Western Watersheds Project	We are alarmed at the imposition of grazing use during sensitive periods for native grasses and forbs. This is the very worst time for such grazing. Plants may be repeatedly eaten, and lose vigor or die. Plants are actively growing, and taking energy from roots and putting it into leaves and flowers. If eaten too low, or repeatedly consumed during the growing period, plants die. This opens the door for expanded cheatgrass and other invasive species problems.	The effect of livestock grazing on existing vegetation depends on the timing, intensity, frequency, and duration of grazing. The livestock use described in the grazing plan is very conservative and is designed to maintain or improve rangeland health. Light and moderately grazed rangeland habitats often support more varied wildlife populations than ungrazed or heavily grazed areas (Galt et al. 2000, Holechek et al. 1999, Holechek et al. 2004). We are employing a variety of monitoring methods to detect changes in plant species composition and are prepared to alter provisions of the grazing plan if necessary to benefit fish and wildlife management and prevent habitat damage. The monitoring data will be used in an adaptive management process to change conditions of the grazing permit as necessary to achieve the goals and objectives of the grazing permit.
20-78	Fite, Katie	Western Watersheds Project	Under this grazing scheme, how much will wildlife, insects, etc. be expected to consume? What are the populations of wildlife, insects, etc. that are used as a baseline?	Consumption by wildlife and insects is unknown; therefore, forage allocated to cattle is very conservative. Under Alternative 1, 11% of the "palatable" forage, or 6% of the total biomass, will be allocated for livestock consumption on average each year within the Alternative 1 Area; under Alternative 2, 4% of "palatable" forage, or 3% of total biomass, will be allocated for livestock consumption on average each year within the Alternative 2 Area.
20-79	Fite, Katie	Western Watersheds Project	There is also no limit to livestock CUMULATIVELY consuming much more than 35% of above ground biomass. Cows can repeatedly eat the same grass plant - down to 20 %/o. Then it grows a little then gets eaten back to 20 % again then it grows a little more, gets eaten, etc. - and soon all its root reserves are used up, and the plant becomes weaker and may die out [Anderson 1,991). Yet use measured may never reach 35%o average across the landscape. The EIS is predicated on grazing disturbance and damage occurring in the active growing and critical growing season. As we have just described, much more than 35% utilization's worth of plant biomass may be removed. Unfortunately, by inflicting damaging herbivory and trampling use/disturbance during the growing season, plant meristems may be	By definition, utilization refers to the proportion of the total annual biomass that is consumed or destroyed by grazing animals. Utilization measurements collected during the growing season are termed "seasonal utilization", and are generally underestimates of total utilization. See Agency Response 20-70.

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			damaged, reproductive ability curtailed, no seeds produced, losses may occur, and mortality may occur as well.	
20-80	Fite, Katie	Western Watersheds Project	Cattle eat forbs [flowers] and thus reduce insects available for sage-grouse chicks, sage thrasher chicks, and other native biota. It will limit reproductive potential of such very desirable species. Grazing damage to grasses and forbs will result in less desirable, often smaller-statured plants - and weeds - invading. Grazing directly removes food for young animals, as well as indirectly alters the plant community composition over time.	A synthesis paper on the ecology and management of sage-grouse and sage-grouse habitat (Crawford et al. 2004) suggests that light to moderate early season livestock grazing (similar to the proposed grazing strategy on the Whiskey Dick Wildlife Area) can promote both forb abundance and availability. Monitoring data collected before grazing begins and during the term of the grazing permit will indicate whether undesirable effects (e.g., increase in cheatgrass or noxious weeds) are occurring. The monitoring data will be used in an adaptive management process to change conditions of the grazing permit as necessary to achieve the goals and objectives of the grazing permit.
20-81	Fite, Katie	Western Watersheds Project	Detailed plant phenology information must be provided to understand what is meant by "graze each pasture no more than half the growing season". Pastures here span elevations, aspects and soil types - so growing seasons may vary appreciably within a pasture. During drought periods, and with increased temperatures and site drying from climate change, growing seasons may begin earlier or be compressed. Such events are not examined	"Growing season length" will be based on the phenology of bluebunch wheatgrass on Dry Stony, Stony, and Cool Stony Ecological Sites. Phenology monitoring is being conducted weekly during the growing season at six stations throughout the CRM area. See Appendix C for details.
20-82	Fite, Katie	Western Watersheds Project	There is no mechanism to prevent livestock turnout altogether in the face of drought, excessive use in preceding years, trespass, or other management or ecological problems. There are no specific quantifiable measures of "range readiness" applied.	Monitoring and the adaptive management process provide the mechanism for preventing "excessive" use and management/ecological problems. Text in Section 3.12, Best Management Practices and Mitigation Measures, has been redrafted to include turnout criteria. See below response.
20-83	Fite, Katie	Western Watersheds Project	What volume or amount of new plant growth will be required before turnout occurs?	Four inches of new growth of bluebunch wheatgrass and Idaho fescue (where applicable) will be required prior to spring turnout.

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20-84	Fite, Katie	Western Watersheds Project	The EIS fails to examine the serious adverse effects of turning out cattle on lands where snowdrifts and saturated soils remain. Cattle gravitate towards wet areas - and severely trample and damage vegetation emerging from snow. Where in all pastures is there going to be a conflict with melting snow? What happens in a hard winter, or with a lot of rain (changes in rainfall patterns are predicted to accompany climate change/global warming). What happens with cattle numbers can't be turned out for several weeks? Will numbers be doubled in some pastures once grazing commences? If so, what would be the effects to the environment - from grouse to watersheds to weeds?	Snowdrifts are expected to be melted by the time grazing occurs (i.e. April). Furthermore, best management practices for Alternatives 1 and 2 include a provision that spring turnout will be delayed until soils have dried sufficiently to prevent compaction. If turnout is delayed in a particular pasture, the grazing period may be extended, depending on the phenology of bunchgrasses, but livestock numbers will remain the same.
20-85	Fite, Katie	Western Watersheds Project	WDFW relies on a Draft soil survey, with cherrypicked "ideal" sites that do not represent the degraded and weedier areas. Where is information mottled and weedy communities, and their production and other attributes here?	It is clear from Appendix B that degraded/weedy sites were included in the rangeland inventory and AUM calculations.
20-86	Fite, Katie	Western Watersheds Project	Footnotes associated with EIS Table 2-2 show that it is somehow expected that cattle utilization will be only 10% on forbs. There is no way to control that. In fact, with 35% utilization on grasses, much heavier use will occur, especially on "preferred" sage-grouse and other native forbs.	The production data and allocations presented in this table were used to set initial stocking rates, and are not meant to predict utilization on a site-specific basis. Actual use will be determined by utilization monitoring, and AUMS will be adjusted as necessary.
20-87	Fite, Katie	Western Watersheds Project	It is particularly alarming that production is based on "average" years. How much more greatly reduced would production be in a drought year? In a series of drought years? What is a threshold level of drought to end any turnout of cattle?	Production from "average" years was used to set initial stocking rate. AUMs may be adjusted over the years based on utilization and trend monitoring.
20-88	Fite, Katie	Western Watersheds Project	EIS Tables fail to identify Key Species. It is critical to identify key species, by site and by site condition and values.	As indicated in Table 2-3, Key Species in upland areas are bluebunch wheatgrass and Idaho fescue. Key Species in riparian areas will vary from site to site, but are typically dominant and/or the most palatable. See Agency Response 20-92.

Response No.	Name	Affiliation	Comment(s)	Agency Response
20-89	Fite, Katie	Western Watersheds Project	The DEIS is not clear if ALL springs and seeps will have 4 inch riparian stubble height applied to them. In fact, it appears that there are no standards of any kind to be applied to lentic and intermittent sites. We fear the EIS is only referring to flowing streams here. Since perennial flows will change as runoff recedes, will sites where this is measures vary from year to year - as some unknown "rotation" scheme unfolds? Where will all stubble heights be applied? Please provide a map of specific sites, and a science-based rationale for that site selection. What standards will all springs, seeps, perennial and intermittent/ephemeral riparian areas have applied to them? What species are currently present at each of the areas in the Project Area? Are they shallow-rooted? What is their bank-stabilizing capacity? What will Key Species be at all sites, and under various ecological condition classes?	Effects to riparian vegetation will be minimized through the use of temporary and permanent fencing, as well as BMPs, which include utilization triggers for all unfenced riparian areas. Figure 2-2 illustrates the placement of proposed fences. Section 3.1 has been redrafted to describe the vegetation surrounding springs; Section 3.4 has been redrafted to include additional descriptions of riparian vegetation.
20-90	Fite, Katie	Western Watersheds Project	The DEIS even fails to examine any alternatives that require any protections for stabilizing or protecting raw, eroding bare banks, head cutting spring brooks, etc.	Per WAC 197-11-786, reasonable alternatives shall include actions that could feasibly attain or approximate a proposal's objectives, but a a lower environmental cost or decreased level of environmental degradation. The word "reasonable" is intended to limit the number and range of alternatives, as well as the amount of detailed analysis for each alternative. In addition, the development of the draft EIS was coordinated with WDFW's SEPA Coordinator and based on feedback WDFW did consider a reasonable range of alternatives.
20-91	Fite, Katie	Western Watersheds Project	Likewise, even though large segments of watersheds are lacking riparian shrub cover like willows), there is no browse use standard applied to allow recovery of any riparian shrubs	Browse use standards are presented Table 2-3. The short use period and rotational grazing strategy presented in the grazing plans for both Alternatives 1 and 2, along with browse use standards, is expected to allow for the recovery of willows, on sites capable of supporting willow growth.
20-92	Fite, Katie	Western Watersheds Project	Even more uncertainty is added to the "key species" use by Footnote in Table 2-3 "key species may vary by site, but are typically dominant and for the most palatable. Does this mean cheatgrass, if it is the dominant site on floodplain, will be a "key species"? How is "most palatable" defined?	USDA/NRCS (2003) describes the characteristics of key species as: 1) palatable (i.e., a relatively higher grazing preference by the grazing animal during the planned season of use); 2) providing more than 15 percent of available forage within the area; 3) perennial (except where grazing unit has only annual species); and 4) consistent with management objectives for the plant community.

Response No.	Name	Affiliation	Comment(s)	Agency Response
20-93	Fite, Katie	Western Watersheds Project	The actions as proposed under the very limited range of grazing alternatives will violate HB 1309 Ecosystem Standards. There is no clear info provided on current water temperatures on all streams, springs and seeps in the Project Area. WDFW has not collected data necessary to establish a baseline. It is essential to understand how excessively warm waters currently are to understand if they can withstand ANY livestock impacts - including removal of streamside veg. There is NO standard applied to breakage of willows. There is no data that shows if there is one willow on a stream or spring complex -or dozens. The potential vegetation community and areal extent for riparian communities is not provided.	Ecosystem Standards (HB1309) are “goals that the land manager should be working towards to achieve the desired ecological condition as defined under the standard.” (ESAC, 1994) The intent of an ecosystem standard is achieved if land management practices maintain or make measureable progress towards achieving desired ecological conditions. An Ecosystems Standards review will be conducted prior to issuance of a grazing permit. Utilization includes consumption and destruction of forage, therefore, breakage of willows will be measured and included in browse utilization measurements. The FEIS has been redrafted to include additional riparian vegetation descriptions and PFC assessment data, see Section 3.4.
20-94	Fite, Katie	Western Watersheds Project	There is also no analysis of how much harmful herbicide and other livestock disturbance mitigating "treatments", the ecological and budgetary cost, under the grazing schemes will be. How does this compare to the cost of No Grazing? How severe will the herbicide use be if grazing occurs and is expanded? What will be the herbicide effects on native animals and plants (non-target)?	Proposed grazing is not expected to have an adverse ecological impact. See Agency Response to comment 11-1 regarding herbicide effects on plants and animals. Cost-benefit analysis requirements are provided in WAC 197-11-450. A cost benefit analysis as suggested here is not required for SEPA.
20-95	Fite, Katie	Western Watersheds Project	There is no plan provided for control or elimination of invasive species in remote settings away from roads.	See Weed Management Plan within the Draft L.T. Murray Wildlife Area Management Plan, available on-line at: http://wdfw.wa.gov/lands/wildlife_areas/management_plans/pdfs/draft_plans/draft_lt_murray_plan.pdf .
20-96	Fite, Katie	Western Watersheds Project	There is no certainty that native vegetation will dominate areas. There is no adequate baseline and detailed mapping provided of where currently native vegetation is and is not "dominating". How is dominating defined? Is cheatgrass-dominating understories? Where? Please provide mapping. How will this be reversed?	Appendix B provides detailed summaries of plant communities occurring throughout the CRM area.
20-97	Fite, Katie	Western Watersheds Project	There is no identification of "limited areas" where the EIS references some problems. We are not even told where sage grouse historic or active lek sites are in the region including outside the CRM boundary, where whipsnake sightings have been, where ferruginous hawk habitat is. There is no required action to preserve ANYTHING.	Most site-specific wildlife data are not published as a protection measure.

Response No.	Name	Affiliation	Comment(s)	Agency Response
20-98	Fite, Katie	Western Watersheds Project	The DEIS lacks critical lentic PFC and real aquatic habitat analysis of any kind. Please see discussion of Sada references, including Sada et al. 2001 BLM Technical Bulletin in separate comments. Why is there no plan to recover native fish and other aquatic species [mussels and amphibians for example, and where are detailed and systematic surveys that identify occupied vs. historic habitat, population levels, and actions necessary for recovery?	The FEIS has been redrafted to include PFC assessments. Recovery of federally-listed fish and wildlife species is under the jurisdiction of USFWS and NMFS. WDFW recovery plans can be found on-line at http://wdfw.wa.gov/wildlife/management/endangered.html . WDFW will comply with the requirements of federal and state recovery plans under both grazing alternatives. It is neither cost-effective nor feasible to survey and monitor every wildlife species that occurs on WDFW land. Accordingly, WDFW manages its land for ecological integrity, which should benefit a diversity of plant and animal species. Vegetation monitoring, as outlined in Appendix C of the FEIS, will be used to determine whether or not management is compatible with ecological integrity.
20-99	Fite, Katie	Western Watersheds Project	What are current streambank erosion rates for the dozens of drainage miles affected? How many intermittent drainage miles are there, and where? Where will perennial water remain in August?	The FEIS has been redrafted to include additional riparian assessment data. Information on the status (intermittent, perennial, etc) of each creek within the analysis area, along with stream miles, is provided in Table 3-3 of FEIS.
20-100	Fite, Katie	Western Watersheds Project	There is no info provided on the structural complexity of sagebrush plant communities, riparian woody vegetation communities, or other key components necessary to understand conditions here. There is no analysis of what is or is not an "equivalent" benefit, or just what is meant by "benefit".	The FEIS includes a description of the vegetation of the area and a discussion of sensitive species. In addition, a summary of the rangeland inventory data is provided in the Appendix B. "Equivalent" benefits, as written by ESAC (1994), refer to the comparable wildlife habitat values provided by some non-native plant species, for example, cultivated plants Secar bluebunch wheatgrass, alfalfa, or Sherman big bluegrass. This ecosystem standard allows for non-native plant species, provided they provide adequate cover and forage for wildlife, and are not noxious weeds.
20-101	Fite, Katie	Western Watersheds Project	There is no analysis of where existing and or active gully erosion currently occurs in the hundreds of miles of drainage networks. There is no analysis of risks of head-cutting, channel widening, or active gully erosion across the Project Area. This must be analyzed with and without grazing disturbance being inflicted.	No active gully erosion has been documented within the project area, nor is any expected given the short period of use, timing and low stocking levels planned for both grazing alternatives. Riparian Proper Functioning and Condition Assessments for select drainages within the analysis area are discussed in Section 3.4.
20-102	Fite, Katie	Western Watersheds Project	There is no baseline site-specific analysis of soil erosion rates including in both wind and water, and of the location of vulnerable areas. What is the current soil erosion rate? In all land areas claimed to be "capable" of supporting grazing use (less than 35%o slope, deeper soils, etc.)? What is the "background" rate? What is discernible? Where will these rates be increased or accelerated under this scheme?	Rangeland Health assessments conducted across the CRM area indicate that active formation of both rills and gullies were rare, even in the Parke Creek area, where other Rangeland Health attributes had a larger departure from ecological site descriptions. Quantitative monitoring will indicate changes in soil cover, such as increased bare ground, decreased litter, or decreased plant cover, all of which could indicate that a site is more vulnerable to erosion.
20-103	Fite, Katie	Western Watersheds Project	What is the width to depth rating of all streams? What is site and stream potential for all areas?	The FEIS has been redrafted to include Riparian Proper Functioning and Condition Assessments, which address width-to-depth ratings, for select drainages within the analysis area.

Response No.	Name	Affiliation	Comment(s)	Agency Response
20-104	Fite, Katie	Western Watersheds Project	How can WDFW OPPOSE grazing CRP lands - yet at the same time seek to impose grazing disturbance on greatly damaged lands (Skookumchuck) and on one of the few and a very extraordinary example of shrubsteppe at Whiskey Dick?	CRP has a different management emphasis and is outside the scope of this project.
20-105	Fite, Katie	Western Watersheds Project	The DEIS makes claims about supporting a private grazing operation, and somehow making it economically viable. There has been no adequate Cost:Benefit analysis conducted to determine all of the ecological costs.	Cow-calf ranchers make a living by converting plant material into animal protein. The single largest cost in a cow-calf operation is supplemental feed during times when forages are not actively growing. The economically sustainable producer is the one who is concerned about the long-term ability to produce forage. Well-managed livestock grazing contributes to the profitability of a cow-calf enterprise not by providing an inexpensive feed resource (which it is not, after considering the rancher's costs in transportation and labor) but by deferring use of other forages that can be used later or earlier in the year and reducing the period of time that the producer must provide purchased feed harvested by machines instead of cows. Well-managed livestock grazing can maintain ecosystem health.
20-106	Fite, Katie	Western Watersheds Project	The financial costs of recovering cattle damage, if at all possible, must be defined. Also factored in must be the financial costs of the grazing scheme, CRM process, etc. - we estimate this is already at a half million dollars or more - to benefit one private cattle operator. What will be the total cost over the life of the scheme? How much would the cattleman pay in grazing fees? Will those fees be subsidized by EQIP or other taxpayer subsidies to this operation? Is the rancher actually getting paid to practice a rotation or some kind of grazing scheme?	Cost-benefit analysis requirements are provided in WAC 197-11-450. A cost benefit analysis as suggested here is not required for SEPA.
20-107	Fite, Katie	Western Watersheds Project	How much will wildlife populations be reduced as a result of this habitat disturbance and loss?	Effects to wildlife are discussed in Section 3.5.
20-108	Fite, Katie	Western Watersheds Project	Cattle herding, dogs, heavy equipment building projects, rancher 4-wheelers and pick-ups, etc. will all stress and weaken big game that the public is not allowed to disturb. What will all such grazing disturbance effects be? Will the rancher drive motor vehicles (including 4-wheelers) during a period when the public is barred?	Heavy machinery will not be allowed in the Winter Range Closure Area between February 1 and May 1. Administrative and rancher access during the closure period, within the closure area, will be restricted to core activities. Motorized access, including 4-wheelers, will be restricted to green-dot roads, unless prior authorization is granted by the Wildlife Area Manager. The use of herding dogs is prohibited, unless prior authorization is granted by the Wildlife Area Manager. With these conservation measures in place, impacts to big game are expected to be minimal.

Response No.	Name	Affiliation	Comment(s)	Agency Response
20-109	Fite, Katie	Western Watersheds Project	What is the \$\$\$ value of the big game herd losses that will occur? Of the big game losses or stress caused by building new, and rebuilding other, fences and facilities? How will West Nile virus mosquitoes, [promoted by cattle facilities, stagnant water hoof prints, etc.) bacteria diseases, or other livestock diseases reduce native wildlife populations?	There are no expected big game losses.
20-110	Fite, Katie	Western Watersheds Project	This must also include anal analysis of displacement of big game from preferred or critical habitats. For example, isn't there potential bighorn sheep habitat across several areas here Bighorn sheep in the Owyhee region avoided areas once cattle were turned out. How connected is the sheep population in the area with other populations? How much less suitable will lands be here for bighorn sheep? For mule deer? For elk?	Section 3.5 of the FEIS contains a discussion of expected effects to big game, including bighorn sheep. The nearest sheep herd is the Umtanum herd to the south approximately 20 miles. Currently there is no known connection but it is possible.
20-111	Fite, Katie	Western Watersheds Project	What are recovery goals for bighorn sheep populations? What is the value of a bighorn sheep herd to the local economy? How does that compare to the value of a single taxpayer subsidized private cattle ranch?	Population goal for bighorn sheep is 250-300. Adverse effects to either bighorn sheep or the local economy are not expected under Alternatives 1 and 2.
20-112	Fite, Katie	Western Watersheds Project	What is the economic value of the wildflowers and rare plants here?	The grazing plan outlined in Alternatives 1 and 2 is not expected to significantly affect wildflowers and rare plants. See Section 3.4 of the FEIS.
20-113	Fite, Katie	Western Watersheds Project	The EIS woefully fails to adequately examine how imposing grazing increases fire hazards in shrubsteppe - ranging from increased cheatgrass/weeds to vehicle-caused fires.	Vehicle use already occurs on the area. Light intensity and rotational livestock grazing is not expected to promote cheatgrass, and therefore, is not expected to increase fires.
20-114	Fite, Katie	Western Watersheds Project	These lands occur within an area identified for restoration of pronghorn. There is no analysis of how adding competing domestic livestock and a battery of additional infrastructure would impede pronghorn recovery.	An analysis of statewide habitat indicated the area could support Pronghorn Antelope but no decision has been made on re-introducing them into the State of Washington. Therefore, there are no effects to analyze at this time.
20-115	Fite, Katie	Western Watersheds Project	The role of livestock and other disturbance-facilitated desertification and global warming processes should be a consideration in all of WDFW, BLM and other agency actions.	See Agency Response 20-2.
20-116	Fite, Katie	Western Watersheds Project	This EIS must consider how ecosystem disturbance /disruption associated with grazing livestock in arid lands, along with the greenhouse gases released by the cattle herds, will promote climate change and global warming processes.	This is outside the scope of this review.

Response No.	Name	Affiliation	Comment(s)	Agency Response
20-117	Fite, Katie	Western Watersheds Project	This EIS has failed to adequately analyze the ecological and climate change Footprint of: * Grazing, facilities, management actions and other associated activities on all affected lands. A full inventory and analysis of all current, proposed and foreseeable grazing, facility and management disturbance effects in promoting climate change must be provided. * Grazing, facilities and other associated activities part of, or foreseeably associated with, the CRM livestock scheme. * Grazing and other activities linked to the livestock grazing operation here [including such effects as feeding hay on private lands) and the total footprint of the CRM, Pilot and other livestock operators.	See Agency Response 20-2.
20-118	Fite, Katie	Western Watersheds Project	A federal court has held that FWS, a federal agency, must consider climate change in estimating effects of a water project on the delta smelt. Since WDFW receives so much of its land acquisition funds, operating funds used across the Wildlife Areas and in other segments of the agency from the federal government/taxpayers/BPA - utility rate payers, this is also essential here.	This is outside the scope of this review.
20-119	Fite, Katie	Western Watersheds Project	The effects of grazing-promoted rapid runoff and site drying on water infiltration and aquifer recharge must also be examined.	The light intensity and rotational grazing system outlined in both grazing alternatives is not expected to promote rapid run-off. Monitoring will determine if soil and site stability, as well as hydrologic function, of the project area, is impacted.
20-120	Fite, Katie	Western Watersheds Project	Necessary flow, infiltration, and other measurements must be conducted over all periods of the year to determine/predict if perennial or sustainable flows will exist throughout the life of the WDFW grazing, facility or other action.	This is outside the scope of this review.
20-121	Fite, Katie	Western Watersheds Project	Alternatives in this process must examine use of the federal and state lands involved in the CRM lands for sage-grouse and other shrubsteppe species wildlife and rare plant habitat restoration, buffering animal species populations from effects of climate change, and for potential carbon sequestration.	This is outside the scope of this review.

Response No.	Name	Affiliation	Comment(s)	Agency Response
20-122	Fite, Katie	Western Watersheds Project	Maintaining and recovering microbiotic crusts, which are a key front line of defense against invasive species, should be a primary component of all grazing analyses and decision making. To achieve this, rest or removal of livestock disturbance, as well as crust-specific measurable standards of upland trampling-specific damage/disturbance should be Keystones of livestock grazing decisions and other decisions that involve arid lands. Full and adequate baseline surveys of microbiotic crusts across all affected lands must be conducted. Measurements and analysis of effects of current and foreseeable grazing and other disturbances on crusts must be provided. Where are "old growth" or mature crusts present? Where are lands with depleted crusts? How long will crust community take following disturbance if grazing is significantly reduced? If it does not occur/is eliminated?	Effects to biological soil crusts are addressed in Section 3.1 of the FEIS. Quantitative monitoring (following Herrick et al., 2005) includes measurements of biological soil crusts. If monitoring data indicate undesirable effects on soils or vegetation (i.e., increases in cheatgrass or noxious weeds), changes in grazing management will be made.
20-123	Fite, Katie	Western Watersheds Project	It is alarming that this grazing scheme will impose periods and levels of grazing use that directly conflict with sage-grouse lekking and nesting [and when many other native animals have young present). This will reduce and remove levels of grass and forb cover essential for nesting sage grouse.	No known leks occur on the site. The amount of vegetation to be removed is not expected to limit nesting.
20-124	Fite, Katie	Western Watersheds Project	"Almost no info is available regarding the distribution and characteristics of migration areas for grouse". Dispersal is poorly understood. Sage-grouse are dependent on large, inter-connected expanses of sagebrush". WDFW has failed to provide current systematically collected inventory and other data on these important attributes.	The core habitat for sage-grouse in this area is to the south on the Yakima Training Center. Considerable research and monitoring has been conducted there including radio collared bird monitoring. There appears to be barriers preventing northern expansion into this area. WDFW recognizes this area as a link to the northern population in Douglas County. The habitat and terrain characteristics will have limited capability in providing even a moderate population level. Past surveys indicate a low level of use by sage-grouse but the most promising sites currently occur on PSE lands.
20-125	Fite, Katie	Western Watersheds Project	WDFW must consider a range of alternatives to maximize sage-grouse use of the CRM area. After all, that is supposedly why lands have been acquired.	The Whiskey Dick and Quilomene were purchased primarily for big game winter range. The Skookumchuck acquisition had multiple purposes including sage-grouse. Alternatives considered will address numerous resources in addition to sage-grouse.
20-126	Fite, Katie	Western Watersheds Project	There are no provisions for management of private lands across the range of sage-grouse.	WDFW does not manage private property.

Response No.	Name	Affiliation	Comment(s)	Agency Response
20-127	Fite, Katie	Western Watersheds Project	Numbers shown in Table 1- are 1,059 birds FIVE YEARS AGO - in 2004. It is widely recognized that numbers now have significantly declined. Washington MUST provide updated population and habitat information as part of the Whiskey Dick EIS - so that the precarious status of the population(s) can be fully understood.	WDFW currently relies on the US Army Biologists conducting survey on the Yakima Training Center and data is available. It is not necessary to report that data here. WDFW does not conduct annual surveys where the populations are low or at best intermittent. WDFW relies on observational data and follows up if reliable information is forthcoming.
20-128	Fite, Katie	Western Watersheds Project	FWS describes the variability of plant communities - including during drought - the DEIS plan stocks lands based on "average" years. There is no analysis for basis for stocking in drought years. There are no triggers to limit or preclude turn-out in drought years. What snow/rainfall level will result in cancellation of use?	The intent of proposed utilization monitoring is to prevent overuse during drought years.
20-129	Fite, Katie	Western Watersheds Project	The DEIS has failed to examine any alternatives that focus on restoration of significant areas in of the newly acquired lands, or other sites, damaged by grazing in this landscape. This includes: 1) Lands in the areas subject to continued grazing use; 2) Lands in the recovering ungrazed areas of Whiskey Dick which have been free of livestock grazing disturbance for a quarter century. Such alternatives must be examined as part of a range of viable actions here. Detailed discussion and analysis must focus on both passive and active restoration activities.	See Agency Response 20-90.
20-130	Fite, Katie	Western Watersheds Project	The DEIS does not provide adequate mapping and analysis of the complexity of sagebrush communities that are present. Such mapping would also inform analysis, and mitigation measures for, communities that are the most vulnerable, "at risk" to weed dominance, and unable to tolerate any grazing disturbance. This analysis is critical to inform understanding of the very foreseeable disastrous outcomes of this scheme if grazing is imposed on long-ungrazed lands, and continues to deteriorate acquired lands in poor shape. Long-ungrazed lands here contain very vulnerable vegetation like lower elevation, Wyoming big sagebrush.	The FEIS has been redrafted to include further analysis of the various plant communities found within the Project Area. Detailed summaries of the plant communities found within the Project Area, including current ecological condition, are presented in Appendix B.
20-131	Fite, Katie	Western Watersheds Project	The Range charts and poor analysis of the DEIS assumes that cattle will distribute themselves almost uniformly across many areas - which is never the case in wild land settings. The bottom line is the flatter big sagebrush sites will be the focus of intensive and damaging use, as will drainage areas, and less rocky areas.	The analysis does not assume uniform distribution across the landscape. The intent of proposed utilization monitoring is to prevent overuse. See Agency Response 20-70.

Response No.	Name	Affiliation	Comment(s)	Agency Response
20-133	Fite, Katie	Western Watersheds Project	The DEIS must detail the amount of travel that will occur on all roading in the CRM landscape.	This is outside the scope of this review.
21-1	Hovanic, Catherine	Washington Native Plant Society	Continued or increased livestock grazing conflicts with the original stated objectives for purchase and establishment of these Wildlife Areas: namely for winter range for deer and elk; for sage grouse and other upland bird habitat; and to ensure healthy plant communities across the landscape.	The FEIS does not contain an alternative that would allow "continued or increased livestock grazing" compared to historic levels. The low levels of forage utilization that are proposed, early in the growing season, will not limit the forage available to winter deer and elk. All alternatives are consistent with the sage-grouse recovery plan.
21-2	Hovanic, Catherine	Washington Native Plant Society	It [Alternative 2] would double the acreage of the areas grazed in the CRM from 27,815 acres to 55,720 acres. (WDFW lands grazed would increase from 17,382 acres to 35,423 acres.) Environmental impacts, while difficult to quantify, would reasonably be expected to be doubled and would certainly be extended over a far greater area.	The grazing plan is designed to have little to no negative impact. The effects of adjusting timing, duration, and intensity of use cannot be overstated. The grazing plan is specifically designed to manage cattle in a manner that is very different from that which causes negative environmental impacts.
21-3	Hovanic, Catherine	Washington Native Plant Society	WDFW's analysis that the impact to native vegetation would be better under Alternative 2 stated it as an "upward trend in vegetation condition". The desired or expected "upward trend" is not clearly defined, which is problematic when this is one of the driving motivations for Alternative 2	The FEIS has been redrafted to reflect the comment. See Appendix C. The following are indicators of upward trend: 1) Increased plant community complexity (species richness or plant functional type richness), 2) Increased cover of native perennial bunchgrass "decreasers", such as bluebunch wheatgrass, Idaho fescue, and Cusick's bluegrass, 3) Decreased bare ground, and 4) increased soil biological crust cover.
21-4	Hovanic, Catherine	Washington Native Plant Society	Further, with the strong reliance on monitoring to utilize adaptive management under either Alternative 1 or Alternative 2, the desired or expected "upward trend" must be clearly stated so as to design monitoring strategies that will rigorously evaluate such trends.	See Agency Response 21-3.
21-5	Hovanic, Catherine	Washington Native Plant Society	The list of measures that would trigger adaptive management, or removal of cattle from a pasture, is minimal and should be expanded. Some obvious missing items include plant diversity, biotic crust condition, and invasive plant abundance or cover.	Adaptive management is an ongoing process of responding to observations and ecosystem monitoring analysis. The triggers are an instantaneous check on livestock effects that don't require extensive measurements intended to prevent the negative effects that would be detected after the fact with long-term monitoring. A trigger is for a within-year change in plans, such as early removal of livestock, not necessarily permanent removal of livestock. Indications of a downward trend, such as reduced plant community complexity, reduced cover of native perennial bunchgrass "decreaser" species, and increased bare ground, would result in modifications to the grazing plan.
21-6	Hovanic, Catherine	Washington Native Plant Society	There appears to be no reason that WDFW could not or should not use the same Best Management Practices in Alternative 1 as proposed for Alternative 2. If Alternative 1 is selected, we would like to see these Best Management Practices incorporated.	Thank you for your comment. Best Management Practices will apply to all areas within the CRM under WDFW management.

Response No.	Name	Affiliation	Comment(s)	Agency Response
21-7	Hovanic, Catherine	Washington Native Plant Society	The economic analysis for the local community contained in this DEIS does not support any significant increase in economic benefit to the community by selecting Alternative 2 over Alternative 1. The DEIS states that there is no significant expected economic benefit or cumulative impact on the community under Alternative 2. This would suggest that there is no economic reason to pursue Alternative 2.	Economic benefits and revenue to WDFW are not the overriding considerations in the decision making process.
21-8	Hovanic, Catherine	Washington Native Plant Society	There is no economic analysis in this DEIS of the increased cost to state government for infrastructure development and maintenance and the management responsibilities to support the expanded grazing proposed in Alternative 2. However, it appears that state government costs will be substantial and will benefit only a very few under Alternative 2.	Funding for public agencies is always hard to predict, but once a plan is approved, the pace of implementation will be determined by the availability of funding.
21-9	Hovanic, Catherine	Washington Native Plant Society	In light of severe budget cuts and layoffs WDFW expects to make in the near term we are highly skeptical that the WDFW will be able to implement the necessary monitoring and adaptive management practices that will protect and ensure the health of these lands.	WDFW maintains an active and successful acquisition program to protect key habitats and prevent conversions and fragmentation. Each acquisition increases the requirements for operation and maintenance staff and funding. This pattern has been true since the initial acquisitions in the 1940s.
21-10	Hovanic, Catherine	Washington Native Plant Society	Although the Whiskey Dick Wildlife Area was grazed prior to 1988, it has partially recovered from impacts for 20 years. In particular, the recovery of the biotic crust of lichens and moss that forms a critical part of a healthy shrub-steppe is far from complete, and would surely be jeopardized by the reintroduction of grazing.	Overall impacts to biological crusts are expected to be minor to moderate, due to the rest rotation grazing strategy and light grazing intensity. Changes to biological crust cover will be monitored, and modifications to the grazing plan will be made as necessary to prevent habitat degradation.
21-11	Hovanic, Catherine	Washington Native Plant Society	The Quilomene and Whiskey Dick Wildlife Areas lie within the Columbia Plateau Ecoregion of Washington. This ecoregion comprises about 1/3 of the state's land mass. According to the Ecoregional Assessment, the region contains 18 endemic plant species and numerous at risk bird species including sharp-tailed grouse. The area is also the agricultural breadbasket of the state with over 50% of the land already converted to agricultural use. Much of the remainder has been degraded by abuse and invasive species. This certainly increases our concerns about preserving biodiversity and the remaining high quality habitat – particularly shrub-steppe.	Preserving biodiversity is a goal of WDFW as well. Previous to WDFW ownership many of the areas were overgrazed and degraded. The main objective for WDFW's purchase of these lands was to prevent conversion to non-compatible wildlife use, i.e. development or conversion. Properly managed grazing is compatible with certain objectives. While sharp tailed grouse occur in other parts of the state none have been documented in this area in the recent past.

Response No.	Name	Affiliation	Comment(s)	Agency Response
21-12	Hovanic, Catherine	Washington Native Plant Society	Finally, there is an important issue that is not adequately addressed in any of the alternatives but which is critical to the implementation of Alternatives 1 or 2: that of adequate funding by WDFW for monitoring, adaptive management and invasive species control. Monitoring provides critical feedback for meaningful adaptive management, and without which Alternative 1 or Alternative 2 cannot be implemented. Invasive species control is absolutely required by law under both Alternative 1 and Alternative 2, to prevent and reduce invasion of noxious weeds in more disturbance-prone areas such as fence lines, watering sites, and protein or salt licks in any grazed pasture.	WDFW maintains an active and successful acquisition program to protect key habitats and prevent conversions and fragmentation. Each acquisition increases the requirements for operation and maintenance staff and funding. This pattern has been true since the initial acquisitions in the 1940s.
21-13	Hovanic, Catherine	Washington Native Plant Society	In summary, WNPS realizes that a decision on this DEIS has to satisfy a number of needs, from the environmentalist to the constituency of cattlemen in Kittitas County. We strongly believe, however, that continued grazing is not the best choice for all the people of the state of Washington. None of the proposed alternatives offers an ideal solution for all of the groups involved. We can accept Alternative 1, which we believe offers a livable solution for all the concerned parties. However, a decision for this alternative can only be made based upon actual completion of the monitoring and adaptive management requirements in the DEIS. Making a decision based upon requirements that are not fulfilled is unacceptable.	Thank you for your comment.
22-1	Huckabay, James L.	Big Game Management Roundtable	Please accept my comments on the DEIS, and note our strong support for the prescribed and rotating cattle grazing proposed as Alternative 2 (CRM Livestock Grazing Plan). I represent the Big Game Management Roundtable (BGMR), a collaborative group of some fifty stakeholders committed to solving wildlife damage problems on private lands in Kittitas County. Vegetation and habitat work in these units is critical to the continuing and expanding success of our efforts.	Thank you for your comment.
22-2	Huckabay, James L.	Big Game Management Roundtable	The work of BGMR and the Wild Horse CRM is <i>collaborative</i> . It involves literally thousands of person-hours on behalf of a wide range of community stakeholders committed to the goals of restoring sound wildlife habitat. This involves the work and judgment of scientists, and the empirical knowledge of people whose families and lives have been on the ground in Kittitas County for generations. The conservationists involved	Thank you for your comment.

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			in these collaborative groups are politically conservative people, committed to the long-term health of our public lands.	
23-1	Kavanaugh, Rob	The Lorox Society	The DEIS does not follow SEPA format requirements listed in RCW197-11 in that significant subjects are omitted as being discretionary when the Act mandates discussion and specific responses and answers. It does not quantify probable adverse effects on the natural environment or focal species.	Per WAC 197-11-440, the Affected Environment section should describe the existing environment that will be affected by the proposal, analyze significant impacts of alternatives including the proposed action, and discuss reasonable mitigation measures that would significantly mitigate these impacts. Elements of the environment that are not significantly affected need not be discussed. Please refer to the entirety of Chapter 3 for analysis and discussion of significant subjects, as determined by scoping.
23-2	Kavanaugh, Rob	The Lorox Society	The document does not describe the origins and motivation for the proposed project. It ignores previous Pilot Project with the Kittitas Cattlemen's Assoc & the WD of Game in the 60s. and the damaging results that occurred to wildlife habitat. Explain the role of the Gov. with the WCA to increase grazing. MOU signed 11Nov.2005.	The MOU is not related to the CRM and is outside the scope of this review. The CRM was initiated in conjunction with the development of Wild Horse Wind Farm and acquisition of the Skookumchuck property by WDFW. The 62,000 acre planning area is owned by 3 public agencies and Puget Sound Energy, making it a good fit for the CRM process.
23-3	Kavanaugh, Rob	The Lorox Society	It also fails to illustrate that Pilot Grazing project funds were diverted to fund the Whiskey Dick Grazing monitoring expenses (\$42,000.00)This was not authorized by, the Legislature. (MOU WCA/WDFW Nov 05, Gregoires ltr to Koenig 2006, Yakima Hearld, Scott Standsberry 05,Chris McGann, Seattle P-I 2007,Linda Mapes, Seattle Times 2008) Please include this historic record of facts. Please explain why Confer is asking for \$235,000.to manage cattle grazing on the Whiskey Dick (09) and Wild Horse CRM! (Owen Roe, House Ways & Means Comm.)	The MOU is not related to the CRM and is outside the scope of this review. Manager Confer has not requested \$235,000 to manage cattle grazing on the Whiskey Dick Wildlife Area.
23-4	Kavanaugh, Rob	The Lorox Society	The DEIS omits mention of WDFW policy C6003; that all livestock grazing must benefit wildlife. Please include this subject.	WDFW strives to be a responsible neighbor and community member supporting the community's economies and values where compatible with its mandates and obligations to the greater public it serves. To blend the needs of the local community with the WDFW statewide mandates, in 2006 WDFW engaged in the Wild Horse CRM process to achieve this. These partnerships are supported by the WDFW's Domestic Livestock Grazing on Department Lands Policy #C-6003 that specifically identifies CRM participation as a stand-alone purpose for grazing on WDFW lands.

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23-5	Kavanaugh, Rob	The Lorox Society	Why was the Dist Tm left out of this process?	The District Team has been involved with this process.
23-6	Kavanaugh, Rob	The Lorox Society	Kittitas county is already compensated for discontinuing cattle ranching on the 17,000 acs by payment of in lieu of taxes to the county to make up for lost ag. revenues. Thus this project amounts to a free subsidy to the permittee and the county. Please add this to the DEIS.	WDFW owns many large blocks of shrub-steppe habitat and we continue to acquire more for long term protection. Nearly all shrub-steppe habitat had a long history of heavy grazing, prior to WDFW acquisition. Our acquisition program depends on support from the public, county commissioners and local legislators. Payments in Lieu of Taxes (PILT) are provided to counties regardless of the how WDFW lands are managed. They are in lieu of property taxes, not “to make up for lost agricultural revenues”. Kittitas County received \$140,000 from WDFW during 2008.
23-7	Kavanaugh, Rob	The Lorox Society	WDFW believes that the Whiskey Dick grazing project is not part of the WildHorse CRM? (AG /Kernut testimony by AG;Thurston Superior Court 12DEcOB) Please explain this contadiction.	We respectfully disagree with your characterization of the argument before the Thurston County Superior Court regarding a temporary grazing permit in the Skookumchuck acquisition area. Regardless, the permit that was challenged in that litigation is outside the scope of this EIS.
23-8	Kavanaugh, Rob	The Lorox Society	Who will enforce and monitor the conditions of the CRM? Explain. So far it has not and is not being enforced. (Murphy DNR11Feb09)	WDFW, specifically Wildlife Area Staff and the Rangeland Ecologist, will be responsible for monitoring and enforcing the conditions of the CRM on WDFW land.
23-9	Kavanaugh, Rob	The Lorox Society	The DEIS does not explain "Why" WDFW is proposing this project If WDFW believes the project will improve & protect wildlife and wildlife habitat or increase public recreation (WDFW Mission), you must explain how. Please add this to the DEIS, or if WDFW wants to enhance and subsidize the income of one permittee and thus do favors for the WCA this is the place to so state is it not. Clarify this basic issue. Should WDFW subsidize cattle ranching on WDFW Wildlife lands purchased for the purpose of protecting wildlife & providing public recreation. Explain. Also no mention is made of the WCA role in this project. Explain. Their stated objects are to have Chuck Perry put on the F&W Comm., gain new WDFW lands for grazing, and have WDFW buy ranches for WCA cattle grazing. (2BFeb gov.conf.notes05) Explain the ethics of these facts. thus this had nothing to do with wildlife at all. It was just more WCA politics. Explain.	WDFW owns many large blocks of shrub-steppe habitat and we continue to acquire more for long term protection. Nearly all shrub-steppe habitat had a long history of heavy grazing, prior to WDFW acquisition. Our acquisition program depends on support from the public, county commissioners and local legislators. WDFW strives to be a responsible neighbor and community member supporting the community’s economies and values where compatible with its mandates and obligations to the greater public it serves. To blend the needs of the local community with the WDFW statewide mandates, in 2006 WDFW engaged in the Wild Horse CRM process to achieve this. These partnerships are supported by the WDFW’s Domestic Livestock Grazing on Department Lands Policy #C-6003 that specifically identifies CRM participation as a stand-alone purpose for grazing on WDFW lands.
23-10	Kavanaugh, Rob	The Lorox Society	The Dist. Tm claim there will be no benefits for wildlife and it will harm sage grouse habitat. Please clarify.	The District Team did not make this claim.

Response No.	Name	Affiliation	Comment(s)	Agency Response
23-11	Kavanaugh, Rob	The Lorox Society	You cite Lyon & Christenson as postulating "moderate" grazing has been shown to maintain healthy and diverse plant communities". Please elaborate on this view. Other studies show grazing harms wildlife habitat. (Coe, Sklovin, etc starkey Range Experimental Range). Grazing on shrub-steppe is much different than Lyons study. Also we are in a drought prone min. rainfall area. Vavra & Lyon were not. Also the Whiskey Dick terrain is much different with steeper slopes and fragile soils. Reconcile these differences.	See Agency Response 36-4.
23-12	Kavanaugh, Rob	The Lorox Society	For instance how did the 2008 grazing by Stingly help wildlife?	The intent of the proposed grazing plan is to minimize effects to shrub-steppe and riparian dependent species, while participating the the Wild Horse CRM. Participation in a CRM is a stand-alone purpose for livestock grazing (WDFW Policy C-6003).
23-13	Kavanaugh, Rob	The Lorox Society	The monitoring methods are statistically invalid. Please correct.	Vegetation monitoring will follow Herrick et al. (2005), the most current and accepted protocol for monitoring rangeland health. This proposal is not a research project. It is a standard grazing plan that will be monitored for effectiveness and will be modified as needed to meet the goals and objectives of the plan.
23-14	Kavanaugh, Rob	The Lorox Society	Another comparison is the Stingly Wildhorse DNR lease (15,000ac) grazed in 2007-08. What were the results of this CRM monitoring by the DNR? please include this data in the EIS. (T.Yeakey DNR lease no.10-079384) We suspect no monitoring was actually done for this segment of the Widlhorse CRM. Please add this data. see DNR ltr dated Feb.11 by Murphy. Explain	Requests for DNR monitoring data should be directed to responsible parties at DNR.
23-15	Kavanaugh, Rob	The Lorox Society	Describe the requirements of HB1309 in your discussion of riparian grazing effects. You need to go no further than Parke Cr. to illustrate severe damage. (Mel Asher Email 2007 WDFW) Please add to the DEIS (see photo points by C.Confer 2008 Parke Cr. Whisky Dick WMA) The DNR lease shows no mention of HB1309. see Confer concerns over violations of HB1309 stds. Add photos by Confer.	Ecosystem Standards (HB1309) are "goals that the land manager should be working towards to achieve the desired ecological condition as defined under the standard." (ESAC, 1994) The intent of an ecosystem standard is achieved if land management practices maintain or make measureable progress towards achieving desired ecological conditions. Under the light intensity, rotational grazing system proposed, measureable progress in riparian habitat condition in Parke Creek area is expected. Monitoring will verify if such progress is made, and changes to the grazing plan will be made as necessary.
23-16	Kavanaugh, Rob	The Lorox Society	Add section describing the issues stated in Herman v. WDFW over the Whisky Dick. This also is part of the Publics involvement. (Herman v. WDFW Thurston Sup. Court #08-2-00276-1. Insert Court ruling 28Jan09 against WDFW.	Herman v. WDFW was a challenge to the reliance on a categorical exemption to SEPA by WDFW. The ruling of the Superior Court in that matter does not address any of the issues covered by this EIS and as such is outside the scope of the EIS.

Response No.	Name	Affiliation	Comment(s)	Agency Response
23-17	Kavanaugh, Rob	The Lorox Society	Add factual discussion of the DNS process & the false statement made by WDFW stating no grazing for the Whiskey Dick and then you grazed it anyway. This constitutes despection at its worst. ie DNS 2008 WDFW. This violates SEPA.(Herman v. WDFW Thurston Sup. Court 2008) By this action WDFW shows it can not be believed.	The case you refer to, Herman vs. WDFW, did not find a violation of SEPA for any alleged false statement. Regardless, your characterization of the decision by WDFW to withdraw the initial DNS, as described in this EIS, is factually inaccurate and is outside the scope of this EIS.
23-18	Kavanaugh, Rob	The Lorox Society	Water Res., Vegetation/Habitat, Land Use/Recreation, Fish, Wildlife, Soils, Agriculture Use, Cultural Resources, Socioeconomics, Alternatives, Relationship to SEPA. These sections are overly general and lack specificity with respect to objectively quantifying the various alternatives. The reader is left to speculate how much this project will cost, how many ftes, weed controls, revenues gained, fencing cost. Or how much the water use & developments will cost. Quantify.	It is not possible to describe in detail the entire affected environment of broad geographic scope for the resources as assessed in this EIS. The level of detail is commensurate with the amount of information necessary to understand the effects of the actions and their significance, as required by WAC 197-11-440.
23-19	Kavanaugh, Rob	The Lorox Society	How much will the permittee make from grazing 800AUMs on WDFW lands & how much in taxes the sale of these cattle will bring? or how much the in lieu of taxes will be paid by WDFW to Kittitas Co each year? How much the forage removed by cattle will cost the big game who would have eaten this forage in the winter at \$220.00 a ton? How much in taxes paid by the previous owner for stingly grazing prior to WDFW purchase of this land? Was tax evasion involved? Explain. How much will the WDFW save by the no grazing option? What were the costs to WDFW for the 2008 Stingley grazing permit? Confer wants \$235K.Explain what fore and why if no decision has been made to graze.	Private finances are outside the scope of this EIS.WDFW paid \$140,000 to Kittitas County in 2008.The proposed early season grazing will not deprive big game of forage during the winter and WDFW has no plans to purchase hay for the Colockum elk herd. Manager Confer has not requested \$235,000 to manage cattle grazing on the Whiskey Dick Wildlife Area.
23-20	Kavanaugh, Rob	The Lorox Society	The Socioeconomics sec. is deficient and lacking in specificity.	See Agency Response 23-18.
23-21	Kavanaugh, Rob	The Lorox Society	We are gravely concerned the project will violate the WA Sage Grouse Recovery plan requirements. Explain.	This project is consistent with the recommendations of the Sage-grouse Recovery Plan (Stinson et al. 2004). Please refer to Section 3.5 for a discussion of expected grazing effects to sage-grouse.
23-22	Kavanaugh, Rob	The Lorox Society	The DEIS is not adequate and will likely lead to future litigation unless it is substantially improved.	Thank you for your comment. We respectfully disagree.
23-23	Kavanaugh, Rob	The Lorox Society	Options #1 & 2 seem to be blackmailing the public to go along with one or the number of cattle will be increase? Why? Conv. WNPS.	Alternatives 1 and 2 meet the purpose and need of the EIS.

Response No.	Name	Affiliation	Comment(s)	Agency Response
23-24	Kavanaugh, Rob	The Lorox Society	The costs to the WDFW seem to be excessive for this proposal? Please identify all projected costs for the three options. Ie ftes, funds, equipment, forage consumed by cows vs needs of all focal wildlife species in the mgt. plan.	Most of the funding that has been used for this project to date was provided by special legislation which would not have available but for this project. Other funding is from the capital budget, which can not be used for routine operation and maintenance. Management activities can only occur to the extent the funding is available. If this proposal is implemented, many of the initial investments will be in place for several decades.
23-25	Kavanaugh, Rob	The Lorox Society	Pronghorn antelope are to be released here. Explain conflicts.	An analysis of statewide habitat indicated the area could support Pronghorn Antelope, but no decision has been made on re-introducing them into the State of Washington. Therefore, there are no effects to analyze at this time.
23-26	Kavanaugh, Rob	The Lorox Society	The monitoring methodology does not conform with NRCS or WSU methods. please reconcile this issue and identify who will do this. WSU monitoring costs are \$80,000.00 per yr.	Monitoring follows Herrick et al. (2005), which is the most current and accepted protocol for monitoring rangeland health. Monitoring on WDFW land will be conducted by WDFW staff. WSU researchers will be pooling vegetation data with comparable data collected during the Pilot Grazing Project for analysis.
23-27	Kavanaugh, Rob	The Lorox Society	How do you reconcile the fact that the Dist. Tm remain opposed to this project? (Bernatowicc) Explain his reasoning vs. the Dirs. decisions (WWP meeting with Koenings Apr 2008)	The District Team did not make this claim.
23-28	Kavanaugh, Rob	The Lorox Society	The DEIS fails to consider all reasonable options. (required) For examples we know that the quality of the wildlife big game habitat is not a limiting factor. (Dist.Tm)We also know, significant numbers of elk winter in the project area.(800+) (Dist Tm.records) One factor that is of concern is the human disturbance from cattle operations, horn hunters, and ATVs.(Confer) Include these facts, in the DEIS. Define limiting factors for elk, deer & sage grouse and how cattle grazing will correct.	Per WAC 197-11-786 a "Reasonable alternative" means an action that could feasibly attain or approximate a proposal's objectives, but at a lower environmental cost or decreased level of environmental degradation. Reasonable alternatives may be those over which an agency with jurisdiction has authority to control impacts, either directly, or indirectly through requirement of mitigation measures. In addition, the development of the draft EIS was coordinated with WDFW's SEPA Coordinator and based on feedback WDFW did consider a reasonable range of alternatives.
23-29	Kavanaugh, Rob	The Lorox Society	The DEIS ignores other viable options to cattle grazing. These are controlled fires, reseeding and fertilizing. See Sklovin study 1979 Wooten Wildlife Area. Discuss and compare these habitat manipulation methods vs. the proposal to graze cattle. For example what would grazing do to the vegetation better than controlled burning? fertilizing? reseeding with native grasses? From the DEIS the reader would never know these practices are commonly applied on other public lands across the west. Please include & discuss.	Land management practices such as burning, fertilizing, and reseeding do not meet WDFW's Need for Action, namely, being a responsible neighbor and community member (Section 1.4 Purpose and Need for Action).

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23-30	Kavanaugh, Rob	The Lorox Society	Also with respect to sage grouse nesting habitat we know that these birds actually prefer tall old dead wolfy vegetation like ungrazed bunchgrasses and giant wild rye that grow on deep moist soils. Yet you provide no restriction in the grazing proposal to exclude cows from the very habitat sage grouse need to nest. Also it is well known that juv. sage grouse concentrate around moist spring areas during the first months after hatching because of the escape cover and the high insect populations. Yet you proposed to concentrate cows in the 1400 yds area around the springs. Please include a discussion of these concerns so the reader understands the true tradeoffs between sage grouse and cattle ranching on the Whiskey Dick Wildlife and CattleArea! These observations come from actual experience with sage grouse on the Yakima Training Ctr in Yakima and Kittitas Co.	The grazing plan complies with the Washington State Recovery Plan for the Greater Sage-Grouse (Stinson et al. 2004) and with WDFW management recommendations for sage-grouse (Schroeder et al. 2004). Through the CRM process (which is a conservation strategy identified in the sage-grouse recovery plan) the agency is working with other landowners to implement range management practices that benefit sage-grouse (Crawford et al. 2004). As identified in the grazing plan, the goals, the use of ecological site descriptions and rangeland health standards, the monitoring methods, and the involvement of multiple landowners all are consistent with livestock grazing recommendations in Greater Sage-Grouse Comprehensive Conservation Strategy (Stiver et al. 2006). Considering current sage-grouse habitat guidelines (Stinson et al. 2004, Schroeder et al. 2004, Connell et al. 2000, Crawford et al. 2004) it is clear that habitat management that provides a heterogeneous mix of shrub-steppe plant communities with a variety of height classes and diverse species composition will provide optimal habitat for sage-grouse.
23-31	Kavanaugh, Rob	The Lorox Society	Discussions with tribal members illustrate the DEIS neglects to inform the reader that these areas are commonly used by Native Americans to gather food and medicinal plants. Please include a list of these plants. and the times when they are harvested along with the impact of cattle grazing on these plants.	No affected tribes commented on the DEIS regarding Traditional Cultural Properties (TCPs). However, during the Executive Order 05-05 consultation process for spring redevelopment, the Yakama Nation raised concerns regarding TCPs, in particular traditional root gathering grounds. WDFW will continue to consult with the Yakama Nation Cultural Specialist regarding the identification and protection of TCPs.
23-32	Kavanaugh, Rob	The Lorox Society	Please discuss conservation ethics in the context of this project.	A decision about whether to graze a small area for a few months is not a about ethics. WDFW objectives are much broader than just managing agency lands for wildlife. The agency owns less than 2% of the lands in Washington, yet the wildlife that we're responsible for reside across all ownerships. Our tools include regulations, acquisitions, conservation easements, cooperative agreements, education, influencing management of other lands, etc. Our ability to function effectively in many of these arenas depends on our willingness to cooperate with other landowners and the Wild Horse CRM is evidence of that cooperation.
24-1	Kruse, Robert	Friends of Wildlife and Wind Power	We write in support of the CRM grazing management plan and the DEIS Proposed Action Alternative 2. Our members are participants on the Wild Horse Coordinated Resources Management Committee and have witnessed the sincere interest by all stakeholders to improve habitat, ground cover and forage for wildlife and livestock grazing. With these improvements watershed health is predicted to improve. The plan is well founded in demonstrated science indicating rest rotation grazing can sustain and improve landscapes which have been	Thank you for your comment.

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			previously abused. This was the case with the CRM lands. The CRM plan seeks to correct previous deficiencies in range land management.	
25-1	Martin, Michael	Yakima Valley Audubon Society	If WDFW determines it wants to promote livestock grazing as a management "tool", special consideration should be given to those areas in a negative impact could have overreaching results. For example, the Quilomene, Whiskey Dick, and Skookumchuck areas have all been acquired by WDFW to create a corridor for the two remaining populations of greater sage grouse in Washington State to commingle. This is an endangered species, and numbers in the 2 populations are in decline. Since the Quilomene / Skookumchuck / Whiskey Dick / Yakima Training Center corridor constitutes the ecosystem corridor that is hoped to stabilize and increase this population, any potential impacts to that purpose should be emphasized. All of the areas described in the DEIS have been historically overgrazed. The Whiskey Dick, Rocky Coulee, and Lone Star areas have been in recovery for 20 years and currently evidence a rich shrub steppe ecosystem. The newly acquired areas in which grazing has occurred more recently all show signs of habitat degradation.	The level of livestock grazing is key in determining adverse effects on all components of the landscape. This plan calls for light stocking levels, pasture rotation, herding etc. to minimize these effects. The Greater Sage Grouse Recovery Plan (Stinson et. al, 2004) indicates livestock grazing is compatible with sage-grouse where the habitat characteristics needed for breeding and wintering can be consistently maintained (Connelly et al. 200b).
25-2	Martin, Michael	Yakima Valley Audubon Society	Both Alternative 1 and Alternative 2 assume that livestock grazing on shrub steppe is beneficial if correctly managed, and then assume a particular grazing management regime that by definition produces habitat enhancement. This point is a fundamental area of dispute and controversy, WDFW's position on the believed certainty of best grazing practices is inconsistent, especially when comparing the assumed benefits and management success within the DEIS with WDFW's description of its pilot grazing program in the Green Sheet dated February 5-6, 2009, and accompanying January 2009 Information Sheet prepared by Jennifer Quan. Why doesn't the DEIS reflect the, uncertainty in this area? If there is no uncertainty, why is WDFW	Participation in a CRM is a stand-alone purpose for grazing on WDFW lands (Policy C-6003). WDFW asserts that light-intensity, rest-rotation grazing will allow the maintenance of rangeland health in areas in good condition, and will allow continued recovery in areas in poorer condition (such as areas where season-long grazing has been practiced in the recent past). Further, WDFW contends that the proposed grazing system meets applicable PHS and Sage Grouse Recovery Plan recommendations.

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			pursuing a pilot program to establish best practices?	
25-3	Martin, Michael	Yakima Valley Audubon Society	Without definitive studies, and in light of multiple sage grouse recovery programs based in part on the removal of prior cattle grazing, the DEIS and final EIS should assume a negative impact of cattle grazing on sage grouse recovery and populations, unless specific scientific data demonstrates otherwise. How with the final EIS address this lack of experimental studies?	Experimental studies regarding sage-grouse recovery is a separate issue and is outside of the scope of this plan. WDFW's Greater Sage Grouse Recovery Plan (Stinson et al., 2004) states that livestock grazing is compatible with sage-grouse where habitat characteristics are consistently maintained (Connelly et al., 2000b).
25-4	Martin, Michael	Yakima Valley Audubon Society	The DEIS fails to address the indirect impact that cattle grazing will cause by diverting WDFW staff time to cattle grazing monitoring instead of habitat restoration, wildlife monitoring and the like. The DEIS and final EIS should examine what other programs and WDFW goals will be negatively impacted by diverting staff to be cattle grazing monitoring. How will the final EIS address these indirect, but very real, impacts?	Most of the funding that has been used for this project to date was provided by special legislation which would not have available but for this project. Other funding is from the capital budget, which can not be used for routine operation and maintenance. Management activities can only occur to the extent the funding is available. If this proposal is implemented, many of the initial investments will be in place for several decades.
25-5	Martin, Michael	Yakima Valley Audubon Society	How will the final EIS address that continued grazing of recently grazed areas prevents sage grouse habitat restoration?	The FEIS contains an analysis of the effects of Alternative 1 on sage-grouse. In general, the type of grazing prescribed will allow habitat recovery, with the exception of sites that have crossed an ecological threshold and are dominated by exotic annual grasses. Such sites require active restoration, which will proceed as funding allows. Continued grazing of the Alternative 1 area will not preclude recovery and restoration of sage-grouse habitat.
25-6	Martin, Michael	Yakima Valley Audubon Society	Alternatives 1 and 2 should reflect that the best practices described herein have not been in fact been put in practice, and that the minimal impacts to upland wildlife described in the DEIS is therefore speculative.	Best management practices such as the ones detailed in both grazing alternatives have been applied across the West for a number of years (Bailey et al. 2008; Holechek et al. 2003; Wyman et al. 2006). In addition, monitoring and adaptive management will minimize uncertainty.

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25-7	Martin, Michael	Yakima Valley Audubon Society	Yakima Audubon believes that Alternative 3, the no grazing alternative, provides the best means for maintaining and restoring the functions and values of shrub steppe ecosystems within the Wild Horse CRM area, Alternative 2 puts at risk the current recovery from past overgrazing on the Whiskey Dick, Rock Coulee, and Lone Star areas. Alternative 1 prevents to those already recovered areas, but provides little opportunity for additional habitat areas, except for the Skookumchuck area to be indefinitely rested.	Thank you for your comment.
26-1	Mills, Ken	Washington Coordinated Resources Management Task Group	The Wild Horse CRM group's plan (Alternative 2) is clearly the best alternative and we believe it is imperative that the CRM process and adaptive management continue to be used within this area. The DEIS and the map draw attention to the checkerboard ownership pattern. For WDFW or any of the entities to achieve their objectives in such an area, coordination of land management activities in a CRM collaborative process will be essential. High levels of management are achieved through CRM.	Thank you for your comment.
27-1	Schnebly, Fred	Kittitas County Cattleman's Association	The Kittitas County Cattlemen's Association strongly supports Alternative Two (the grazing plan utilizing 62,000 acres) as described in the Draft Environmental impact Statement dealing with the Whiskey Dick CRM. The CRM planning process has brought together representation from a diverse set of interest groups in an effort to improve management of the Whiskey Dick rangelands. The Kittitas County Cattlemen's Association has been actively involved in this process since it began over three years ago.	Thank you for your comment.
28-1	Sieverkropp, Bill	Grant County Cattleman's Association	We are in full support of the grazing for the benefits to the wildlife to keep the grasses fresh (meaning The cattle graze off the old dry grass, rank forage and stimulate new growth). And this lets new foliage come and is easier for the wildlife such as deer, elk, and even sage grouse to get to new and tender foliage that will regrow in the spring and is more palatable and is more desired able to all. And this will keep more deer and elk up in these areas and not in the farmers fields down in the valley.	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
29-1	Stuhlmiller, John	Washington Farm Bureau	The proposed plan would involve managed livestock grazing on 10 of 13 pastures available in the area. We strongly recommend that this proposal be implemented. The plan is sound because it relies on a very successful collaborative approach called the Coordinated Resource Management process. CRM brings diverse groups together to solve complex issues. Livestock grazing has been and continues to be an integral part of the Kittitas County economic picture. Additionally, grazing has been a normal and customary management tool for landowners and managers throughout Kittitas County since the valley was settled. WDFW can honor and recognize this use by implementing the recommended management plan that will result in a 5 year grazing plan.	Thank you for your comment.
30-1	Acheson, Rob		The extensive efforts made by your agency and others interested in improving grazing habitat in the Wild Horse CMR are commendable. Recognizing the benefits of using domestic livestock to increase the quantity and quality of forage is paramount to achieving this and proper management of all grazing animals is key. My experience over the past 40 years confirms this.	Thank you for your comment.
30-2	Acheson, Rob		For several decades range lands (shrub-steppe) adjacent to ours were privately owned and grazed in a sustainable manner with domestic livestock. About 10 years ago the WDFW acquired this property and no livestock were permitted. As the years advanced from that time it has become increasingly apparent that both elk and deer have vacated these non-managed lands in favor of our range which has been grazed in a rest-rotation management pattern all along. The main reason appears to be that forage plants left long un-harvested become coarse, less palatable and eventually decadent as time ensues. Water placement and availability are also critical to proper utilization and health of rangelands. Improper or lack of maintenance of springs and other water areas results in poor distribution of animals and consequently unfavorable grazing patterns. With lessees' cooperation these systems can be maintained to the mutual benefit of all.	Thank you for your comment.
30-3	Acheson, Rob		I know all of these factors have been addressed in your analysis of the Wild Horse CRM unit and I encourage you to continue to implement the practice of multiple species grazing including domestic livestock on all of the	Thank you for your comment

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			lands you are charged with administering. Doing so will insure a future of healthy, productive rangelands.	
31-1	Ashbaugh, John		I am in support of the WDFW proposal to authorize grazing on their managed lands in the state of Washington. The proposed action to have 10 to 13 pasture paddocks should be implemented.	Thank you for your comment.
31-2	Ashbaugh, John		Managed grazing has always been of benefit to wildlife habitat and the environment. There has never been a scientific test comparing grazing and non-grazing that has shown grazing to be a negative. All tests show grazing as a positive to all functions of the environment.	The effects of managed grazing on wildlife habitat are species- and ecosystem-dependent. The intent of the Proposed Grazing System and BMPs is to minimize effects to shrub-steppe wildlife habitat, while participating in the CRM.
32-1	Ashbaugh, Linda		I am in support of the WDFW proposal to authorize grazing on their managed lands in the state of Washington. The proposed action to have 10 to 13 pasture paddocks should be implemented.	Thank you for your comment.
32-2	Ashbaugh, Linda		Managed grazing has always been of benefit to wildlife habitat and the environment. There has never been a scientific test comparing grazing and non-grazing that has shown grazing to be a negative. All tests show grazing as a positive to all functions of the environment.	See Agency Response 31-2.
33-1	Bowen, David		I appreciate the opportunity to comment on the DEIS regarding livestock grazing Management and the CRM planning process. I am writing in support of Alternative 2 as the proposed action by WDFW. Alternative 2.Proposed Action (CRM Livestock Grazing Plan): Livestock grazing would continue on pastures that have been grazed in the recent past (less than 10years). In addition, grazing would be allowed on several pastures on the Whiskey Dick WA, which have not been grazed within the recent past.	Thank you for your comment.
33-2	Bowen, David		I was a seated Kittitas County commissioner when the purchase of the Skookumchuck Property was proposed. I took the lead analyzing the public interest and recommended supporting the purchase by WDFW. My decision, ultimately the Kittitas County BOCC unanimous decision, was heavily influenced by the WDFW commitment to continue traditional uses, although modified by use of best management practices, on the property. I consulted with leaders in the ranching and agricultural community who gave their cautious support, from their perspective they were taking a leap of	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
			faith that WDFW was embracing the concept of finding common ground through the CRM process and partnering to move away from legislating through litigation.	
33-3	Bowen, David		The Kittitas County Board of County Commissioners wrote a letter of support for the Purchase of the Skookumchuck property based on the commitment to work in good faith Through the CRM planning process. The collaborative process, the CRM, beginning in January 2006 that followed the funding allowed for resource planning across multiple ownership and management boundaries that will meet the needs of fish and wildlife as well as local farmers and ranchers. I attended early CRM meetings and observed the multiple stakeholder groups, 50+ attendees, sitting around tables discussing the possibilities, identifying common goals and learning each others issues. I followed the process via attendance, minutes and e-mail over the next 36 months. I am pleased with how it has stayed focused and on track. The process is open, transparent and working as envisioned.	Thank you for your comment.
33-4	Bowen, David		Spreading the grazing across a larger landscape; the Wild Horse CRM process provides a reduced level of grazing, allowing for recovery and enhancement of the landscape that had been grazed in the recent past. The goal statement of the CRM is worth repeating, it incorporates a description of the desired landscape: 1) healthy watersheds that support a variety of native plant communities with few invasive/undesirable species, 2) enhanced habitat for wildlife that use the area, 3) improvements to water sources that improve availability across the area for wildlife and livestock, and 4) properly managed and sustainable grazing practices that balance wildlife and livestock use and result in an upward trend in ecological condition for both uplands and riparian areas.	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
33-5	Bowen, David		<p>The following text from the DEIS summarizes the intent and desire of the community regarding the long term preservation of this property and its historical uses: In Kittitas County, agriculture, including livestock grazing, has a long history and is both economically and culturally a valuable part of the community. WDFW is a significant landowner in Kittitas County. As a landowner, WDFW strives to be a responsible neighbor and community member supporting the community's economies and values where compatible with its mandates and obligations to the greater public it serves. In between 2004 -2007, as WDFW acquired the 17,382 acres (Skookumchuck acquisition) of land adjacent to the Quilomene WA, the agriculture constituents in the community made clear the need for those lands to continue to support livestock grazing. To blend the needs of the local community with the WDFW statewide mandates, in 2006 WDFW engaged in the Wild Horse CRM process to achieve this. These partnerships are supported by the WDFW's Domestic Livestock Grazing on Department Lands Policy #C-6003 that specifically identifies CRM participation as a stand-alone purpose for grazing on WDFW lands.</p>	Thank you for your comment.
33-6	Bowen, David		<p>Thank you again for the opportunity to comment and I encourage the implementation of Alternate 2 as presented. It is consistent with WDFW mandates and obligations and will meet the original intent and expectations of our community while enhancing the habitat for fish and wildlife purposes.</p>	Thank you for your comment.
34-1	Browne Jr., John		<p>Your stated policy, 2.3.9 Weed management: The goal of weed control on WDFW lands is to maintain and improve habitat for wildlife, meet legal obligations, provide good stewardship and protect adjacent private lands..."apparently doesn't recognize that grazing is a principal vector for the invasion & establishment of invasive weeds. Re: Weeds do not respect property boundaries..." The degraded weed properties that were formerly grazed heavily will provide an opportunity for spreading weeds to the proposed grazing especially under Alternative 2.</p>	<p>Actually roads are the main vector for spread of weeds, providing the greatest ground disturbance as well as travel corridors that facilitate weed invasion. We are implementing a grazing regime with a short period of spring and early summer use with low stocking levels and grazing intensity (<35%) to minimize potential for noxious weed spread. Ultimately, regardless of how weeds are established it is up to WDFW to control those deemed noxious.</p>

Response No.	Name	Affiliation	Comment(s)	Agency Response
34-2	Browne Jr., John		RE: "Weed Management Approach State law (RCW 17.15) requires that WDFW use integrated pest management (IPM) defined as a coordinated decision-making and action process that uses the most appropriate pest control methods and strategy in an environmentally and economically sound manner to meet the agency pest management objectives' to accomplish weed control."The most "economically sound manner" would obviously be to keep cattle off the DFW lands, since the income derived by the State from the grazing permits don't cover al the costs of administering the allotments AND controlling weeds AND managing to "maintain & improve habitat for wildlife".	The law states that we employ methods and a strategy in an environmentally and economically sound manner, recognizing there are competing needs that must be balanced. Weeds could also effectively controlled by keeping the public off the area but that is not a method we chose to employ. See Agency Response 34-1.
34-3	Browne Jr., John		RE: "Invasion of non-native species is a major concern on the Quilomene and Whiskey Dick WA within the CRM area; weed control consumes a large portion of the WA budget each year. Therefore, it is important to minimize ground disturbance that could facilitate invasion by non-native plants... "Arguably, cattle grazing provides as great- or greater- 'ground disturbance' than any other activity currently permitted &/or envisioned on these lands; and DOES facilitate invasion by non-native plants".	See Agency Response 34-1.
34-4	Browne Jr., John		Re 3.1 .2. 1. 'In addition, maintaining springs would help disperse livestock and minimize trampling (Figure 2-3). Spring redevelopment would occur within original footprint and springs would not be redeveloped on steep slopes minimizing the risk of "trail collaspe". (trail use and-erosion on steep slope). Minor soil erosion would be associated with spring infrastructure improvements, including ground clearing and compaction by construction equipment/trucks. Structural improvements as proposed will improve livestock management by influencing livestock distribution. Overall" disturbance from structural improvements would be short-term, localized and occur within the existing footprint. "What you identify as "structure improvements" to a very special natural feature is problematic. The adage "if it ain't broke, don't fix it" might be applicable here...since a great many of the various forms of wildlife under your protective care depend on NATURAL springs.	The FEIS has been redrafted to include further details regarding the current state of springs and proposed redevelopment. See Section 3.2.

Response No.	Name	Affiliation	Comment(s)	Agency Response
34-5	Browne Jr., John		<p>Re: 3.2.2.1. Indirect effects. You postulate for Alternative 1, "Runoff from grazing would be minimized in the Alternative 1 using a rotation system However, a small increase in surface runoff could occur under Alternative 1 due to increased soil compaction. However, given that most of the soil is coarse-grained and resilient to soil displacement, overall compaction from the use of existing livestock trails and in areas where livestock congregate is expected to be minor to moderate. Encouraging livestock to disperse throughout the pasture by spacing attractants and herding would help eliminate areas of greater compaction. Overall compaction by livestock is expected to have a minor to moderate impact on runoff volumes." Likewise, "Based on seasonal elevated water tables and numerous springs in the Alternative 1 grazing area, the overall impact on water quantity is likely to be minor to moderate." Re: 3.2.2.2 For Alternative 2, however, you postulate "Based on seasonal elevated water tables and numerous springs in the Alternative 2 grazing area, the overall impact on water quantity is likely to be minor." Why, given that up to twice the number of cattle will be involved does the judgment proceed that Alternative 1 would potentially provide a more adverse impact than Alternative 2? When one considers that your intentions under Alt 2 is the "improvements " (a euphemism for "Alteration/destruction") of up to 14 springs, compared with 6 under Alt 1, the logic is unclear.</p>	<p>The document has been redrafted to reflect the comment. The springs that are proposed for re-development have all been developed in the past. The current proposals include fencing to protect the water source and riparian, once a portion of the water is piped away from the spring. See Section 3.2.1.</p>
34-6	Browne Jr., John		<p>It appear that this "gift" of public largesse to a local cattle rancher is counterproductive for the general public of the State of Washington, other wildlife that you are charged with supporting and to the environments that support that wildlife, including the native shrub's steppe floral community which I would also characterize as "Wildlife". By any rational judgment based upon my own observations of the Whiskey Dick unit the Parke Creek unit the Jim Creek unit and the Vantage unit that I walked last Spring & Summer (and participated in establishing monitoring sits and information thereon), Alternative 3 is the ideal choice under this DEIS process.</p>	<p>Thank you for your comment.</p>
35-1	Charlton, Mike		<p>As a community agriculture leader in Kittitas County and Washington State Farm Bureau Board member, thank you for this opportunity to place comments, which I have listed below.</p>	<p>Thank you for your comment.</p>

Response No.	Name	Affiliation	Comment(s)	Agency Response
35-2	Charlton, Mike		Comments on the Wild Horse CRM Alternative 2 to authorize grazing for 5 years on WDFW managed lands within the CRM area; best exemplifies the multiple goals and objectives of the Wild Horse CRM. Alternative 2 allows for the best management for big game and sage grouse in 10 of 13 pastures.	Thank you for your comment.
35-3	Charlton, Mike		The EIS demonstrates there are the proper scientific monitoring in place at the present and a written plan for the future.	Thank you for your comment.
35-4	Charlton, Mike		From past experience in grazing in an area adjacent to the Wild Horse CRM, years following drought can be good grass years. If the springs are not running; the hauling of water, if economically viable, can bring some great distribution of the cattle on the landscape. I would recommend the option of grazing; as opposed to no grazing, during a drought an evaluation on a pasture by pasture bases, with the hauling of water as an option.	Thank you for your comment.
35-5	Charlton, Mike		Being involved in this CRM process; I feel confident and committed to this encompassing group to solve the issues at a local level, for the betterment of WDFW lands, while still allowing resource use on the land.	Thank you for your comment.
35-6	Charlton, Mike		This DEIS will provide a model of true sustainability for producers in the shrub step areas. WDFW engaging in this process shows that WDFW can be a partner in resource issues affecting rural agriculture lands.	Thank you for your comment.
35-7	Charlton, Mike		I request that WDFW adopt Alternative 2, the grazing plan for 5 years on 10 of 13 pastures. Thank you for your time and effort involved,	Thank you for your comment.
36-1	Coleman, Timothy		We are concerned about The Department of Fish and wildlife plans to reintroduce cattle into the Whiskey Dick area because the potential for grazing damage to plants, animals and this rare desert ecosystem. There isn't very much intact shrub steppe habitat remaining in eastern Washington. This habitat is some of the highest ecological diversity found in Washington exceeded only by coastal tidal areas. I'm not against cows, but Whiskey Dick is not the "place for them.	Thank you for your comment. These lands have been grazed in the past and ecological diversity is one of WDFW's goals. The Proposed Grazing System has been specifically designed to minimize adverse effects to shrub-steppe habitat.
36-2	Coleman, Timothy		Desert riparian areas are an oasis of life, especially in the drier summer months. Cattle will congregate in these areas in the summer months causing riparian vegetation trampling and water pollution. Fences that might keep cattle away from these areas are an eyesore, impact wildlife migration and recreational pursuits.	Livestock grazing in WDFW-managed pastures with riparian areas will be limited in summer months (June, July, and August). Also, temporary fencing, which will be present only when livestock are in a particular pasture, will limit impacts to wildlife, recreational users, and aesthetics.

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36-3	Coleman, Timothy		Fourteen natural springs will be disturbed to create cattle watering areas. This is unacceptable.	The springs discussed in the EIS have already developed with cisterns, piping and water troughs already in place. Some of these sites are fully functioning while others are in need of repair. All of the sites need to be brought up to NRCS standards for spring developments, which involves piping the water away from the spring initiation point to hardened sites where troughs will provide water for livestock and wildlife as well as overflow piping that returns the excess water back to the spring channel. Implementing the NRCS standards at these sites will reduce impacts from livestock use of the sites. See Section 3.2.1 of the FEIS for further details of current spring conditions and proposed redevelopment.
36-4	Coleman, Timothy		There is a large body of scientific research that indicates that grazing degrades and destroys wildlife habitat. The "native shrub steppe vegetation in the Columbia Basin evolved without large numbers of herbivores, and there is evidence that our native plants and biotic soil crusts may be" significantly vulnerable to cattle grazing. The science being used to promote this project is based on research conducted in different ecosystems where large animals such as bison were historically more common. The department must use sound science applicable to local plant communities, "fisheries, and wildlife habitats.	The effects of livestock grazing lie along a continuum, with season-long use compounded by overstocking on one end and light-intensity rest-rotation grazing on the other end. In an often-cited review of grazing effects, Fleischner (1994) states that "attempts to discern grazing effects are also hampered by the difficulty in distinguishing between different range management practices." Many grazing studies do not quantify grazing intensity, or describe periods of use or rest. The long evolutionary history of grasses currently found in eastern Washington seems to have occurred with relatively low numbers of grazers (Daubenmire 1970, 1975). This is consistent with the observations of Holechek et al. (1999) and Galt et al. (2000) that light to moderate grazing can be compatible with management for wildlife habitat. The Proposed Grazing System is based on Washington NRCS Prescribed Grazing Standard 528 (Guinn 1994) and the Sage Grouse Recovery Plan (Stinson et al. 2004). Along with the Proposed Grazing System, vegetation monitoring and adaptive management will ensure minimal adverse effects to wildlife habitat.
36-5	Coleman, Timothy		Working with ranchers to develop sustainable grazing practices <i>is</i> a worthy and important goal, but our rare and ecologically important wildlife areas serve other important functions. They should be protected and managed to support Washington's wildlife. Please do not reintroduce cattle into these high-quality wildlife areas.	Preserving Washington's Wildlife is part of WDFW's mandate. Management involves more than just protection.
37-1	Crandall, John		I am concerned about the potential for grazing on several of Washington's important wildlife areas. These areas represent an important component related to the preservation of regional biodiversity, especially shrub-steppe habitat that has undergone large scale alterations over the past century. The State of Washington needs to do its utmost to protect and manage the remaining areas for future generations.	WDFW's mandate is to protect, preserve and perpetuate wildlife and provide wildlife oriented recreation first while allowing other uses to the land. The proposed action has been carefully thought out to ensure those benefits. WDFW owns many large blocks of shrub-steppe habitat and we continue to acquire more for long term protection. Nearly all shrub-steppe habitats had a long history of heavy grazing, prior to WDFW acquisition. Our acquisition program depends on support from the public, county commissioners and local legislators.

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37-2	Crandall, John		The likely results of grazing in these areas include: the introduction of invasive species, soil compaction and degradation of wetlands, seeps and springs. Indeed, WDFW is mandated by RCW 77.04.012 to preserve and protect these lands, This mandate would be jeopardized by the proposed grazing plan as this would convert a natural area into one with a non-native herbivore as a major component of the landscape.	The short grazing period and low stocking rates are intended to prevent soil compaction and invasive species. The area is not a natural area and was grazed last in 1989.
37-3	Crandall, John		In the DEIS the overall impacts of the proposed grazing plan are not clearly elucidated. If intensity of grazing is to be spread over the area, why are not all area rested over the five year period? I see this as an important point and one that needs to be addressed. Overall, it seems as if this proposal is simply creating more areas available for grazing at the expense of our natural heritage. This is not a solid proposal and I urge the termination of the proposed grazing plan.	Both alternatives still incorporate rest-rotation principles. Rest may refer to either an entire calendar year of rest or to rest during the growing season, also called deferral. Research into the biology of native grasses such as bluebunch wheatgrass indicates that dormant season grazing generally has little effect on the plant because the leaves are not photosynthesizing.
38-1	Dane, Roger		I urge WDFW to eliminate grazing on the Wildlife Areas under consideration. My primary concern is that grazing will have negative impacts on the delicate and unique seeps and riparian areas within this dry landscape. In addition, the incredible diversity of wildflowers these areas support (which in turn support diverse invertebrates and birds) is greatly reduced where grazing occurs.	Thank you for your comment.
38-2	Dane, Roger		Areas currently open to grazing within these wildlife areas exhibit dramatic differences from ungrazed areas across the landscape. On grazing allotments the wet areas are churned up mud, knapweed is thick, and dry slopes have few flowers. Bunchgrass is relegated to out of reach patches under shrubs, and bare earth in the draws leaves the land subject to erosion. Much of the LT Murray, Quilomene, and Whiskey Dick Wildlife Areas seems to be just recovering from grazing stopped decades ago. These lands should be managed for a broad diversity of wildlife and recreation, not for one user group at the expense of others, or for one animal at the expense of the ecosystem.	The heavily grazed areas that you are referring to have not been grazed under the plan described in this FEIS; grazing on these sites is similar to the traditional season long grazing system. The purpose of the CRM is to avoid the impacts resulting from heavy, season-long grazing and spread light grazing over larger areas.
38-3	Dane, Roger		One of the arguments presented in support of grazing is that properly timed grazing can increase late season forage for elk. I am an avid elk hunter, but I truly believe that the land should be managed for wildlife diversity and overall health, not to increase one game species. Thank you for your consideration of these	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
			comments.	
39-1	Devox, Dan		Please do not listen to these anti-development nuts. We need cattle and grazing grounds.	Thank you for your comments.
40-1	Duncan, Dave		I write in support of the Washington Department of Fish and Wildlife's Proposed Alternative #2 in the Draft Environmental Impact Statement prepared to evaluate effects of livestock management on the Quilomene and Whiskey Dick Wildlife Areas in Kittitas County. I have personally been involved in the Big Game Management Round Table (BGMR) and our efforts to address elk depredation on pastures and hay fields in Kittitas County. One of the primary goals of BRMR is to improve the forage quality for elk on the Quilomene and Whiskey Dick Wildlife Areas, thereby keeping the elk on wildlife lands where they belong and reducing the costs of elk depredation to WDFW and the ranching community long term.	Thank you for your comment.
41-1	Eaton, John		I am writing in support of the livestock grazing on the Whiskey Dick Wildlife Area. The great amount of work and effort given by the CRM group to put a plan in use shows the support of our community and the ownerships involved. The grazing plan shows the well managed and light use of the cows over a large landscape allowing for plenty of regrowth time to keep the elk on the ground that has been purchased for them.	Thank you for your comment.
42-1	Ellsworth, Margaret		I am sorry to hear of WDFW plans to allow cattle grazing in the Quilomene and Whiskey Dick Wildlife Areas. A lot of effort has gone into restoring previous cattle grazing damage as well as to growing the elk and mule deer herds. There's not much of Eastern Washington's shrub steppe habitat left. Is it all going to go the way of the mid-west prairies? That would be so sad.	Minimal active restoration has occurred on public ownership within the CRM area. Livestock grazing is a land use, not a conversion, and at the levels proposed will protect the ecological integrity of shrub-steppe within the CRM area.
42-2	Ellsworth, Margaret		Please rethink these plans. The elk and deer would be competing with the cattle for grazing. Cover for small animals and birds, some rare and endangered, would be destroyed. When I owned cattle, they made a muddy mess of any part of a watering hole or stream where they drink. Wild springs are especially vulnerable.	Effects to wildlife are addressed in Section 3.5, and are expected to be minimal due to implementation of the Proposed Grazing System.

Response No.	Name	Affiliation	Comment(s)	Agency Response
42-3	Ellsworth, Margaret		Hiking in this steppe area is a marvelous experience. I'd like my children to have a chance to see it in its natural condition. I urge you not to allow cattle grazing in these Wildlife Area.	Thank you for your comment.
43-1	Essman, Bill		I basically support option 2 in the D.E.I.S. I, like most other members of the community, supported WDFW's acquisition of the Skookumchuck properties under the premise that it would block up the Quilomene and Whiskey Dick WLA's and managed cattle grazing would be permitted to improve habitat and springs for wildlife. In the mid 1980's WDFW conducted a three year pilot cattle grazing in the Rocky Coulee portion of the Whiskey Dick WLA. After the first year deer and elk increased use in that area and by the end of the third year, elk use had more than doubled. Deer and elk prefer private lands that have been grazed by cattle over WDFW lands that have not been grazed for more than 30 years. I think it is time for WDFW to start using managed cattle grazing to improve habitat on their lands in Kittitas County.	Thank you for your comment. However, WDFW has no data that shows increased wildlife use following the last grazing permit issued on the Whiskey Dick Wildlife Area (1987 – 1989).
44-1	Flynn, Carl		I feel WDFW land should be grazed moderately, given to landowners with game damage, and who allow access to public hunting. These ranchers should be good stewards of their own land and not just members of the cattlemen's assoc. and have a large number of cattle.	Thank you for your comment.
44-2	Flynn, Carl		I am against the "pilot program" that is in place now. WDFW should be charging the fees per AUM's now.	This is outside the scope of this review.
45-1	Fuchs, Sam		First, I would like to say that I have supported many of the Agricultural industry in American. I have spent most of my years working as a rancher and farmer and as a professional who worked to defend our agriculture in American. I also support many program by WDFW across the sate of WA. However, it is just a bad idea to graze state lands. Its puts many of the same people who used to defend WA agriculture, against them. The project only adds to the concept by the public as welfare grazing and will never be acceptable by state taxpayers, especially during troubling budget years. I would rather see local ranchers who suffer wildlife depredation get paid for their loss than force this type of project on state taxpayers.	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
45-2	Fuchs, Sam		WDFW along with its partners (WSU, WCA, BPA) are digging themselves deeper and deeper into a hole with this grazing program, and unfortunately, will happen with CRM area in Central Washington. The question to ask is "what kind of political and ecological damage will WDFW cause in 2009 and future years with the grazing program, and how will you defend and address those issues and attacks". The damage at the pilot areas is only 2 years in the making and has not been addressed and is irreparable, and has created a lot of negative public response to WDFW. Prepare to magnify the damage and the related public scrutiny for many years to come.	Comment noted for further consideration.
45-3	Fuchs, Sam		Every Protocol was violated at the Pilot grazing Program at Asotin According to public documents from WDFW meetings, WDFW has stated themselves that nearly every protocol has been violated at the Pilot Program and commissioners actually asked, "Does it matter if we violate them"? How would this be any different at the CMR?	The Pilot Grazing Project is outside the scope of this review.
45-4	Fuchs, Sam		To use livestock to improve the habit on some of the last remaining pristine Steppe Sage communities has been noted among nearly every biologist in the NW. There is not one biologist/ecologist who would agree with WDFW to go forward with this plan.	Habitat conditions in many parts of the CRM planning area are very good, but none of it is actually pristine. The area has a long history of grazing by cattle, sheep and horses, most springs have already been modified, roads were constructed and there were even several homesteads in the area. There are several biologists/ecologists within the Wild Horse CRM and many others within WDFW who understand and support the project.
45-5	Fuchs, Sam		Using 30-60 % utilization by weight give an incorrect level of protection for all wildlife. What is important for nesting birds and small mammals is the percent stubble height remaining for cover. For nest birds like sage grouse and ground dwelling mammals, at least 12-18 inches of grass cover is optimum, even a low utilization of 30 %, the height of the remaining grass will only be a few inches tall because most of the weight of a grass is in its bottom basal areas.	The Sage Grouse Recovery Plan (Stinson et al. 2004) indicates that 35% utilization, along with a minimum grass/forb stubble height of 7 inches, may be compatible with sage-grouse habitat needs. Monitoring will determine whether appropriate stubble heights are maintained under 35% utilization levels.
45-6	Fuchs, Sam		Public Disclosure has shown Major Trailing at the Pilot Site Data obtained from WSU public documents shows that livestock are creating new trails within their study plots. These will also develop within the CMR. Trails become dominated by weeds and spread to other areas. Therefore, your plans are causing more loss of ecosystem integrity damage that is never repaired. Does WDFW have any type of restoration plan in place for the irreparable damage caused by trailing?	Trails are an unavoidable consequence of large ungulate grazing; including grazing by cattle, elk and deer. Secondary impacts from trails, such as weed encroachment and erosion into creeks, will be addressed by site-specific management.

Response No.	Name	Affiliation	Comment(s)	Agency Response
45-7	Fuchs, Sam		WDFW mission statement was to protect all plants and animals on state lands. But the mission appears to change after the land is purchased and focuses on livestock grazing. WDFW needs to alter their mission statement to include lands purchased will be designated for the use of livestock grazing and wildlife and habitat protection will be a secondary focus.	The WDFW mission statement has not been changed. Many types of activities change when WDFW acquires property that was formerly private, but fish, wildlife and recreation are still the top priorities.
45-8	Fuchs, Sam		Even with low livestock numbers ecological damage still occurred at the Pilot area. The CMR grazing plan was guided by the pilot project at Asotin Wildlife Area. After two years and spending millions, according to your own biologists and the public, much damage was caused by livestock grazing, including the spread of noxious weeds that still aren't controlled, and large tracks of completely denuded land, and high levels of sedimentation in streams. This damage occurred even at low levels of livestock numbers. Therefore, there was no benefit to any wildlife or plant species from WDFW's livestock grazing program, and the same results will occur at other grazed sites on state land.	You are correct; the CRM grazing plan has been guided by the Pilot Grazing Project. "Lessons learned" during the Pilot Project will be applied at the Wild Horse CRM area, in order to prevent ecological damage. Specifically, the CRM grazing committee will monitor seasonal utilization, and overuse will trigger pasture moves or livestock removal. In addition, the primary purpose of monitoring and adaptive management is to detect early any negative trends and change course to ensure no degradation takes place.
45-9	Fuchs, Sam		WDFW layoffs workers but supports this 1 million dollar project, how can WDFW justify this kind of expense to the taxpayers and the ecological damage? WDFW, WSU Dept. of Natural Resources, BPA, commissioners, and W A cattle Association, all have dug deep into the pocket of taxpayers for money that will never be re-captured or ecosystem damage that will not be repaired.' My belief is that it is best to keep livestock on private lands where any type of livestock damage (which is inevitable) is not our business and to avoid this type of conflict that has pitted many state individuals against the WDFW and Cattle industry.	The investments that WDFW and others have made through the CRM process will have benefits for decades to come. Proper management of this 62,000 planning area with 4 types of interspersed ownership would not be possible without a CRM or other coordinated approach. WDFW's mandate to protect fish and wildlife involves much more than agency owned lands, so we do care about management of and habitat conditions on private lands.
45-10	Fuchs, Sam		The cost in human injuries has been unacceptable, and the hiring of companies that do not insure the workers who become seriously injured and paralyzed is an embarrassment to the state.	The Pilot Grazing Project is outside the scope of this review.
45-11	Fuchs, Sam		The SEP A states that WDFW land is purchased with the idea that they have to be neighbors and being a good neighbor included livestock grazing. That explanation does not preclude or supercede or as a matter of fact, should not even be included in the SEP A.	These facts are important background and context that people should be aware of as they review the alternatives. WDFW's recent acquisition of the Skookumchuck area could not have occurred without considering livestock grazing.

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45-12	Fuchs, Sam		WSU Linda Hardesty and Lisa Shipley are currently being paid as consultants to the agencies and cattle association and have spoken as supporters of the grazing project. At meetings, WSU has made statements such as "cattle don't linger in riparian areas, they drink and then leave", or "livestock come off the range before they cause any type of ecological damage". Public disclosure indicates a questionable relationship between the parties and one who is paid to gather unbiased data. This invalidates any result they provide to this program.	The Pilot Grazing Project is outside the scope of this review.
45-13	Fuchs, Sam		WDFW avoided hiring monitoring consultants that may not provide favorable results. It is known that other professional individuals were interested in providing the monitoring data, but WDFW avoided those individuals and chose WSU range department. This again casts doubt on the validity of the data provided by WSU.	The Pilot Grazing Project is outside the scope of this review.
45-14	Fuchs, Sam		There has been no talk or action from WDFW to restore the excessive loss of sediments from the blowout at Smoothing Iron. In addition, land has been damaged and there are new noxious weeds that are not being controlled.	The Pilot Grazing Project is outside the scope of this review.
45-15	Fuchs, Sam		Renaming Wildlife UNITS into PASTURES is another indication that WDFW has changed direction and set livestock grazing on public lands as a priority management objective.	Wildlife Areas and their management units usually carry the name of the former landowners or some significant landmark and that pattern holds within the Wild Horse CRM. Cross fences and pastures within the Quilomene and Whisky Dick Wildlife Areas were established long before WDFW acquired the property.

Response No.	Name	Affiliation	Comment(s)	Agency Response
45-16	Fuchs, Sam		<p>WDFW is Completely Wrong in assessing the Pristine Sagebrush as needing some type of disturbance like livestock grazing to get it back to historical conditions There are many expert ecologists on Steppe Sage (Daubinmire) and others that agree that grazing was not an influential part of the Steppe communities. Unfortunately, prehistorical role of large populations of elk and deer in the NW did not have much influence on maintaining the current plant communities. And even if they did, would you really think that putting 500-1000 head of elk on the land would improve the plant communities? -What is the historical condition and how will livestock grazing achieve this goal? -WDFW needs to qualify statement that these communities will improve from livestock grazing. -What part of these sage communities does WDFW feel need to be changes? - How will grazing improve the areas recognized as in poor/weedy condition?</p>	<p>The FEIS does not state that sagebrush-steppe <i>needs</i> grazing disturbance in order to move toward the historic climax plant community. Mack and Thompson (1982) observe that the evolutionary history of the Columbia Basin did not include large numbers of large, hoofed mammals. Prior to the introduction of domestic livestock, native grazers present in relatively low numbers included bighorn sheep, deer, elk, and until about 2,000 years ago, bison (Daubenmire 1970, Buechner 1953). The long evolutionary history of grasses currently found in eastern Washington seems to have occurred with relatively low numbers of grazers (Daubenmire 1970, 1975). This is consistent with the observations of Holechek et al. (1999) and Galt et al. (2000) that light to moderate grazing can be compatible with management for wildlife habitat. WDFW contends that light-intensity, rotational grazing will allow the maintenance of ecological integrity in areas in good condition, and will allow continued recovery in areas where native bunchgrasses still exist, but are somewhat diminished (such as areas where season-long grazing has been practiced in the recent past). However, little to no recovery is expected on sites dominated by invasive annuals such as cheatgrass under any of the 3 alternatives.</p>
45-17	Fuchs, Sam		<p>WDFW -Wolfy plants are good cover on CRP but not on state lands? WDFW focus on big game management completely ignores the other species that are not game animals and that depend on wolfy plants for protection and survival. I find it interesting that WDFW will defend the need for CRP lands to remain uncut or ungrazed to protect games species. Would not it be the same for the sage ecosystem?</p>	<p>WDFW positions on CRP management and within this FEIS are not inconsistent. The alternatives considered in this FEIS do not include one that would allow the complete removal of residual grass cover (wolfy plants to some). Rest rotation and light utilization grazing (less than 35%) early in the growing season will allow plenty of time for regrowth and retention of cover during fall, winter and spring. The level of grazing being proposed would represent only a small fraction of the historic levels of grazing.</p>
45-18	Fuchs, Sam		<p>WDFW considers non-game species (Federal and State Listed rare species) a nuisance. It is very hard to believe WDFW when they state no damage to plant sand animals when they completely ignore the damage to rare plants and animals. No one with WDFW has voiced any concern or protection ideas.</p>	<p>WDFW does not consider non-game species, listed or non-listed, to be nuisances. Many aspects of the CRM process and each alternative in the FEIS are designed to protect sensitive areas and protect diversity.</p>
46-1	Henderson, Lynn B.		<p>I personally am heavily in favor of Alternative 2. I see in the Environmental Impact Statement (EIS) report that if grazed properly the overall health of these wildlife areas will be dramatically improved. With the sound science found within the EIS report. I see no way that the proposed Alternative 2 would not be the most viable option.</p>	<p>Thank you for your comment.</p>

Response No.	Name	Affiliation	Comment(s)	Agency Response
47-1	Hill, Janice		Livestock grazing should not be allowed in the Whiskey Dick WMA because it will not improve wildlife habitat; in fact, it will cause irreversible ecological damage to one of the best of the few remaining sagebrush steppe ecosystems in the western US.	Cattle last grazed the Whiskey Dick Wildlife Area in 1989. WDFW recognizes that excessive and/or improper cattle grazing can increase cheatgrass abundance, and degrade shrub-steppe plant communities. The short grazing period and low stocking rate are intended to prevent such an occurrence. The timing, duration, and intensity of grazing prescribed in the grazing plan is very conservative and is designed to maintain or improve rangeland health. We are employing a variety of monitoring methods to detect changes in plant species composition and are prepared to alter provisions of the grazing plan if necessary to benefit fish and wildlife management and prevent habitat damage. See also Agency Response 36-4.
47-2	Hill, Janice		Disturbance to soil and vegetation by livestock grazing has been a major contributing factor to degradation of shrub steppe habitat. The soil disturbance from livestock grazing promotes weed invasion, and the cows facilitate weed dispersal into surrounding un-infested native vegetation.	See Agency Response 47-1.
47-3	Hill, Janice		Selective grazing by domestic livestock has caused major alterations of the structure, function and composition of the shrub steppe communities.	See Agency Response 47-1.
47-4	Hill, Janice		The negative effects of domestic livestock grazing are often irreversible because the more palatable bunchgrasses are selected and less palatable species, many non-native weeds, assume dominance as grazing pressure eliminates bunchgrasses. This creates a new stable state that prevents the re-establishment of the climax bunchgrass community. Additionally, the low rainfall in the sagebrush steppe area make any successful restoration efforts very unlikely without large inputs of labor, time, and resources.	See Agency Response 47-1. The primary purpose of monitoring and adaptive management is to detect early any negative trends and change course to ensure no irreversible degradation takes place.
48-1	Huckabay, James L.		I am writing to individually comment on the DEIS. I strongly support the prescribed rotating cattle grazing as proposed in Alternative 2 (CRM Livestock Grazing Plan).	Thank you for your comment.
48-2	Huckabay, James L.		My area of expertise as a member of the graduate faculty of Central Washington University is collaborative conflict management. Over the past thirty-five years, I have been involved with finding collaborative solutions to local, statewide, and national resource conflicts and issues across the West. I am currently writing a book on the use of collaborative tools in dealing with local resource management issues.	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
48-3	Huckabay, James L.		<p>The principal opponents of this prescribed grazing, who call themselves scientists, and with whom I have spent at least 24 hours in discussion over the past two years, see the entire issue of grazing on <i>any</i> public land as a black and white polemic <i>religious</i> issue. There is simply no discussion possible, as the entire question is one of what <i>they</i> deem as right. Any discussion of community support is met with derision and inference of government bribery and corruption. I have on occasion suggested counseling, to no avail. After a career of finding solutions, this inability to consider possibilities saddens me.</p>	Thank you for your comment.
49-1	Jackson, Laurie		<p>I grew up in Richland, where jackrabbits always ran across the lonely Hanford Highway. I haven't seen a jackrabbit since I was in junior high, in the early 70's. Who knows what happened to all of them? Undoubtedly, other species disappeared along with them, including the sage grouse. The place has changed so much from development, irrigation, and fires; it really isn't the same at all. The Whiskey Dick area can go the same way very easily. Desert wildlife is very fragile. Even though the species have to be tough to survive, they aren't tough enough to deal with our meddling and introducing agriculture and grazing to their sagebrush range. Cattle foul the water and consume the wildlife's food. Eastern Washington is not a wasteland, it IS a unique ecosystem with geology to match. I have a small farm, and I can graze livestock on my land, but I wouldn't presume to graze my livestock on public land. There's a phenomenon called the "Tragedy of the Commons" (Google it) that grazing on public land always results in. Every person wants to extract as much as they can when given the opportunity to use common land, and thus the land is overgrazed and ruined. They won't do that to their own pastures, you can count on that. The reality of open land is that "they ain't makin' it no more". So our stewardship of our precious deserts, forests, and water becomes all the more important. The responsible thing to do is to have ranchers graze their cattle on their own ranches or coop private pasture, where they have, a stake in the future of the land and don't want it overgrazed. If cattle are turned out on Whiskey Dick, this ecosystem will perish from the Tragedy of the Commons. I don't notice a shortage of</p>	Your analysis of habitat conversion is correct. This plan does not call for habitat conversion that changes the landscape forever. Stewardship is a major part of WDFW's mandate. See also Agency Response 36-4.

Response No.	Name	Affiliation	Comment(s)	Agency Response
			beef at the grocery store, so why must we sacrifice our wild places? Just because the economy is in the dumper doesn't mean we wreck our ecosystems. We can't be THAT stupid.	
50-1	Johnson, Donald		The 2008 grazing plan may have been initiated illegally and should not be used to define an alternative.	See Agency Response 20-29.
50-2	Johnson, Donald		All of these lands were purchased with public funding with an objective to provide and improve habitat for sage grouse. WDFW and other experts have submitted that cattle grazing on these lands would degrade sage grouse habitat which supports Alternative 3 (no grazing).	These lands were purchased for wildlife and recreation opportunities. Furthermore, both grazing alternatives comply with the Washington State Recovery Plan for the Greater Sage-Grouse (Stinson et al. 2004) and with WDFW management recommendations for sage-grouse (Schroeder et al. 2003).
50-3	Johnson, Donald		All relevant literature indicates that cattle grazing on these arid lands will not meet these objectives.	The section you refer to discusses goals of the Coordinated Resource Management process, not objectives for cattle grazing on arid lands.
50-4	Johnson, Donald		This CRM was initiated as a political action following the development of an MOU between WDFW and the Washington Cattlemen's Association (WCA) in November 2005 and was not the result of any effort to meet the needs of fish and wildlife.	The MOU is not related to the CRM and is outside the scope of this review. The CRM was initiated in conjunction with the development of Wild Horse Wind Farm and acquisition of the Skookumchuck property by WDFW. The 62,000 acre planning area is owned by 3 public agencies and Puget Sound Energy, making it a good fit for the CRM process.
50-5	Johnson, Donald		As stated above, and in the referred to MOU, the plan was to initiate cattle grazing on all WDFW lands not to "ensure healthy plant communities".	The MOU is not related to the CRM and is outside the scope of this review.
50-6	Johnson, Donald		A great majority of valid research suggests that these goals will not be met with cattle grazing on these lands. Past grazing has degraded these lands and only the removal of cattle has allowed them to recover.	We disagree. Long-term exclosure studies indicate that recovery from overgrazing is similar on moderately grazed and protected areas (Courtois et al. 2004), and that plant species richness is similar or higher on grazed versus ungrazed sites (Manier and Hobbs, 2006; Hickman et al. 2004, Laycock et al. 2004, Olf and Ritchie 1998, Frank 2005, Hayes and Holl 2003, Rambo and Faeth 1999, Stohlgren et al. 1999).
50-7	Johnson, Donald		This project is wasteful spending of public funds that will lead to the loss of benefits to fish and wildlife resources from previous public funding for the purchase of these lands and removal of cattle production.	WDFW has authority to issue grazing permits (WAC 232-12-181). WDFW's acquisition program depends on support from the public, county commissioners and local legislators. Lack of support at any level can stop an acquisition project. A fair-market-value fee is charged for livestock grazing on WDFW lands.

Response No.	Name	Affiliation	Comment(s)	Agency Response
50-8	Johnson, Donald		The principle charge of WDFW is to protect and improve fish and wildlife habitat not to support a single segment of the community's economy.	WDFW strives to be a responsible neighbor and community member supporting the community's economies and values where compatible with its mandates and obligations to the greater public it serves. To blend the needs of the local community with the WDFW statewide mandates, in 2006 WDFW engaged in the Wild Horse CRM process to achieve this. These partnerships are supported by the WDFW's Domestic Livestock Grazing on Department Lands Policy #C-6003 that specifically identifies CRM participation as a stand-alone purpose for grazing on WDFW lands.
50-9	Johnson, Donald		This "adaptive management" approach has been attempted with the "pilot grazing" plan (2006-2008) on the Asotin WA, as a product of the WDFW/WCA MOU, where it has failed.	This is outside the scope of this review.
50-10	Johnson, Donald		The outcome on public lands in the arid western United States has been consistently negative.	This is outside the scope of this review.
50-11	Johnson, Donald		Avoidance of habitat degradation is not practical during summer use of arid lands.	Under Alternatives 1 and 2, the grazing period on WDFW-managed pastures, with the exception of South Wild Horse, extends from April through the end of June. Monitoring data collected before grazing begins and during the term of the grazing permit will indicate whether undesirable effects (e.g., increase in cheatgrass or noxious weeds) are occurring. The monitoring data will be used in an adaptive management process to change conditions of the grazing permit as necessary to achieve stated goals and objectives.
50-12	Johnson, Donald		These impacts have not been monitored in the "pilot grazing" project initiated by the WDFW/WCA MOU.	This is outside the scope of this review.
50-13	Johnson, Donald		These impacts have not been adequately monitored in the "pilot grazing" project initiated by the WDFW/WCA MOU.	This is outside the scope of this review.
50-14	Johnson, Donald		These impacts have not been monitored in the "pilot grazing" project initiated by the WDFW/WCA MOU.	This is outside the scope of this review.
50-15	Johnson, Donald		These impacts have not been monitored in the "pilot grazing" project initiated by the WDFW/WCA MOU.	This is outside the scope of this review.
50-16	Johnson, Donald		SEPA was only utilized after a law suit was initiated.	This is not a true statement. Public record shows that the agency has engaged in the SEPA process on this project prior to the referred to law suit.
50-17	Johnson, Donald		The selection of the "preferred alternative" suggests that WDFW management has not used the best science provided by its experts and others in its decision making.	Management is a balancing act, of weighing priorities, evaluating science, responding to historical results, and addressing emerging challenges. In this proposal, the Department has chosen to use planned livestock grazing as a management tool for habitat. In an agency full of experts, many will not agree. There is no "scientific consensus" that dictates one position on grazing.
50-18	Johnson, Donald		There is no evidence that the goals and objectives listed below will be met by reintroducing cattle to these	Literature and professional knowledge suggests these are reasonable objectives.

Response No.	Name	Affiliation	Comment(s)	Agency Response
			WDFW lands.	
50-19	Johnson, Donald		Standards have not been followed, nor has flexibility been seen in the management of the Asotin WA "pilot grazing" program initiated by the WDFW/WCA MOU. When standards were exceeded cattle were not moved because the WCA-selected permittee had no place else to put his cattle. Although the above standards were promoted by the WSU extension and CRM member they were not followed at Pintler Creek or Smoothing Iron "pilot grazing" projects.	This is outside the scope of this review.
50-20	Johnson, Donald		The actual weights of the cattle proposed for grazing this land should be considered.	Thank you for your comment. Utilization and trend measurements will be used to determine whether AUMs need to be adjusted based on cattle weights.
50-21	Johnson, Donald		Has variation in soil moisture and rainfall been considered? Suitability for cattle grazing has not been demonstrated in this DEIS.	Utilization measurements will be used to determine actual pasture "off" dates. Utilization is the proportion of consumed to total annual biomass, and is therefore responsive to annual fluctuations in rainfall, which lead to fluctuations in annual biomass. Livestock grazing has been part of the management of the Whiskey Dick Wildlife Area at various times before and after the property was acquired by WDFW in 1966. Although some areas still show effects of historic livestock grazing, it is clear that the long-term history of livestock grazing management, both before and after the property was acquired by WDFW, has resulted in healthy shrub steppe plant communities dominated by native species that provide habitat for numerous wildlife species.
50-22	Johnson, Donald		An explanation for how these targets will be controlled (i.e. will cattle be removed if any forbs or browse is utilized?) must be provided.	We are employing a variety of monitoring methods to detect changes in plant species composition and are prepared to alter provisions of the grazing plan if necessary to benefit fish and wildlife management and prevent habitat damage. The monitoring data will be used in an adaptive management process to change conditions of the grazing permit as necessary to achieve stated goals and objectives.
50-23	Johnson, Donald		Were these accessibility estimates based on arid lands during hot summer days? The use of 60% slopes 1.5km from water on hot summer days does not seem realistic.	Accessibility estimates were used to come up with an initial AUM estimate. AUMs may change in the future based utilization and trend monitoring.
50-24	Johnson, Donald		This is not consistent with the above definition of 1,000# cow with a calf.	The FEIS has been redrafted to reflect the comment. See Section 2.3.2.
50-25	Johnson, Donald		Existing climate conditions, not the average, must be considered.	Actual AUMs and "off" dates will be determined by utilization and trend monitoring.
50-26	Johnson, Donald		These standards were commonly exceeded on the WDFW/WCA "pilot grazing" projects without any adaptive management flexibility demonstrated.	This is outside the scope of this review.

Response No.	Name	Affiliation	Comment(s)	Agency Response
50-27	Johnson, Donald		These standards cannot be adhered to in the maintenance or restoration of habitat if they are not monitored. The monitoring program provided by WDFW and WSU and funded by the Legislature (referred to above) for the WDFW/WCA MOU initiated programs does not provide for any of the standards included above.	This is outside the scope of this review.
50-28	Johnson, Donald		This monitoring is not in the funded WSU program.	WDFW will collect the monitoring data.
50-29	Johnson, Donald		Mass soil movement did occur in the Asotin "pilot grazing" project in 2008.	This is outside the scope of this review.
50-30	Johnson, Donald		These areas were degraded in the Asotin WA projects in 2007 and 2008.	This is outside the scope of this review.
50-31	Johnson, Donald		See above comments regarding monitoring and adaptive management not being practiced within grazing plans formulated under the WDFW/WCA MOU.	This is outside the scope of this review.
50-32	Johnson, Donald		WDFW management has not followed "best available science" when the biological input of WDFW and other experts has been ignored in their decision making.	Biologists from WDFW were involved in the CRM planning process for the Wild Horse CRM area.
50-33	Johnson, Donald		These stipulations have not been adequately met in grazing plans initiated by the WDFW/WCA MOU.	This is outside the scope of this review.
50-34	Johnson, Donald		The overriding consideration has been "the needs of the permittee". Why are all expenses for beef production on WDFW lands to be covered by public funds?	The CRM process considers the needs of individual landowners, public agencies, livestock owners, neighbors and the public. Unless the needs of all participants are met, the process will fail. The permittee is also responsible for providing significant funding and management.
50-35	Johnson, Donald		WCA-selected permittees on current WDFW "pilot grazing" projects have deferred many of these responsibilities to WDFW employees. In addition the Wild Horse CRM permittee has obtained a publicly funded (NRCS) grant to pay for "improvements", as well as \$ 1/acre for grazing the public lands.	This is outside the scope of this review.
50-36	Johnson, Donald		Is this all to be done at public expense?	Landowners and the permittee will share the responsibility.
50-37	Johnson, Donald		Over the term of this proposed permit will the above be funded out of the reduced WDFW budget or is more Legislative funding expected?	Special legislative funding will be used if provided, otherwise, implementation will proceed as WDFW funding allows.
50-38	Johnson, Donald		The expectation that "WDFW will find solutions" is not an adequate response to the impact of cattle on the introduction and spread of weeds on WDFW lands by this proposed project.	WDFW manages weeds regardless of whether an area is grazed. In addition, a variety of monitoring methods are being employed to detect changes in plant species composition and we are prepared to alter provisions of the grazing plan if necessary to prevent habitat damage.
50-39	Johnson, Donald		Is it reasonable to assume that these expenses will also be expected to be covered with public funds rather than	WDFW is responsible for weed control on agency property regardless of the status of grazing or the CRM.

Response No.	Name	Affiliation	Comment(s)	Agency Response
			by the permittee?	
50-40	Johnson, Donald		The reintroduction of cattle on these WDFW lands can be expected to result in an increase in the distribution and density of cheatgrass which in turn will increase the incidence and extent of fires. The costs of fire suppression and habitat restoration will be additional public expenses deferred from the cost of beef production on these lands.	Cattle last grazed the area proposed for the grazing permit in 1989. WDFW recognizes that excessive and/or improper cattle grazing can increase cheatgrass abundance. The short grazing period and low stocking rate are intended to prevent such an occurrence. We are employing a variety of monitoring methods to detect changes in plant species composition and are prepared to alter provisions of the grazing plan if necessary to benefit fish and wildlife management and prevent habitat damage.
50-41	Johnson, Donald		Current management on these WDFW lands has proceeded outside the decision making process required by SEPA and should not be continued.	The agency believes that the current management of these lands is being conducted within the bounds of the law.
50-42	Johnson, Donald		Since these habitat-destructive "improvements" are a priority can it be assumed that if funding (public?) is not available this proposed project will not move forward?	Range improvements do not destroy habitat. Management activities can only occur to the extent the funding is available.
50-43	Johnson, Donald		Since this alternative requires "more rangeland infrastructure improvements and maintenance than Alternative 1" can it be assumed that this alternative is even more dependent on "funding availability" and if public funding is not available this proposed alternative will be eliminated?	Management activities can only occur to the extent the funding is available.
50-44	Johnson, Donald		Will these costs be dependent on public funding?	WDFW and the permittee will share the responsibility.
50-45	Johnson, Donald		No new public funding would be required for additional "improvements" and maintenance if the "no grazing" Alternative 3 is selected.	Thank you for your comment.
50-46	Johnson, Donald		Alternatives 1 and 2 call for utilization levels of native perennial grasses of up to 35% in uplands and 60% within 100 yards of developed water although these levels are cited here to "likely result in adverse effects to sage grouse habitat. The existing WDFW/WCA MOU-initiated grazing projects have commonly exceeded prescribed utilization levels and there is no reason to expect different results from this proposed project when funding levels for such programs are being reduced (see Table 2-3 and earlier budget discussion). Alternatives 1 and 2 should be eliminated for the same reason this alternative was eliminated as well as other reasons noted above.	This is outside the scope of this review.

Response No.	Name	Affiliation	Comment(s)	Agency Response
50-47	Johnson, Donald		The contention that cattle production on these WDFW lands will improve range conditions and enhance wildlife habitat is baseless and a shameful display of a poor management decision. The three year Asotin WA "pilot grazing" study initiated by the WDFW/WCA MOU was to demonstrate the "benefits" of cattle grazing on fish and wildlife habitat. No benefits could be demonstrated after three years at Pintler Creek and two years at Smoothing Iron. Only habitat degradation was obvious so WDFW has now extended those projects for another five years. Total expense of the ill-conceived WDFWWCA MOU has exceeded \$1 million in public funds and unquantified habitat degradation. These negative results should not be allowed to be expanded to additional WDFW lands obtained at great expense by the public to benefit fish and wildlife not cattle production.	This is outside the scope of this review.
50-48	Johnson, Donald		Cattle will congregate on the benches and near the water where utilization can be expected to exceed standards. Overutilization of these areas will negatively impact fish and wildlife populations dependent on these WDFW lands.	Herding and salting are intended to keep animals well distributed and not allow congregations on selected sites. The permittee is responsible for keeping cattle distributed. Utilization triggers will prevent overutilization of key grasses on benches.
50-49	Johnson, Donald		Very shallow soils will be lost to erosion with sediment delivered to fish-bearing streams and forage production reduced for wildlife food and cover if cattle once more are introduced to congregate on the ridgetops and reduce ground cover on these WDFW lands.	Cattle are not expected to congregate on Very Shallow ecological site due to the paucity of forage. An analysis of the rangeland inventory indicates that Very Shallow sites are typically in good to excellent condition, and Rangeland Health attributes are similar to ecological site references.
50-50	Johnson, Donald		All of this information supports the rejection of Alternatives 1 and 2 and the acceptance and support of the "no grazing" Alternative 3.	Thank you for your comment.
50-51	Johnson, Donald		Cattle grazing on these WDFW lands will degrade fish and wildlife habitat; that degradation can be minimized by some management practices, but it cannot be avoided.	Livestock grazing has been part of the management of the Whiskey Dick Wildlife Area at various times before and after the property was acquired by WDFW in 1966. Although some areas still show effects of previous livestock grazing, it is clear that the long-term history of livestock grazing management, both before and after the property was acquired by WDFW, has resulted in healthy shrub steppe plant communities dominated by native species that provide habitat for numerous wildlife species. Few significant long-term effects have resulted from previous periods of livestock use over more than 50 years. Given the light level of grazing currently proposed for this area it is highly unlikely that there will be significant impacts from grazing.
50-52	Johnson, Donald		Congregation in these areas will increase utilization and negative impacts.	See Agency Response 50-48.

Response No.	Name	Affiliation	Comment(s)	Agency Response
50-53	Johnson, Donald		The negative impact of cattle on biotic crusts cannot be avoided.	See Section 3.1 of the FEIS for a discussion of expected effects to biological soil crust. Quantitative monitoring methods (Herrick et al. 2005) will detect changes in the amount of biological crust at the monitoring sites, and adaptive management will be employed as necessary to prevent habitat damage.
50-54	Johnson, Donald		Utilization standard for Alternatives 1 and 2 would be 60% for upland areas near water. That level of utilization would result in degradation of fish and wildlife habitat.	Utilization standards of 60% will apply to approximately 1.2% of the Alternative 1 area, and 0.8% of the Alternative 2 area.
50-55	Johnson, Donald		The concentration of cattle near water sources will result in reduced water quality and quantity, as well as degradation of fish and wildlife habitat.	See Agency Response 50-48.
50-56	Johnson, Donald		None of the above discussion (<i>referring to the Environmental Consequences, Direct/Indirect and Cumulative Effects subsections</i>) indicates that the objective of improving land and water resources and their perpetuation in high quality condition would be met.	The referred to section discusses potential impacts from livestock grazing, not predicted or expected impacts. This section of the FEIS has been substantially redrafted to discuss expected effects under each Alternative.
50-57	Johnson, Donald		None of the above discussion (<i>referring to the Environmental Consequences, Direct/Indirect and Cumulative Effects subsections</i>) indicates that the objective of improving land and water resources and their perpetuation in high quality condition would be met.	See Agency Response 50-56.
50-58	Johnson, Donald		Only Alternative 3, "no grazing" indicates that the objective of improving land and water resources and their perpetuation in high quality condition would be met.	We respectfully disagree. This section of the FEIS has been substantially redrafted to discuss only expected effects, rather than all potential effects.
50-59	Johnson, Donald		These watersheds provide water to the Yakima River and Columbia River Basins for the beneficial use of those fisheries, municipalities, hydropower generation, and agricultural irrigation; to limit non fish and wildlife beneficial use to livestock is incorrect.	Livestock grazing at the planned level will not limit beneficial use to other entities, including fish and wildlife.
50-60	Johnson, Donald		"Numerous intermittent streams originate within the CRM area..." These streams and their sources would be negatively impacted by Alternatives 1 and 2, while Alternative 3 "no grazing" could be expected to have beneficial effects.	Effects to streams and springs are discussed in Section 3.1 of the FEIS; effects to riparian vegetation are discussed in Section 3.4 of the FEIS.
50-61	Johnson, Donald		Alternative 1 and 2 would be expected to increase the risk of downstream flood events as occurred at the WDFWWCA MOU initiated Smoothing Iron "pilot grazing" project in 2008 and that have occurred repeatedly in the area of the Pintler Creek project; only Alternative 3 "no grazing" would reduce the risk of downstream flooding.	This is outside the scope of this review.

Response No.	Name	Affiliation	Comment(s)	Agency Response
50-62	Johnson, Donald		<i>“This sediment transport may impact water quality over the short term in drainages associated with the CRM area. However, erosion caused by snowmelt and gentle rainfall would be limited.”</i> This requires some explanation. Is this a suggestion that livestock grazing will somehow limit erosion?	No. The FEIS has been redrafted to clarify this section. See Section 3.1. For more discussion of sediment transport, see Agency Response 1-14.
50-63	Johnson, Donald		<i>“Turning livestock out earlier would improve ..”</i> , Earlier than when, early spring when soils are not firm?	"Earlier" refers to the spring and early summer, when temperatures are moderate and upland vegetation contains a high percentage of water. The FEIS has been redrafted to make this clearer. See Section 3.1.
50-64	Johnson, Donald		Alternative 1 is "Current Management", so how does this include improved livestock distribution?	Current management refers to the 2008 grazing period. This level of grazing is significantly below grazing levels prior to WDFW ownership of this area.
50-65	Johnson, Donald		None of the above discussion (<i>referring to the Environmental Consequences, Direct/Indirect and Cumulative Effects subsections</i>) indicates that the objective of improving land and water resources and their perpetuation in high quality condition would be met by Alternative 1.	See Agency Response 50-56.
50-66	Johnson, Donald		None of the above discussion (<i>referring to the Environmental Consequences, Direct/Indirect and Cumulative Effects subsections</i>) indicates that the objective of improving land and water resources and their perpetuation in high quality condition would be met by Alternative 1.	See Agency Response 50-56.
50-67	Johnson, Donald		Only Alternative 3 "no grazing" avoids negative effects on land and water resources.	We respectfully disagree. This section of the FEIS has been substantially redrafted to discuss only expected effects, rather than all potential effects.
50-68	Johnson, Donald		None of the above discussion (<i>referring to the Environmental Consequences and Direct/Indirect Effects subsections</i>) indicates that the objective of improving land and water resources and their perpetuation in high quality condition would be met by Alternative 1.	See Agency Response 50-65.
50-69	Johnson, Donald		None of the above discussion(<i>referring to the Environmental Consequences and Direct/Indirect Effects subsections</i>) indicates that the objective of improving land and water resources and their perpetuation in high quality condition would be met by either Alternative 2 or 1.	See Agency Response 50-58.
50-70	Johnson, Donald		Only Alternative 3 "no grazing" avoids negative effects on land and water resources.	We respectfully disagree. This section of the FEIS has been substantially redrafted to discuss only expected effects, rather than all potential effects.

Response No.	Name	Affiliation	Comment(s)	Agency Response
50-71	Johnson, Donald		The role of cattle in introducing and spreading noxious weeds has been inexplicitly omitted in this discussion.	The grazing plans presented in Alternatives 1 and 2 were developed to maintain or improve the composition and diversity of native vegetation and limit the spread of noxious weeds. Grazing pressure is light, seasonally rotated, periodically deferred, and maintained at low enough intensity to enable rapid response to the inevitable drought conditions or range fires. It is clear that livestock grazing can alter the species composition, structure, and productivity of plant communities. Whether the changes are favorable or unfavorable is determined by the timing, intensity, and frequency of grazing and the season when it occurs. Repeated episodes of heavy, intense, or poorly managed grazing results in an increase of undesirable or weedy plant species. The grazing proposed under Alternatives 1 and 2 is light in intensity, with very conservative timing and duration and is not expected to cause an increase in noxious weeds. In addition, monitoring data collected before grazing begins and during the term of the grazing permit will identify whether any undesirable effects (e.g., increase in cheatgrass or noxious weeds) are occurring.
50-72	Johnson, Donald		Although "the lengthy rest period (around 20 years) following grazing on the Whiskey Dick WA has likely allowed some recovery" how can continuing grazing be expected to "improve ecological condition"?	Grazing is not continuing as it was in the past (prior to 1980s). The timing, duration, and intensity of grazing prescribed in the grazing plan is very conservative and is designed to maintain or improve rangeland health, and is not anticipated to reverse the recovery.
50-73	Johnson, Donald		Severely degraded rangeland across the CRM area has likely reached an alternate stable state characterized by the dominance of annual grasses such as cheatgrass." The relationships between cattle grazing, the introduction of cheatgrass, its relative abundance, and fire destruction of sage grouse habitat should be discussed.	WDFW recognizes that excessive and/or improper cattle grazing can lead to increased cheatgrass abundance. The short grazing period and low stocking rate are intended to prevent such an occurrence. The timing, duration, and intensity of grazing prescribed in the grazing plan is very conservative and is designed to maintain or improve rangeland health. We are employing a variety of monitoring methods to detect changes in plant species composition and are prepared to alter provisions of the grazing plan if necessary to benefit fish and wildlife management and prevent habitat damage.
50-74	Johnson, Donald		The WDFWWCA Mou-initiated "pilot grazing" program conducted on the Asotin WA was designed to demonstrate those beneficial effects of cattle grazing claimed in the above discussion. After completion of the three year term of the study at Pintler Creek and two years at Smoothing Iron only detrimental effects have been documented.	This is outside the scope of this review.
50-75	Johnson, Donald		As noted above WDFW efforts to demonstrate this with their WDFW/WCA "pilot grazing" program have failed.	This is outside the scope of this review.
50-76	Johnson, Donald		The property was acquired to connect the Whiskey Dick and Quilomene WA's, as well as to provide habitat for sage grouse and wintering big game." The impact of fire on sage grouse should be included here.	Fire regimes are not expected to be altered by this plan.

Response No.	Name	Affiliation	Comment(s)	Agency Response
50-77	Johnson, Donald		The claim of reduced levels of grazing may be misleading as there is little difference between past stocking rates of 30 acres per AUM and the proposed 26 acres and the utilization of 60% of the native perennial grazes within 100 yards of a water source is not light use. The claim that the planned grazing would "do little to adversely impact" is very different from the objective of improving land and water resources and their perpetuation in high quality condition.	Grazing intensity will be reduced as compared to historical levels, i.e., pre-1980s. Utilization standards of 60% will apply to approximately 1.2% of the Alternative 1 area, and 0.8% of the Alternative 2 area.
50-78	Johnson, Donald		Similar plans for the WDFWWCA-initiated "pilot grazing" project resulted in habitat degradation; the objectives of improving land and water resources and their perpetuation in high quality condition were not met.	This is outside the scope of this review.
50-79	Johnson, Donald		This is the rationale that has been correctly used for the public purchase of these lands and their removal from livestock production, it should not now be used to return cattle grazing to those recovering habitats.	WDFW's acquisition was related more to the avoidance of development than to the removal of grazing. Managed livestock grazing is not the same as over grazing.
50-80	Johnson, Donald		See the above discussions for the documented impacts of cattle grazing on habitats such as these WDFW lands. None of the above discussion indicates that the objective of improving land and water resources and their perpetuation in high quality condition would be met by Alternative 1.	See Agency Response 50-6.
50-81	Johnson, Donald		Although "the lengthy rest period (around 20 years) following grazing on the Whiskey Dick WA has likely allowed some recovery" how can continuing grazing be expected to "promote an upward trend"? None of the above discussion indicates that the objective of improving land and water resources and their perpetuation in high quality condition would be met by Alternative 2 or 1.	Grazing is not continuing as it was in the past. The timing, duration, and intensity of grazing prescribed in the grazing plan is very conservative and is designed to maintain or improve rangeland health, and is not anticipated to reverse the recovery.
50-82	Johnson, Donald		Only Alternative 3 "no grazing" avoids negative effects on land and water resources.	We respectfully disagree. This section of the FEIS has been substantially redrafted to discuss only expected effects, rather than all potential effects.
50-83	Johnson, Donald		The native perennial grasses are preferred forage for both elk and cattle. Maintenance of healthy stands of these grasses results when total utilization does not exceed 40%. This proposed project will allow cattle utilization in uplands of up to 35% and within 100 yards of water up to 60%. Those utilization levels leave little of this preferred forage for elk.	Utilization standards of 60% will apply to approximately 1.2% of the Alternative 1 area, and 0.8% of the Alternative 2 area.

Response No.	Name	Affiliation	Comment(s)	Agency Response
50-84	Johnson, Donald		WDFW, in cooperation with WCA, failed to demonstrate any enhancement of fish and wildlife habitat with their WDFW/WCA MOU- initiated "pilot grazing" program which was designed for that purpose.	This is outside the scope of this review.
50-85	Johnson, Donald		These conclusions are not without challenges and could not be replicated by WDFW.	We respectfully disagree.
50-86	Johnson, Donald		Other literature and observations by WDFW wildlife biologists indicate that the preferred forage of each species is Idaho fescue. WDFW managers are relying too heavily on their conclusions regarding the Vavra (2005) reference.	Where Idaho fescue occurs alongside bluebunch wheatgrass (primarily northerly aspects at higher elevations), cattle may selectively forage on Idaho fescue. Ganksopp et al. 2004 found increased forage palatability of Idaho fescue after spring "forage conditioning". Southerly aspects and lower elevation areas are too arid for Idaho fescue; bluebunch wheatgrass, Cusick's bluegrass, and cheatgrass will likely be preferred forage species on these sites.
50-87	Johnson, Donald		<i>"Frequent grazing during the critical period could affect bunchgrass vigor and health, decreasing its abundance and push the community toward and earlier seral condition that would decrease elk forage."</i> This was the outcome seen on the WDFW/WCA Smoothing Iron (Asotin WA) "pilot grazing" project.	This is outside the scope of this review.
50-88	Johnson, Donald		The level of grazing proposed for Alternatives 1 and 2 exceed these WDFW recommendations.	The SGRP (Stinson et al. 2004) recommends 35% forage utilization when averaged across a pasture (see page 68 of the SGRP). The proposed grazing plan under Alternatives 1 and 2 would allow from 11 to 23% forage utilization in each pasture (when averaged across the pasture), depending on accessibility (distance to water and slope).
50-89	Johnson, Donald		<i>"Sagebrush provides food and cover throughout the year for sage grouse, while the grass-forb understory supplies food and cover from spring through fall (Sveum et al. 1998, Stinson et al.2004)."</i> This is when Alternatives 1 and 2 propose to utilize up to 35% of perennial grasses and up to 60% near sources of water.	See Agency Response 50-88.
50-90	Johnson, Donald		It may also interfere with the availability of the most suitable habitat during elk calving season.	Most elk calving occurs at higher elevations. Grass removal at the level proposed will not affect elk calving within the project area.
50-91	Johnson, Donald		The WDFW/WCA "pilot grazing" project was designed to have satisfied these conditions, but it did not.	This is outside the scope of this review.

Response No.	Name	Affiliation	Comment(s)	Agency Response
50-92	Johnson, Donald		<i>“Livestock use has the potential to alter bird behavior, habitat, and productivity. Grazing of shrubs, forbs, and grasses, combined with the potential spread of noxious weeds reduces the overall amount of high quality habitat available for many avian species.... Livestock grazing impacts to sage grouse habitat would likely be negligible.”</i> The information provided earlier regarding spring and summer utilization of bunchgrasses and does not support this conclusion.	The timing, duration, and intensity of grazing prescribed in the grazing plan is very conservative and is designed to maintain or improve rangeland health, and is not anticipated to alter habitat that would affect avian species.
50-93	Johnson, Donald		This rationale was presented earlier and it no more valid here than it was there. See the above discussions for the documented impacts of cattle grazing on habitats such as these WDFW lands. None of the above discussion indicates that the objective of improving land and water resources and their perpetuation in high quality condition would be met by Alternative 1.1.	See Agency Response 50-56.
50-94	Johnson, Donald		None of the above discussion indicates that the objective of improving land and water resources and their perpetuation in high quality condition would be met by Alternative 2 or 1.	See Agency Response 50-56.
50-95	Johnson, Donald		Only Alternative 3 "no grazing" avoids negative effects on land and water resources.	See Agency Response 50-56.
50-96	Johnson, Donald		These negative effects of cattle grazing are obvious after the three year term of the WDFW/WCA Pintler Creek "pilot grazing" program designed to demonstrate the beneficial effects of controlled grazing on fish and wildlife habitat.	This is outside the scope of this review.
50-97	Johnson, Donald		The "hot season" begins earlier than July on these WDFW lands; cattle seek the cool water and shade in valley bottoms as early as April. In addition as long as water runs downhill the upland effects of grazing will impact valley bottom streams and fish habitat as well as upland springs supplying flow to those streams.	Fish-bearing stream reaches will be fenced to exclude livestock. Livestock use in unfenced riparian areas will be monitored throughout the grazing period, and increased browse use (above the 35% trigger level) or herbaceous use (below 4 inches stubble height) will result in livestock removal.
50-98	Johnson, Donald		There is no justification for concluding that cattle grazing will lead to "improved habitat and an increased food base" nor increased populations of steelhead.	The plan does not claim that. Steelhead are not expected to be negatively affected.
50-99	Johnson, Donald		None of the above discussion indicates that the objective of improving land and water resources and their perpetuation in high quality condition would be met by Alternative 1.	See Agency Response 50-56.
50-100	Johnson, Donald		None of the above discussion indicates that the objective of improving land and water resources and their perpetuation in high quality condition would be met by Alternative 2 or 1.	See Agency Response 50-56.

Response No.	Name	Affiliation	Comment(s)	Agency Response
50-101	Johnson, Donald		Only Alternative 3 "no grazing" avoids negative effects on land and water resources.	We respectfully disagree. This section of the FEIS has been substantially redrafted to discuss only expected effects, rather than all potential effects.
50-102	Johnson, Donald		<i>"Livestock would not be turned out until the soil is firm enough to prevent compaction."</i> After the wet season [?].	Soil is generally firm enough to prevent compaction in early to mid spring, depending on elevation and annual climatic conditions.
50-103	Johnson, Donald		<i>"The following strategies as recommended by Belknap (2001) will be used to minimize disturbance to crusts..."</i> Cattle cannot be prevented from congregating around water sources, shade, and green vegetation.	See Agency Response 50-48.
50-104	Johnson, Donald		<i>"Initial turnout of livestock in the spring will be delayed until the soils have dried sufficiently to preclude erosion problems."</i> Incompatible with the above recommendation to graze during the wet season.	A portion of the grazing period extends into the dry season, when biological crusts are dormant. Grazing during the dry season can be damaging to biological crusts, however, under both grazing alternatives, this will occur at most only once every three years. Cover of biological crusts will be monitored along with other attributes of rangeland health, and adaptive management will occur as necessary to prevent habitat degradation.
50-105	Johnson, Donald		<i>"Adequate buffers will be implemented to protect riparian area so streams and springs from potential erosion impacts of grazing and construction activities."</i> There are no buffers adequate to protect against erosion impacts of cattle grazing on these WDFW lands.	Thank you for your comment.
50-106	Johnson, Donald		<i>"Temporary electric fences and permanent fences with high bottom wires and low top wires will be used to minimize wildlife impacts and facilitate movements of large ungulates, such as deer and elk."</i> Proposed forage utilization will conflict with forage and habitat uses of fish and wildlife.	The timing, duration, and intensity of grazing prescribed in the grazing plan is very conservative and is designed to maintain or improve rangeland health, and is not anticipated to alter the forage and habitat uses of wildlife.
50-107	Johnson, Donald		<i>"Planned forage utilization by livestock will not exceed 35 percent of current year's growth."</i> Planned utilization within 100 yards of water sources is 60%.	See Agency Response 50-88.
50-108	Johnson, Donald		<i>"Livestock grazing will occur early in the growing season while there is sufficient soil moisture to minimize impacts on biological crusts (Belnap et al. (2001)."</i> Initial turnout of livestock in the spring will be delayed until the soils have dried sufficiently to preclude erosion problems.	See Agency Response 50-104.
50-109	Johnson, Donald		<i>"Forage utilization will be determined by average use through the entire pasture (Stinson et al. 2004)."</i> This will assure that utilization used by cattle will be much greater than 35% when averaged with areas not used by cattle (0%).	Utilization will not be averaged across each pasture. The FEIS will be amended to remove this statement. See Section 3.12.

Response No.	Name	Affiliation	Comment(s)	Agency Response
50-110	Johnson, Donald		<i>"The Skookumchuck pasture will be rested indefinitely, in order to protect critical fish habitat."</i> Flow from other drainages will reach critical fish habitat; water flows downhill.	Skookumchuck Creek and any fish-bearing streams that flow into it will be protected. The remaining streams are high in the drainage with intermittent early spring flows and are not likely to affect critical fish habitat.
50-111	Johnson, Donald		<i>"Continue to implement rangeland monitoring and habitat evaluation."</i> This does not prevent overutilization and conflicts with fish and wildlife population needs.	Vegetation monitoring data will be used in an adaptive management process to change conditions of the grazing permit as necessary to achieve goals and objectives.
50-112	Johnson, Donald		<i>"Control weeds and minimize ground disturbance that could open up areas to invasion by non-native species."</i> This cannot be achieved with cattle grazing on over 55,000 acres.	We respectfully disagree. Weed issues are usually in small, specific locations and not spread across the landscape in this area.
50-113	Johnson, Donald		<i>"Known locations of sensitive plant populations would be monitored by site inspection and photographs to determine whether impacts occur. Site inspections and photographs would be used in an adaptive management process to change conditions of the grazing permit as necessary to achieve the goals and objectives of the grazing permit."</i> Similar best management practices and mitigation measures were to be implemented to reduce impacts of the WDFWWCA "pilot grazing" program to resources on the Asotin WA; that effort saw a decrease in ecological conditions and no beneficial fish and wildlife habitat effects from cattle grazing.	The Pilot Grazing Project is outside the scope of this review.
50-114	Johnson, Donald		<i>"The grazing committee, which includes WDFW, will employ both short-term and long term monitoring to determine whether our objectives are being met."</i> Who will do this monitoring and how will it be funded over the five year term of the proposed permit?	WDFW will fund and perform the monitoring.
50-115	Johnson, Donald		<i>"Trigger and utilization monitoring will be done primarily in key areas. A trigger will be defined as a resource condition threshold at which time livestock are to be moved from a pasture."</i> Where will the cattle be moved, how soon, and how will this be enforced. With the WDFW/WCA "pilot grazing" program when utilization standards were exceeded the cattle remained because the permittee had no other area on which to place them.	The Pilot Grazing Project is outside the scope of this review.
50-116	Johnson, Donald		<i>"Triggers: Several utilization triggers have been developed by the grazing committee to determine the proper date for livestock removal from each pasture. These triggers are listed below. When any of these utilization targets is reached, the livestock operator will be required to remove the herd."</i> This same committee was involved with the Asotin WA "pilot grazing"	The Pilot Grazing Project is outside the scope of this review.

Response No.	Name	Affiliation	Comment(s)	Agency Response
			project; leadership was provided by the WCA.	
50-117	Johnson, Donald		<p><i>“Other Annual Monitoring: Grazing committee members will also record livestock numbers and timing within each pasture, the type of growing season, observations of which plant species elk and cattle are consuming, and conduct step-point transects for plant cover, and step-boot transects for basal gaps at the trend monitoring sites (Herrick et al. 2005).”</i> This should be the responsibility of WDFW biologists and should not be delegated to the WCA or a committee dominated by its members.</p>	WDFW biologists will be involved in this monitoring, and are active participants in the CRM grazing committee.
50-118	Johnson, Donald		<p><i>“Trend: The National Research Council developed the rangeland health model to promote a standard method of evaluating rangelands (NRC 1994). Rangeland health is defined as” the degree to which the integrity of the soil, vegetation, water, and air, as well as the ecological processes of the rangeland ecosystem are balanced and sustained” (Task Group on Unity in Concepts and Terminology 1995). Because direct measures of site integrity and ecological processes are difficult and costly to gather, biological and physical components are used as indicators of these processes. Pellant et al. (2005) developed a standardized, qualitative assessment protocol that focuses on three key ecosystem attributes: soil and site stability, hydrologic function, and biotic integrity. To provide the quantitative data necessary to evaluate success in achieving the goals of the CRM, the grazing committee will use a recently developed monitoring approach that provides indicators of the three ecosystem attributes mentioned above (Herrick et al. 2005).”</i> The question remains regarding the impartiality of the grazing committee. A similar monitoring program was designed for the WDFWWCA-initiated "pilot grazing" program on the Asotin WA, but it was not followed.</p>	The Pilot Grazing Project is outside the scope of this review.

Response No.	Name	Affiliation	Comment(s)	Agency Response
51-1	Lichtenberg, Richard		Sage grouse nesting occurs in sagebrush stands with cover provided by emergent vegetation. The emergent vegetation is food for insects needed by young sage grouse chicks. 75% of the diet is comprised of insects during early life (Patterson, 1952). Livestock grazing removes this emergent vegetation. For a clear view of the amount of emergent vegetation removed by livestock grazing, one need only to drive south of Umptanum Ridge along I-82. The grazing line is clearly delineated where the grazed land abuts the highway fence. Looking to the left across the highway on to the Yakima Training Center lands which is also ungrazed, finishes the visual of how much emergent vegetation has been removed.	The level of forage removal on private lands adjacent to the YTC is outside of the scope of this document. Both grazing alternatives follow the Sage Grouse Recovery Plan guidelines regarding livestock grazing (Stinson et al. 2004). For further details, see Agency Response 61-18.
51-2	Lichtenberg, Richard		Patterson (1952) noted that sage grouse broods move in foothills during spring and summer, movement that is primarily a result of the nature, amount and distribution of water. Kelbenow (1969) reported that as summer progresses sage grouse broods move to moister areas, and by late August are gathered near permanent water sources. Cattle also gather near these water sources, and we all have seen trampled areas, completely denuded of vegetation. Cattle also trample and compact small seeps, which can be an important water source of young birds.	This plan calls for light stocking levels with pasture rotation throughout the grazing period minimizing the amount of impact to any one water source. In addition, the plan calls for piping water to hardened trough sites to draw cattle away from wet ground, fencing sensitive areas, and removing livestock by mid-late June, when water sites become more significant to wildlife. Protection of water is important to WDFW.
51-3	Lichtenberg, Richard		Domestic livestock grazing reduces water infiltration rates and cover of herbaceous plants and litter, was well as compacting soil, and increasing soil erosion, was found by Braun (1998) while studying sage grouse in Colorado. Miller and Eddleman (2000) reported that grazing results in an increase of exotic plants that do not provide habitat for sage grouse, and changes forb, shrub, and grass components. Other consequences include outright trampling of nests and young birds (Rasmussen and Griner 1938, Patterson 1952, Call and Maser 1985, Crawford, <i>et al.</i> 2004) Nac and Ribic (Wilson Bulletin 117-56-62) found cattle to be responsible for destruction of 26% bird nests in their study.	The level of livestock grazing, ie timing, intensity, frequency and duration, plays a critical role in determining effects to sage-grouse. The grazing plan proposed under Alternative 1 and 2 complies with Sage Grouse Recovery Plan recommendations (Stinson et al. 2004). See Agency Responses 23-30 and 61-18 for details.

Response No.	Name	Affiliation	Comment(s)	Agency Response
51-4	Lichtenberg, Richard		Riparian damage by livestock grazing is well known, and the effects are visible long after it has occurred in the form of crushed and broken vegetation. Riparian areas provide thermal cover, visual obstruction from predators, as well as loafing and resting areas for many species of wildlife. Soil disturbance is visible in the form of trails to and from water sources, and grazing terraces on the side hills. It may have been ten years since some of this area was grazed, but the disturbances are still highly visible in this arid shrub steppe.	The timing and intensity of livestock grazing proposed is not expected to degrade riparian wildlife habitat. Monitoring will determine whether appropriate thermal cover and visual obstruction is maintained in riparian areas. In addition, riparian areas around springs and along fish-bearing reaches of creeks will be fenced to exclude livestock. The short period of use and low stocking level is not expected to result in soil erosion due to trailing or terracing. The monitoring protocol will establish baseline soil surface conditions and detect changes that may occur in the future.
52-1	Marsh, Mike		1. DFW has a responsible to preserve, protect, and perpetuate all wildlife species and may not cause a reduction of recreational opportunity.	The Department fully intends to fulfill this mandate. Livestock grazing is one of the management tools the Department has the authority to implement to accomplish habitat objectives or to facilitate CRMs (WDFW Policy C-6003). Because different wildlife species have different habitat needs, it is impossible to increase habitat quality for all. WDFW seeks to increase at least one form of recreational opportunity through the proposed action by improving forage quality for elk, in combination with other management actions, increasing the amount of time elk spend on public land.
52-2	Marsh, Mike		2. Areas of the wildlife area recovering from past grazing are not completely recovered. By late spring large native ungulate grazers would normally have left the area for higher elevation range. "Such severe impacts are bound to change the composition and abundance of species in [these] plant communities . . ."	The proposed grazing plan will not reverse successional gains to date on the wildlife areas; rather, it is designed to preserve the health of native bunchgrasses and forbs and will have an entirely different effect on the landscape than the livestock use that caused degradation decades ago. The proposed grazing plan incorporates a rest-rotation system that avoids grazing during the same season every year, facilitates a full year of rest following a year of late spring/early summer use, and restricts the grazing period to less than half the growing season. The combination of these factors has been shown to prevent major negative changes to the composition and abundance of plant species.
52-3	Marsh, Mike		3. The unexpected biological richness of the area makes it important that the Quilomene be permanently retired from grazing.	This presupposes that any level of grazing will result in a decline in species richness and ignores the dramatic difference between what is proposed and what occurred historically on this site. Light to moderate grazing use is designed to maintain or improve rangeland health and has been shown to often support more varied wildlife populations than ungrazed or heavily grazed areas. The plan also requires monitoring that will detect changes in species composition and are prepared to alter provisions of the plan to prevent retrogression and benefit habitat.

Response No.	Name	Affiliation	Comment(s)	Agency Response
52-4	Marsh, Mike		4. Protection of biodiversity requires keeping as large a contiguous area of un-altered land (or water) as possible; prevention of introduction of invasive species insofar as possible; and preventing sharp divergence from the patterns and frequencies of disturbance which have occurred in that land.	The proposed action seeks to accomplish all of these objectives. The grazing schedule mimics the pattern wild herbivores might follow, but with safeguards to ensure adequate rest periods to fully recover from partial defoliation. In this circumstance, the elk are as likely or more likely to function as a vector for invasive plants from areas adjacent to the wildlife area as there are no controls on their movement. Cattle will be coming from irrigated pasture where any weeds present have not gone to seed yet.
52-5	Marsh, Mike		5. Cows are an invasive species and must not be introduced to this area.	According to the National Invasive Species Council, an invasive species is “an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. To assist in implementation of invasive species management plans, they have created a set of principles to interpret the definition. “Guiding Principle #1 provides additional context for defining the term invasive species and states ‘many alien species are non-invasive and support human livelihoods or a preferred quality of life.’ However, some alien species (non-native will be used in this white paper because it is more descriptive than alien), for example West Nile virus, are considered invasive and undesirable by virtually everyone. Other non-native species are not as easily characterized. For example, some non-native species are considered harmful, and therefore, invasive by some sectors of our society while others consider them beneficial. This discontinuity is reflective of the different value systems operating in our free society, and contributes to the complexity of defining the term invasive species.” Definitions involve value judgments. This value judgment is outside the scope of this EIS.
52-6	Marsh, Mike		6. A matter of extreme concern regarding all grazing in arid lands is the disproportionate damage that livestock cause to riparian zones and their vegetation. Our observations last spring confirmed that protection of streams on the Quilomene has been totally inadequate to prevent livestock from accessing the riparian zone. Electric fences were not placed far enough from the stream, and they may have not been charged when livestock were present.	We disagree, and photo-monitoring does not support your observations. Electric fences were charged while cattle were present, and these fences were effective in excluding cattle from the riparian on WDFW ownership. An occasional calf slipped under the hotwire, but impacts were minimal.

Response No.	Name	Affiliation	Comment(s)	Agency Response
52-7	Marsh, Mike		7. "The harmful impacts of livestock grazing are repeatedly understated or mis-stated."	One must distinguish between different grazing strategies. Herbivory by a wide variety of organisms from invertebrates to large ungulates affects the species composition and physical structure of plant communities. Light levels of livestock grazing create a mosaic of grazed and ungrazed patches on the landscape with different horizontal and vertical structure and species composition. The light, short-term, and seasonally rotated use that is proposed has a completely different effect than the type of use that causes the harmful impacts you describe. The plan specifically avoids the type of grazing that has been shown to cause these impacts.
52-8	Marsh, Mike		8. The first and most critical step in ecological restoration is passive restoration, the cessation of those anthropogenic activities that are causing degradation or preventing recovery. "No research has ever shown that grazing by domestic cattle moved an already undisturbed site closer to its 'site potential'. Whiskey Dick is already approaching 'site potential' and needs no grazing."	Passive restoration is effective in some circumstances. However, it is not necessarily the only effective means of restoration. While it is true that an unsustainable practice must be stopped in order for recovery to proceed, it may be that the way in which the practice is practiced is the problem rather than the practice itself. Nathan Sayre, UC-Berkeley, has said: "Beaver and bison look like cases where an activity was ecologically unsustainable. But in truth it wasn't the activities per se that were unsustainable but the way they were practiced in the 19th century, which can be traced to economic forces and property relations rather than ecology. They might have been sustainable, had they been done differently. Instead, they exceeded thresholds of resilience in the ecological systems they exploited, and beyond those thresholds there was no way they could persist. As practiced in the late 19th century, ranching also was unsustainable, again for reasons that were as much economic as ecological. But the excesses of the cattle boom did not permanently render ranching impossible. The ecological conditions for it were altered and weakened, but not destroyed. The way it is practiced today is radically different from the way it was practiced then, even if we call it by the same name."The proposed grazing system is radically different from the type of grazing practiced here decades ago. To lump the two approaches together and say they will have the same effect willfully ignores a century of learning.
52-9	Marsh, Mike		9. Statement in DEIS "Properly managed and sustainable grazing practices that balance wildlife and livestock use and result in an upward trend in ecological condition for both uplands and riparian areas" is misleading. "Up" is not defined. "Ecological condition is viewed primarily if not exclusively with the mindset of the range manager."	Upward trends are based on ecological integrity attributes such as native plant diversity, cover of native and exotic plants, and soil cover. Appendix C of the FEIS has been redrafted to include specific and measurable objectives for upward trend.

Response No.	Name	Affiliation	Comment(s)	Agency Response
52-10	Marsh, Mike		10. DEIS reveals little or no understanding of needs of native wildlife for the native annual and perennial forbs in the plant community.	Grassland plant communities with high native plant diversity have abundant host-plant and nectar species that attract a diverse array of butterfly species (Collinge et al. 2002). There have been several investigations of the effect of livestock grazing on plant species diversity in different vegetation types in the western U.S. that have shown that light levels of grazing can increase diversity of native plant species, including forbs. The grazing plan will be changed if these needs are not met, specifically, if the livestock use does not allow perpetuation of the native plant community.
52-11	Marsh, Mike		11. The deleterious effects of livestock grazing are exacerbated by the environmental damage done by "improvements" such as those proposed in this DEIS	Spring improvement work is planned for established sites that had been developed prior to acquisition of the Whiskey Dick area by WDFW in 1966. Improvement consists of replacing delivery pipes (where needed), installing new troughs, and hardening the sites with gravel to minimize weed establishment. New troughs will be fitted with escape ramps to prevent drowning of birds and small mammals. Overflow from the troughs will be returned to the drainage channel. Spring development work will conform to USDA Natural Resources Conservation Service standards.
52-12	Marsh, Mike		11b. Spring development necessitates excavating in the spring, thus disturbing the soil, native plants, and animal life occurring there to create a source for a pipe which draws a significant amount of the water away to a cattle trough, which is surrounded by a six inch bed of gravel extending 6 feet away from the trough on all sides, intended to keep the livestock from creating a mire. There is no discussion of the impact that that such drastic damage to springs will have on native species such as amphibians or to sage grouse, which would bring their chicks to feed on the rich forb community surrounding a natural spring.	The water is piped to a trough away from the water source in order to minimize impact on riparian vegetation that may be present.
52-13	Marsh, Mike		12. Results from Pilot studies should-be reported and analyzed before grazing is allowed elsewhere, otherwise, why call them "Pilot studies".	This is outside the scope of this review.
52-14	Marsh, Mike		13. Adequate monitoring measures must be taken to report status and trend of site condition for adaptive management	The monitoring will be conducted according to the "Monitoring Manual for Grassland, Shrubland, and Savanna Ecosystems" (Herrick, et al. 2005). This was developed in response to the stated need for a quantitative method that would complement the Interagency Technical Guide "Interpreting Indicators of Rangeland Health" which provides qualitative criteria for evaluating condition, but not trend. The Herrick method was designed to document hydrologic function, soil stability, and biotic integrity.

Response No.	Name	Affiliation	Comment(s)	Agency Response
52-15	Marsh, Mike		14. What is the basis for the following comparisons between vegetation and soil conditions Quilomene and Whiskey Dick Wildlife Areas, "Rangeland health and condition differ markedly from recently acquired portions of the Quilomene WA, to the Whiskey Dick WA. In general, range condition is poorer and rangeland health attributes tend to deviate from expected conditions to a greater extent on these recent acquisitions.	This section contrasts the type of grazing pressure applied historically to the recent acquisitions against the proposed action, designed to facilitate continued plant community health and recovery where recovery is still occurring or needed.
52-16	Marsh, Mike		15. Appendix B says that rangeland health assessment form was completed at each assessment site, but does not describe the procedure for carrying it out, i.e., how many observations were made to arrive at conclusions on the percentage of an area in each Ecological Site and its condition, or say when these forms were completed. The table descriptions do not indicate the meaning of entries in the last column (State). The range specialist told me that while monitoring stations were established, quantitative measurements (The Jornada protocol would be used) have not been made on Whiskey Dick, so where did this information come from?	Assessments use objective measures to document range condition, riparian condition, etc., at a point in time. The rangeland health assessment on the CRM area was carried out in 2006, 2007 and 2008. Assessments are not designed to be baseline data from which to evaluate future monitoring data, i.e., they are not intended to document trend. Quantitative measures designed to be repeated are necessary for evaluating trend.
52-17	Marsh, Mike		16. What is the plan for obtaining, and especially for interpreting trends of degradation or improvement under livestock grazing? These measures should be planned and stated in advance so that adherence to or departure from the plan may be observed and corrections made.	Measures like basal area of dominant bunchgrasses are widely accepted as reliable indicators of trend. Increases of invasive species would be interpreted as negative. Increasing bare ground is associated with negative trend. The Appendix C of The FEIS has been redrafted to reflect the comment.
52-18	Marsh, Mike		17. A reporting of trend at the end of five years is inadequate, especially for the purpose of adaptive management. The plan should incorporate annual reviews of range condition and quantitative aspects such as vegetative cover by species, percent bare ground, percent consumption, by ecological site (rather than averaging over the grazed enclosure). These reviews should incorporate assessment of vegetative response to weather conditions so that the results may be considered in their context.	The plan does include annual review of conditions. It is not feasible to visit all long-term monitoring sites each year, but short-term monitoring will be employed that includes utilization and photo-monitoring. Typical monitoring frequency for long-term trend studies in arid or semi-arid areas is every 3 to 5 years.
53-1	Martinsen, C.F.		Under Grazing Permit Rules of Responsibility (2.3.6), I would emphasize that the Wildlife Area Manager must have control of the "on" and "off" dates and all necessary alterations in AUMs for WDFW managed pastures. It seems that when there have been changes required, the leasee drags their feet in compiling or goes "over" field personnel's head making it difficult to meet the goals of proper range management. These arid lands are by their nature difficult to maintain in good condition.	Section 2.3.6 of the FEIS emphasizes that the Wildlife Area Manager has the ultimate control over "on" and "off" dates.

Response No.	Name	Affiliation	Comment(s)	Agency Response
53-2	Martinsen, C.F.		All grazing plans require costs for materials and management and with today's economic prospects, where is the funding to accomplish all the necessary monitoring, fencing, and development coming from? I would expect those benefitting from these plans to offset the bulk of the costs, but I doubt that will happen. Grazing permits have always been a bargain to the leasee.	Most of the funding that has been used for this project to date was provided by special legislation which would not have available but for this project. Other funding is from the capital budget, which can not be used for routine operation and maintenance. Management activities can only occur to the extent the funding is available. The permittee is responsible to provide significant funding and management.
53-3	Martinsen, C.F.		The EIS is very detailed, and would require more study than time allows. but as stated, grazing is not the problem, but administration of it is, and not enough control has been given to those in the field who are overseeing the project.	See Agency Response 53-1.
54-1	McMeans, Wayne		It is my belief that managed grazing on the Department of Wildlife property would aid in keeping the elk from coming onto private lands. It is known that the elk prefer the young tender grasses that occur after the land has been grazed, and therefore migrate to the private lands.	Thank you for your comment.
55-1	Millam, Phil		The proposed action will detract from the overall objective of WDFW to manage lands to enhance the wildlife resource. Allocating scarce monetary resources to expand a wildlife land grazing program while existing WDFW grazing leases are not funded sufficiently to address weed, fencing and riparian/aspen degradation is poor management.	WDFW objectives are much broader than just managing agency lands for wildlife. The agency owns less than 2% of the lands in Washington, yet the wildlife that we're responsible for reside across all ownerships. Our tools include regulations, acquisitions, conservation easements, cooperative agreements, education, influencing management of other lands, etc. Our ability to function effectively in many of these arenas depends on our willingness to cooperate with other landowners and the Wild Horse CRM is evidence of that cooperation. Most of the funding that has been used for this project to date was provided by special legislation which would not have available but for this project. Other funding is from the capital budget, which can not be used for routine operation and maintenance.
55-2	Millam, Phil		There are numerous grazing studies done over the past 100 years that document the negative impacts of grazing. The Taylor Grazing Act of 1937 was a response to the poor condition from over grazing. Why is there a need for spending more money to fence and graze land that is recovering from past over grazing when there are numerous existing grazing leases that are in need of restoration.	WDFW policy (#C-6003) allows for carefully managed grazing to facilitate coordinated resource management. Coordinated Resource Management (CRM) is used to assist in the Working Landscape goal. In addition, the Legislature supported the implementation of this CRM through dedicated funding. The fundamental methods used to develop the grazing approach in this area have been in place and in practice for many years, where predictable outcomes have been observed. WDFW has added mitigation measures, including monitoring and adaptive management, to minimize uncertainty.

Response No.	Name	Affiliation	Comment(s)	Agency Response
55-3	Millam, Phil		The planned activities don't call for fallow years. The best grazing lands I have seen were grazed on a simple three year rotation. Spring year one, fall year two and fallow year three. The cows were encouraged to move around by range riders and salt. The palatable forage was never allowed to be grazed below 50% of the year's production. (This is the key: the land can never be overgrazed to meet the cattleman's economic emergency.) This simple method would be easy to monitor and would result in sustainable forage production for wildlife as well as cattle.	Both grazing alternatives still incorporate rest-rotation principles. Rest may refer to either an entire calendar year of rest or to rest during the growing season, also called deferral. Research into the biology of native grasses such as bluebunch wheatgrass indicates that dormant season grazing generally has little effect on the plant because the leaves are not photosynthesizing.
56-1	Parks, Rod		I am totally in favor of Alternative 2, I feel this best fits the goals and objectives of the department listed in section 2.2.1 Wildlife Area Management Goals and Objectives.	Thank you for your comment.
56-2	Parks, Rod		When private property is purchased and becomes public property, the historical use should be maintained with best management practices implemented by the department. Grazing livestock is the single most beneficial aid to keeping wild game on their home range and not moving on to private property. Your own game kill reports show a trend of hunter success reduced since WDFW has purchased this property which may be due to game moving on to private property where they like to feed better.	Game harvest reports do not show the trend suggested on recent WDFW purchases. Harvest of animals fluctuates over time with a multitude of factors contributing to the success in any given location. The majority of deer and elk in Kittitas County reside on public lands.
56-3	Parks, Rod		Table 2-1 Forage Accessibility Based on Slope and Distance from Water: I disagree with this table. Livestock can and will access slopes steeper than 60% and travel farther to water. The Snake River Canyon is a fine example where livestock graze steep terrain with water at long distances.	The intent of the forage accessibility model is to correct initial AUM figures for the tendency of cattle to prefer shallower slopes closer to water. Livestock use of steeper slopes is dependent on breed, acclimatization, weather, and a variety of other factors which may change from year to year, and from season to season. Ultimately, stocking rates will be determined by utilization and trend monitoring.
56-4	Parks, Rod		2.3.9 Fire Management: Grazing is one of the best management tools there is for fire control. The recent School House fire of Eastern Washington was finally controlled when it burned to private property that had been recently grazed. Idaho Fish & Game has had two grass fires in the Snake River Canyon on their land since they purchased the property and removed all grazing from the land.	Livestock grazing in cheatgrass-dominated areas can substantially reduce the risk of wildfire, however, the project area does not have large areas dominated by cheatgrass. The proposed grazing plan will only remove 9% of total biomass under Alternative 1, or 4% under Alternative 2, and is therefore not expected to effect fire return intervals.

Response No.	Name	Affiliation	Comment(s)	Agency Response
57-1	Rawlings, Gwen		I am writing to express my concern about opening up Whiskey Dick again to grazing. As I understand, this fragile shrub-steppe is just recovering. We have so little of this habitat protected. I urge you to reconsider opening this up to grazing.	WDFW owns many large blocks of shrub-steppe habitat and we continue to acquire more for long term protection. Nearly all shrub-steppe habitat had a long history of heavy grazing, prior to WDFW acquisition. Our acquisition program depends on support from the public, county commissioners and local legislators.
58-1	Scarborough , Jim		I wish to express my complete and total opposition to any and all cattle grazing within our state wildlife areas. Taxpayers purchased these lands as habitat and forage for wild game, as well as for high-quality hunting opportunities. The well-documented adverse effects of grazing cattle in arid and semi-arid landscapes such as the Quilomene and Whiskey Dick wildlife areas are diametrically opposed to the needs of wild fauna such as elk and deer.	WDFW owns many large blocks of shrub-steppe habitat and we continue to acquire more for long term protection. Nearly all shrub-steppe habitat had a long history of heavy grazing, prior to WDFW acquisition. Our acquisition program depends on support from the public, county commissioners and local legislators. The proposed grazing alternatives will not decrease forage for wintering big game or conflict with hunting opportunities.
58-2	Scarborough , Jim		A good place to start mending WDFW's tattered reputation would be to permanently eliminate cattle grazing on the Quilomene, Whiskey Dick, and all other state wildlife areas. Cattle devour limited forage intended for elk and deer Consumption, while also trashing fragile water bodies through both defecation and trampling of riparian vegetation.	Such a unilateral decision may please some interests while disappointing many others. WDFW's acquisition program depends on support from the public, county commissioners and local legislators. Lack of support at any level can stop any acquisition project.
59-1	Schons, Joe		There may be an alternative that accomplishes the agendas of both pro and con: <i>Carbon Credits</i> . Put simply. range grass sequesters carbon dioxide the same as trees, only to less of a degree. The grass/ roots store the carbon dioxide until the grass/roots are removed then it is released back into the atmosphere. However, the roots release carbon dioxide into fungi, and the fungi release it into the soil where it is stabilized.	Thank you for your comment.
60-1	Strathmann, Katrina		After reviewing the DEIS, I urge WDFW to select Alternative 1 or Alternative 3, Alternative 3 is the most attractive alternative from a conservation perspective, given the extremely limited extent of remaining shrub-steppe habitat in Washington. Alternative 3 would cause least impact to intact or recovering native habitats and the wildlife they support.	Thank you for your comment.
60-2	Strathmann, Katrina		However, Alternative 1 would allow WDFW to support local communities through maintaining grazing on pastures that have been grazed immediately prior to acquisition, I recognize that, in some cases, providing low intensity, properly managed grazing opportunities may enable WDFW to conserve large landscapes through partnerships with Ranchers. For this reason,	Thank you for your comment. These types of partnerships are at the very core of the CRM approach and of WDFW's management and acquisition program.

Response No.	Name	Affiliation	Comment(s)	Agency Response
			Alternative 1 is an acceptable compromise.	
60-3	Strathmann, Katrina		However, I oppose Alternative 2, as it would expand grazing into pastures that have not been grazed for approximately 20 years. In addition to potential direct grazing impacts, Alternative 2 would require increased disturbance to these pasture to appropriately manage grazing, for example, spring development and fence installation as well as ongoing maintenance of those structures. Further, according to the DEIS analysis, there is no or negligible economic benefit, either short-term or cumulative, to the local) community due to the increased grazing.	Thank you for your comment.
60-4	Strathmann, Katrina		Due to the presence of a federally endangered species (steelhead) in the Wild Horse Crossing pasture, as noted in the DEIS, I recommend removal of this pasture from the proposed grazing system in both Alternatives 1 and 2.	The FEIS has been redrafted to reflect the comment. WDFW parcels within the Wild Horse Crossing pasture have been removed from the grazing rotations in both Alternatives 1 and 2. See Section 2.4.
60-5	Strathmann, Katrina		Invasive plants are one of the greatest threats to terrestrial native vegetation the arid landscape of the project area, many of which are listed by the state as noxious weeds. Adequate weed treatment and ongoing weed monitoring is critical to implementation of Alternatives 1 or 2. With the current state budget crisis, and major cutbacks proposed for WDFW, funding for noxious weed control and monitoring is uncertain. Without secure funding for adequate, ongoing weed control and monitoring, Alternatives 1 or 2 should not be selected.	Implementation of the project will be phased, and dependent on adequate funding. See Section 1.5 of the FEIS for details.
60-6	Strathmann, Katrina		Vegetation and other environmental monitoring is a critical part of proper implementation of Alternatives 1 and 2, because adaptive management is not possible without good monitoring data. Similar to the comment above, I am concerned that the necessary, scientifically rigorous monitoring may not be funded adequately by WDFW in the current economic climate. Without appropriate monitoring developed, funded and implemented, with clear feedback into management decisions, Alternatives 1 and 2 should not be implemented.	See previous Agency Response.

Response No.	Name	Affiliation	Comment(s)	Agency Response
60-7	Strathmann, Katrina		Under Alternatives 1 and 2, livestock would be turned out in the early spring when soils are firm enough to prevent compaction, but early enough so that soils are moist and cryptobiotic crusts are not in their dormant phase. As these two timing goals (preventing soil compaction and preventing breakup of cryptobiotic crusts) may be in conflict, the specific timing of optimal grazing periods must be defined: when soils are firm and dry enough to prevent compaction, and moist enough to prevent breakup of cryptobiotic crusts. As it stands, these may not be the same time period.	The FEIS has been redrafted to reflect the comment, see Section 3.1. Livestock grazing in the late spring and early summer will likely result in some effects to biological crusts, as soils dry out and biological crusts become dormant. Overall, these effects are expected to be minor to moderate, due to the light grazing intensity and rest-rotation strategy.
60-8	Strathmann, Katrina		The DEIS states initially that Alternative 2 will promote healthy economic communities by providing grazing opportunities. However, as mentioned earlier the economic analysis suggests that increased grazing will have a negligible economic impact on local communities. Therefore, economic benefits are not a reason to select Alternative 2.	WDFW strives to be a responsible neighbor and community member supporting the community's economies and values where compatible with its mandates and obligations to the greater public it serves. To blend the needs of the local community with the WDFW statewide mandates, in 2006 WDFW engaged in the Wild Horse CRM process to achieve this. These partnerships are supported by the WDFW's Domestic Livestock Grazing on Department Lands Policy #C-6003 that specifically identifies CRM participation as a stand-alone purpose for grazing on WDFW lands.
60-9	Strathmann, Katrina		The DEIS also states initially that prescribed grazing systems may promote increased productivity of native bunchgrasses in order to benefit wildlife. At the same time, the initial analysis introduces the complicated and contradictory evidence on this topic in the scientific literature. Later in the analysis of Alternatives 1 and 2, increased productivity of bunchgrasses due to grazing is introduced once again, but as a certain positive outcome. When the scientific evidence is mixed and uncertain about the effects of particular grazing systems on native bunchgrasses -- and other components of the shrub steppe ecosystem are far more fragile than bunchgrasses - this is not a reasonable argument to select Alternatives 1 or 2. For a management issue such as this that is wrought with controversy, it is far better suited for a pilot project for just this purpose.	The FEIS has been redrafted to reflect the comment, see Section 3.4. Increased productivity of bunchgrasses is not expected under either Alternative 1 or 2. As stated in the purpose and need, WDFW policy #C-6003 supports participation in a CRM as a stand-alone purpose for livestock grazing.
60-10	Strathmann, Katrina		Once again, I support Alternative 3 proposed in the DEIS, but recognize that Alternative 1 provides a compromise in the face of political and social realities. Because of increased impacts without adequate justification for their necessity, I do not support Alternative 2.	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
61-1	Tuck, Bob		<p>This DEIS is illegal, intellectually dishonest, politically motivated, and fatally flawed. Instead of being an honest evaluation of the potential impacts of grazing the on the subject wildlife area, the document assumes and illegally pre-selects the continuation of grazing, beginning with document title. On page 7 it states: “Alternative 3-No Grazing: No livestock grazing would occur. While Alternative 3 does not meet the purpose and need...” (Whether the no grazing alternative meets the needs of fish and wildlife is an issue that WDFW does not seem qualified to answer.) End of ball game. From that point on, the documents is illegal. An outcome has been pre-selected, which is exactly what is NOT allowed under SEPA.</p>	No outcome was preselected. We respectfully disagree with your characterization.
61-2	Tuck, Bob		<p>Authors and Principle Contributors: If the goal of the plan is to improve wildlife habitat, why weren't agency experts such as Mike Schroeder (Sage Grouse) or Scott McCorquodale (Deer and Elk) used to write the plan? The property was purchased for sage grouse and wintering big game.</p>	<p>The biologists you refer to are experts in their particular fields, not livestock grazing management. The CRM grazing plan was written by a team of experts in livestock grazing management. Further, Alternatives 1 and 2 follow the Washington State Recovery Plan recommendations for the Greater Sage-Grouse (Stinson et al. 2004) and with WDFW management recommendations for sage-grouse (Schroeder et al. 2004). Adaptive management will be used to minimize habitat impacts and disturbance to wintering big game species.</p>
61-3	Tuck, Bob		<p>Page 3 – Budget: The original appropriation was \$490,000. \$128,000 was recently pulled back. What has been spent and what is needed? What is the source of funding? A detailed budget for each alternative should be listed. Alternatives 1 and 2 allow for an average of 841 and 1217 AUMs per year. Assuming a typical public lands grazing fee of about \$1.50 per AUM, the net income is \$1262-\$1825. Assuming fair market value, the worth to the community would also be \$1262-\$1825. What is the annual cost for each option? The cost to implement the plan (5-years), and annual maintenance and monitoring is \$40,000; the net annual cost of option 1 or 2 would be \$65,000? A net cost to the citizens of the State would be over \$63,500. How does WDFW justify this expense?</p>	<p>In 2007, legislative support for the Wild Horse CRM resulted in a proviso appropriation of \$490,000 in WDFW 2007-2009 biennium for implementation of the CRM (note: in October 2008, \$128,000 of these funds were cut from the WDFW's budget).WDFW has authority to issue grazing permits (WAC 232-12-181). A fair-market-value fee is charged for livestock grazing on WDFW lands.</p>

Response No.	Name	Affiliation	Comment(s)	Agency Response
61-4	Tuck, Bob		Page 3 – Need: The section implies there is a need to support the community’s needs and values. In Kittitas County, Government comprises of 24% while the Ag. Comprises 11% of the job base. Many of the jobs are in the University, which is facing severe cuts. The State is facing a \$8 billion deficit. Does the local community really support spending over \$63,900 annually for a benefit of less than \$2,000? What was the pro-con comment ratio on the SEPA document?	WDFW strives to be a responsible neighbor and community member supporting the community’s economies and values where compatible with its mandates and obligations to the greater public it serves. To blend the needs of the local community with the WDFW statewide mandates, in 2006 WDFW engaged in the Wild Horse CRM process to achieve this. These partnerships are supported by the WDFW’s Domestic Livestock Grazing on Department Lands Policy #C-6003 that specifically identifies CRM participation as a stand-alone purpose for grazing on WDFW lands
61-5	Tuck, Bob		Page 4: It should be noted that few if any of the studies cattle have any benefit were done in arid plant communities. The Sage Grouse recovery plan also states (page 23 and 24) that “The shrub steppe plants and animals of eastern Washington do not seem adapted to the presence of large herds of large ungulates” and “Native grasses and forbs do not seem to have adapted to intense grazing by ungulates”.	We agree that shrub-steppe plants are not adapted to heavy grazing. That is why we are proposing light intensity grazing with a rest rotation strategy.
61-6	Tuck, Bob		Page 8: The NRCS standards were written by range specialist no wildlife biologists. The stated purposes of the NRCS standards are: Improve or maintain the health and vigor of plant communities, Improve or maintain quantity and quality of forage for livestock health and productivity, Improve or maintain water quality and quantity, Reduce accelerated soil erosion, and maintain or improve soil condition, Improve or maintain the quantity and quality of food and/or cover available for wildlife, Promote economic stability through grazing land sustainability. There are no studies that show the standards improve habitat for sage grouse or elk. Conversations with several wildlife biologists indicate that they do not believe the standards will improve habitat for sage grouse.	Range specialists are the experts in range management. Wildlife biologists have wildlife as a focus. While the area is part of the Sage-Grouse Recovery Plan, it is not a high quality area for sage-grouse. The planned actions will not negatively affect the sage-grouse population at the level of grazing intensity planned.
61-7	Tuck, Bob		Page 9: Forage production estimates are from draft soils maps and do not include a statistical range (i.e. +10%?). It is misleading to state a cool loamy soil will produce exactly 1200 pounds of forage. There are obvious large annual fluctuations and variations in measurements. To ensure there is measured over numerous years and a range of production given.	Forage production estimates are based on on-site ocular estimation, following NRCS methods (National Range and Pasture Handbook, 2004). AUMs will be likely be altered over time, based on the results of trend and utilization monitoring, which are affected by climatic variation.

Response No.	Name	Affiliation	Comment(s)	Agency Response
61-8	Tuck, Bob		Page 10: The production estimates are potentially fatally flawed. The AUM calculation does not seem to account for wild ungulate use. WDFW documents indicate a large increase in elk use o some pastures In recent years (after cattle were removed and roads closed).	Forage use by elk is unknown and likely variable, therefore, forage allocated to cattle is very conservative. Under Alternative 1, 11% of the “palatable” forage, or 6% of the total biomass, will be allocated for livestock consumption on average each year within the Alternative 1 area; under Alternative 2, 4% of “palatable” forage, or 3% of total biomass, will be allocated for livestock consumption on average each year within the Alternative 2 area.
61-9	Tuck, Bob		Page 10-11: Utilization levels. The measurement of utilization as described does not protect sage grouse, sage sparrows or other ground nesting birds from damage due to grazing. Utilization and grass height could easily fall below the standards (Table 2-3) during the grazing season. Even the “seasonal utilization” measurements (4 inches, 35-60% utilization) are higher than those recommended in most of the literature (Svem 1998, Connelly et al 2000, Beck and Mitchell 2000). All the literature recommends at least 7 inches of grass height during the nesting/brood rearing and <35% utilization. There is also no evidence that the methods are adequate. Measuring a few plots and averaging does not mean that ground nesting birds will not be severely impacted by cattle. Sage grouse, sage sparrows, etc are heavily tied to big sage, which is only a small percentage of the entire area. Svem (1998), Connelly et al (2000), and Beck and Mitchell (2000) found a strong correlation between shrub height and successful grouse nests. Flat areas with deep soils are the most critical habitats. The DEIS admits (page 30) the obvious; that cattle are most likely to over-utilize flat areas. Stock tanks are often located on flat, deep soil sites. Thus, the most critical habitat for ground nesting birds is the most likely to be impacted by cattle.	Part of the rationale for the light level of livestock use specified in the plan was to ensure compliance with WDFW management recommendations for priority species such as sage-grouse (Schroeder et al. 2003), sage sparrow (Vander Haegen 2004b), sage thrasher (Vander Haegen 2004a), loggerhead shrike (Vander Haegen 2004c), and chukar (Ware and Tirhi 1999). The management recommendations for sage thrasher and sage sparrow state “livestock grazing at low to moderate levels has not been shown to be detrimental” (Vander Haegen 2004a, 2004b), and recommend allowing more than 50 percent of the current year’s perennial bunchgrass production to persist through the following breeding season. The low stocking rate, the short grazing period, and the fact that the effects of livestock grazing are not uniform across the landscape will result in a variety of nesting habitats with vegetation of different height and canopy cover levels. The Sage Grouse Recovery Plan states “forbs appear to be important to nesting hens in the pre-laying period” (page 12). A synthesis paper on the ecology and management of sage-grouse and sage-grouse habitat (Crawford et al. 2004) suggests that light to moderate early season livestock grazing (similar to the proposed grazing strategy) can promote both forb abundance and availability. The Recovery Plan also states that “tall, dense vegetation provides visual, scent, and physical barriers between predators and the nests of ground-nesting birds” (page 16). The light stocking level proposed in the grazing plan will result in mosaic of lightly grazed and ungrazed habitat patches that vary in plant height and canopy cover.

Response No.	Name	Affiliation	Comment(s)	Agency Response
61-10	Tuck, Bob		Page 13, Range improvements: Using NRCS standards will not ensure that sage grouse and other animals will not be harmed by the improvements. The standards were written by range scientist, no wildlife biologists. The Sage grouse recovery plan recommends no salt on sites used by grouse and no livestock water developments unless designed to improve habitat and to reduce existing damage by livestock. There should be no water development of spring. One of the most pressing needs being ignored by WDFW is the restoration of springs for the benefit of wildlife. If WDFW has so much funds to subsidize cattle grazing for one rancher, they should first restore the entire area for fish and wildlife. What a novel concept for a Department of FISH AND WILDLIFE.	Use of these pastures by sage-grouse is so low detection is difficult and not likely affected by grazing or salt licks. The timing, intensity and level of use are key components of effect on the environment. This is not a subsidized project but a CRM enhancement project. The springs discussed in the EIS are sites that are already developed with cisterns, piping and water troughs already in place. Some of these sites are fully functioning while others are in need of repair. However all of the sites need to be brought up to NRCS standards for spring developments, which involves piping the water away from the spring initiation point to hardened sites where troughs will provide water for livestock and wildlife as well as overflow piping that returns the excess water back to the spring channel. Implementing the NRCS standards at these sites will reduce impacts from livestock use of the sites.
61-11	Tuck, Bob		Page 14, Weed Management: All literature for sage grouse recommends no use of herbicides that reduces forb diversity.	Control will target weeds defined by Kittitas County as “noxious”. These weeds typically occur along roadsides and in other highly disturbed areas. Herbicides applications will target such areas, and will not be broadcast across the landscape where desirable forbs occur.
61-12	Tuck, Bob		Page 15, Objectives: The objective of moving toward “historic plant communities” is very arbitrary. The DEIS should state what the current condition is (% forb, native grasses, sage brush, etc.) and what WDFW would like the area to look like using the same measures. There must be a statistical analysis of current measurements to determine if you can accurately measure a 10, 20 or 30% change in the measurement (forbs, native grasses, etc). There should also be comparison of the area not grazed in over 10 years .vs the area that has been grazed. If the ungrazed area is closer to the “historic community”, the theory that grazing can be used is already discredited. For the utilization (<35%) and vegetation height (7”) to have no or minimal impact on the listed birds, it must be measured where big sage exists and on deep soil sites.	Historic plant communities are not arbitrary; they are defined in the ecological site descriptions and represent the potential climax plant community. Prior to acquisition by WDFW, lands in the Parke Creek and Skookumchuck drainages were grazed in a much different fashion than what is proposed in Alternatives 1 and 2. A comparison of these lands to the Whiskey Dick would only indicate that the type of grazing allowed previously is not appropriate ; it would not discredit the idea that the Proposed Grazing System will allow plant communities to move towards the historic climax plant community. Utilization and stubble height data will be collected in various plant communities, including sites with big sagebrush and deeper soils.
61-13	Tuck, Bob		Page 44. ...WDFW allocates a maximum of 35% forage production to livestock... This shows the flaw of the DEIS. The DEIS states there are 700-800 deer and 1500-2000 elk. If 35% is allocated to 717-153 AUM’s, 0% must be allocated to 2200-2800 wild ungulates and millions of insects if the <35% is utilized and the sage grouse recovery plan followed. I pointed this out in my comments on the CRM grazing plan, but WDFW apparently has no intention of addressing this issue.	Utilization by wildlife and insects in unknown and difficult to predict, therefore, forage allocation to livestock is very conservative. Under Alternative 1, 11% of the “palatable” forage, or 6% of the total biomass, will be allocated for livestock consumption on average each year within the Alternative 1 Area; under Alternative 2, 4% of “palatable” forage, or 3% of total biomass, will be allocated for livestock consumption on average each year within the Alternative 2 Area.

Response No.	Name	Affiliation	Comment(s)	Agency Response
61-14	Tuck, Bob		<p>Page 46 and 52: Big Game. In the last SEPA document your own district biologist stated: “To state that managed grazing increases production, quality and diversity ignores the body of literature on this subject. Vavra (2005) actually states, “Livestock grazing has been considered detrimental to wildlife habitat. Managed grazing programs, however, have the potential to maintain habitat diversity and quality”. There are different results depending on intensity of grazing, grass species, moisture, etc. Holecheck et al (1999) stated “It is remarkable that although the sage brush grassland is one of the largest range types, there have been no long term, replicated stocking rate studies with cattle in this type”. Even when managed properly, the average forage production increase was 7% will have no benefit. If the goal is to increase forage quality, then data needs to be collect on current quality so that the effects of grazing can be evaluated. The literature you cited on forage quality (Vavra (2005)) stated, “research verification of these applied practices have been mixed”. Some studies have suggested that livestock can have a positive effect on condition of forage for elk (Granskopp et al. 2004, Taylor et al. 2004, Danvir and Keari 1996, Yeo et al 1993, Grover and Thompson 1986); others (Skovlin et al. 1983, Wambolt et al. 1997, Westenkow-Wall et al. 1994) have failed to find forage improvements. Even if quality is improved, the standing crop may be reduced (Ganskopp et al 2004).</p>	See Agency Response 61-15.
61-15	Tuck, Bob		<p>Page 46 and 56: Big Game Continue. In my review of the literature, blue bunch wheat grass (the dominant species in the area) was least likely to be improved by grazing. Further, it will be difficult to get cattle to utilize the same slopes occupied by elk in the winter. I believe the cattle will select the green spring forage in the deep soils areas and avoid the older grasses on the slopes. Given that livestock can also have a negative influence on vegetation and wildlife (Carrier and Czech 1996, Ohmart 1996) have frequently been found to displace elk on the range (Coe et al. 2004, Danvir and Kearn 1996, Yeo et al 1993, Mackle 1970), I believe a net benefit to wildlife will be hard to prove and do not believe the monitoring outlined in the plan will accurately document impacts. At the very least, measuring forage quality is needed”.</p>	<p>Research results regarding the hypothesis that spring grazing can improve the nutritional quality of bluebunch wheatgrass are mixed and far from conclusive. In general, light to moderate defoliation (i.e., leaving a portion of the basal area of each ungrazed) appears to maintain the vigor and productivity of bluebunch wheatgrass. Reports that were reviewed include: Anderson and Scherzinger (1975), Anderson (1991), Clark et al. (1998a), Clark et al. (1998b), Clark et al. 2000, Ganskopp et al. (2004), McLean and Wikeem (1985), Mueggler (1975), Pitt (1986), Rickard et al. (1975), Skovlin et al. (1983), Uresk and Cline (1976), Vavra and Sheehy (1996), Wambolt et al. (1997), Westenskow-Wall et al. (1994), Willms et al. (1980), Wilson et al. (1966).It is clear that the presence of cattle on the range can change the distribution of elk (Coe et al. 2001, Coe et al. 2005, Rapp 2006). The FEIS has been redrafted to include an analysis of elk displacement by cattle. Grazing rotations begin each year in the low elevation, early season pastures with the intent that the majority of elk</p>

Response No.	Name	Affiliation	Comment(s)	Agency Response
				<p>will have moved out of these areas prior to cattle entering the area. The proposed monitoring system includes measurements of the proportion of live vs. dead grass tissue.</p>
61-16	Tuck, Bob		<p>Page 51: Sage grouse: The document notes that much of the area may be unsuitable for sage grouse. This also probably true of sage thrashes, etc. The deep soil areas are a very small percent of the landscape, but are the most important habitats for the listed species. This is why the broad brush approach to utilization described in the DEIS is likely going to cause hard to the shrub steppe dependent species.</p>	<p>Utilization will be measured on a site-specific basis, not averaged across pastures as recommended in the Sage Grouse Recovery Plan (Stinson et al. 2004). The FEIS has been redrafted to reflect the comment.</p>
61-17	Tuck, Bob		<p>Page 52: Shrub steppe Dependent Species. The DEIS note that some research states that grazing should be kept below 25% (in the habitat used by the species!). In the last SEPA your district biologist noted “Page and Ritter (1999) recommend no cattle grazing April-June to keep brown-headed cowbirds for parasiting nest of birds in sagebrush steppe”.</p>	<p>The reference cited says “Situations that concentrate livestock during the breeding season (April through June) increase the influence of brown-headed cowbird brood parasitism on songbird breeding success. Corrals, feedlots, and watering sites provide feeding sites for cowbirds.” In addition this area is not known for having high levels of cowbird populations, there are no plans for corrals or feedlots and the dispersed watering sites are expected to minimize potential impacts from cowbird parasitism.</p>

Response No.	Name	Affiliation	Comment(s)	Agency Response
61-18	Tuck, Bob		Page 52: Sage grouse. Beck and Mitchell (2000) identified 11 negative and only 6 positive effects of grazing on sage grouse. At least 3 of the potential positive do not pertain to this Whiskey Dick Area. The Whiskey Dick area does not have dense grassy meadows; there is a need to create leking areas or reduce sage brush density.	Conservation strategy 4.4 in the Sage Grouse Recovery Plan (Stinson et al. 2004) [available at http://wdfw.wa.gov/wlm/diversty/soc/recovery/sage_grouse/] is “ensure compatibility of grazing management on public lands managed for sage-grouse” (page 68). To accomplish this the Recovery Plan recommends that grazing be managed “so that habitat characteristics needed for breeding and wintering can be consistently maintained”. Accordingly, the grazing plan incorporates the recommendation that “management should be designed to improve the composition and diversity of native vegetation” and “limit the spread of noxious weeds.” To accomplish this the Recovery Plan suggests “grazing pressure be light (<35 percent usage), seasonally rotated, periodically deferred, and maintained at low enough intensity to enable rapid response to drought conditions or range fire”. The rotational grazing plan for the Quilomene & Whiskey Dick Wildlife Area sets grazing pressure at 35% percent. In addition, the Recovery Plan recommends implementing “long-term vegetation monitoring” of grazing effects. All of these suggestions were considered and included in the grazing management plan.
61-19	Tuck, Bob		Page 56: 3.5.2.3 States that there would be no direct and indirect effects if livestock grazing were eliminated. How can the DEIS state that grazing will improve habitat but not grazing will have no impact? Most literature would suggest that removing cattle will most likely have a positive impact. However, if you are going to try to sell grazing is good, wouldn't removing grazing be bad?	The FEIS has been redrafted to reflect the comment. See Section 3.5.2.3.
61-20	Tuck, Bob		Page 68 3.11.1 How can cattle production be a significant industry when the DEIS states on page 72 that it accounted for only 4.4% of gross income in 2005. Almost all ranching is on private lands and removing the proposed grazing would have no negative effect on the community.	The livestock industry is a significant part of the culture and economy of Kittitas County, where local support is critical to the viability of WDFW's acquisition program. Nearly all large blocks of shrub-steppe habitat have a long history of livestock grazing.
62-1	Tuck, Bob - Letter provides comments on CRM Plan		This letter provides comments on the Wild Horse Coordinated Resource Management Plan (CRMP or Plan) not the DEIS.	This is outside the scope of this review.
63-1	Weidenbach, Eldon		I believe it would benefit the wildlife if the cattle were put back on the hills.	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
64-1	Woodrow, Aja		Quoting from Vavra's article, "attempts to develop grazing management systems for improving wildlife habitat cannot be applied in broad-brush or simplistic fashion such as providing forage for game animals." I would argue that the prescribed use of cows as a management tool in the DEIS resembles that of a surgeons scalpel when the actual resolution of the tool is that of a shotgun. Cows are broad-brush tools end the only wildlife habitat they have a slim chance of improving are for one game species.	The intent of the proposed grazing plan is to minimize effects to shrub-steppe and riparian dependent species, while participating the the Wild Horse CRM. Participation in a CRM is a stand-alone purpose for livestock grazing (WDFW Policy C-6003).
64-2	Woodrow, Aja		If the land managers wish to create a more heterogeneous landscape by using cows, this landscape already exists on the wildlife area, It is a diverse landscape with ridges and swales providing gradients of plant cover, height and diversity.	Heterogeneity can apply to a nearly infinite variety of factors and at different scales. The objective here is a mosaic of grazed and ungrazed areas that provide different amounts and qualities of vegetation.
64-3	Woodrow, Aja		The competition theory argument is weak concerning the DEIS. Elk already fill the niche of grazer, evidence of their presence scattered throughout the wildlife area. Additionally, the succession reset event of fire is a likely occurrence in the future.	The EIS makes no mention of competition theory. As stated above, the intent of the proposed grazing plan is to participate in the Wild Horse CRM. Participating in the CRM allows WDFW to influence grazing practices on other landowners within the CRM. Grazing is not expected to reset succession.
64-4	Woodrow, Aja		As Vavra states "Research verification of these applied practices has been mixed." The use of short, well timed rotations may sound good on paper, but bow sustainable is this in the long run? Very shallow soil is still compacted and washed away. Critical timing of grazing may not be possible given rancher infrastructure and subsidized economic needs.	Cattle grazing is not expected to adversely effect shallow soils due to the paucity of forage available on these sites. Analysis of the rangeland inventory data supports this; Very shallow ecological sites were typically in good to excellent condition, and none were in poor condition. Timing of grazing will be based on plant phenology and NRCS Prescribed Grazing Standards 528.
64-5	Woodrow, Aja		What did elk do before cows?	Elk were resident in the area prior to the introduction of livestock.
64-6	Woodrow, Aja		How often will WDFW assess range condition = monitoring frequency and scope?	Monitoring will follow methods presented in Herrick et al. (2005), which were designed to quantitatively assess several indicators of Rangeland Health, including trends in bare soil and plant cover. The full monitoring plan is presented in Appendix A. Vegetation trend monitoring will occur at 3 to 5-year intervals; photo-monitoring and utilization monitoring will occur annually.
64-7	Woodrow, Aja		How long until cryptobiotic crust is lost?	Effects to biological soil crusts are addressed in Section 3.1 of the FEIS. Effects to biological crust are expected to be minor to moderate, with the exception of sites within 100-m of developed stock water. Cover of biological crusts will be monitored along with other attributes of rangeland health, and adaptive management will occur as necessary to prevent habitat degradation.

Response No.	Name	Affiliation	Comment(s)	Agency Response
64-8	Woodrow, Aja		How will this affect shrub-steppe obligate passerines and those who spend money in Kittitas CO. to view them?	Effects to shrub-steppe PHS bird species are addressed in Section 3.5. Neither grazing alternatives are expected to adversely affect shrub steppe obligate passerines or the viewing of wildlife. The proposed grazing will be short-term and light, and recreational access will not be restricted.
64-9	Woodrow, Aja		What is the economic cost to WDFW initially and yearly? What is the economic benefit to WDFW?	Cost benefit analyses are not required for SEPA. Furthermore, economic costs and benefits to WDFW are not the overriding considerations in the decision making process. One of WDFW's objectives is to set aside more wild areas for native wildlife. WDFW owns many large blocks of shrub-steppe habitat and we continue to acquire more for long term protection. Nearly all shrub-steppe habitat has a long history of heavy grazing, prior to WDFW acquisition. Our acquisition program depends on support from the public, county commissioners and local legislators.
64-10	Woodrow, Aja		Does this action make economic sense given the reduced budget of WDFW?	Implementation of the project will be phased, and dependent on adequate funding. See also Agency Response 64-9.
64-11	Woodrow, Aja		Does WDFW plan on creating a dynamic elk population model?	A dynamic elk population model is outside the scope of this review.
64-12	Woodrow, Aja		Does WDFW wish to be responsible for balancing the needs of wildlife habitat and a rancher's livelihood given poor grazing conditions in the future?	No, the alternatives presented in the DEIS are based on current and reasonably foreseeable conditions. Monitoring and adaptive management are key features to help adjust the plan over time.
64-13	Woodrow, Aja		More money is spent on wildlife viewing then hunting in Washington. I think the vast majority of State citizens would prefer to have the wildlife area ungrazed.	Thank you for your comment.
65-1	Wooten, George		1 Grazing is inconsistent with the mission of WDFW	Management (any habitat manipulation, including no-touch) that benefits one species or even one suite of species will likely have an adverse effect on some other wildlife species. Habitat for all cannot be "maximized." WDFW has the authority to allow grazing.

Response No.	Name	Affiliation	Comment(s)	Agency Response
65-2	Wooten, George		There are a number of rare plant communities that are unique to the areas of the Quilomene and Whiskey Dick Wildlife Areas. Some of these would almost certainly be degraded and possibly extirpated if livestock were to be allowed there. Unfortunately, the DEIS did not include any references to any of these vegetation communities.	Of the 20 rare or high-quality plant communities documented within Kittitas County (WNHP 2008), 7 were observed within the Project Area during the rangeland inventory. One of these plant communities, low sagebrush / Idaho fescue, is ranked by NatureServe as "G5", meaning that this community is globally abundant and secure. Four of these plant communities (stiff sagebrush / Sandberg's bluegrass; stiff sagebrush shrubland; big Sagebrush / Idaho fescue; Wyoming big sagebrush / bluebunch wheatgrass) are ranked "G4". Such plant communities are globally widespread and abundant, but potentially rare in parts of their range. Two plant communities, the Threetip sagebrush / Idaho fescue association and the Thyme buckwheat / Sandberg's bluegrass association, are ranked "G3". Such plant communities are either rare throughout their range, or found locally within a restricted range. The type of grazing outlined in the grazing plan is designed specifically to avoid adverse effects to native bunchgrass communities. In addition, the primary purpose of monitoring and adaptive management is to detect early any negative trends and make modifications as necessary to ensure that no degradation occurs.
65-3	Wooten, George		Threetip Sagebrush / Prairie Fescue grassland (<i>Artemisia tripartita</i> ssp. <i>tripartita</i> / <i>Festuca campestris</i> Shrub Herbaceous Vegetation) were found on the Whiskey Dick Wildlife Area, near its border with the Quilomene, endangered due to grazing.	The Upper Skookumchuck Pasture has been removed from the grazing rotation, therefore, no grazing will be permitted in this area.
65-4	Wooten, George		The lack of quantitative vegetation data in the DEIS Section on Vegetation (p. 43) indicates that these Wildlife Areas currently do not have a suitable vegetation inventory capable of informing the decisions proposed by the DEIS.	Appendix B contains the rangeland inventory data.
65-5	Wooten, George		The DEIS did not include (and the writers were apparently unaware of) these other rare plant habitats that were newly described plant associations found for the first time on WDFW units and other public lands adjacent to Whiskey Dick Wildlife area.	See Agency Response 65-2.
65-6	Wooten, George		All riparian areas on both of these Wildlife areas should be excluded from grazing to protect rare habitats and allow aspen stands. Unfortunately, this is not practical and would render the cost of the proposal unworkable.	Riparian areas along fish-bearing stream reaches will be protected from grazing. The light intensity, rotational grazing system proposed will protect rare habitats and allow aspen stand development, where conditions are appropriate.
65-7	Wooten, George		The Quilomene and Whiskey Dick both have large areas dominated by bunchgrasses. During a visit to the Quilomene last year, we found this to be an ongoing problem. Areas with deep soils where native bunch grasses should be dominant had been converted to pasture grasses, tumble mustard and tumbleweed. In	The type of grazing prescribed in this plan is designed specifically to avoid the overuse that led to native bunchgrass depletion. In addition, the primary purpose of monitoring and adaptive management is to detect early any negative trends and change course to ensure no degradation takes place.

Response No.	Name	Affiliation	Comment(s)	Agency Response
			areas avoided by cattle, such as rocky talus, native species cover was much more intact.	
65-8	Wooten, George		Belnap's recommendation to disperse cattle in into pastures was replaced by the suggestion that one giant pasture of 55,720 acres would be unlikely to cause soil erosion. This is unscientific and it ignores documented impacts in favor of vague suggestions.	The grazing plan breaks this area into multiple management units and specifies a rest-rotation pattern of use that ensures short-term impact and long rest periods. The overall light level of forage use will result in a small temporary reduction in plant cover that is not expected to increase erosion or reduce infiltration.
65-9	Wooten, George		Belnap (2001) documented widespread irreversible destruction of beneficial soil microflora in western North America due primarily to the advent of European grazing systems in bunchgrass ecosystems that are not adapted to heavy trampling pressures. The loss of soil crusts is essentially irreversible, and that without the soil microflora, the vegetation will increasingly depart from its historic norm. The end result of this chain of events will be that the Wildlife areas are converted into a sea of cheatgrass with thousand acre fires burning through every two years.	The type of grazing prescribed in this plan is designed specifically to avoid the type of use that led to soil degradation. In addition, the primary purpose of monitoring and adaptive management is to detect early any negative trends and change course to ensure no degradation takes place.
65-10	Wooten, George		9 On p. 34, under Alternative 2, the DEIS contradicts its own claims that cumulative effects of erosion are ongoing when it states that ~35% utilization is unlikely to cause erosion. Which statement is correct? The latter statement is based on correlating stubble height with erosion, which is unsubstantiated.	The DEIS states that historic grazing, road building, and OHV use caused soil erosion, not the proposed grazing plan. The overall light level of forage use will result in a small temporary reduction in plant cover that is not expected to increase erosion over current levels.
65-11	Wooten, George		10 The question that needs to be answered is what would happen if several hundred cattle trampled your lawn.	To stay true to the analogy, one would have to consider the impact of a cow walking across and taking 2-3 bites out of your lawn and not returning until the following fall or not at all for 2 years.
65-12	Wooten, George		11 By citing (and then ignoring) recommendations for rest and rotation, the DEIS fails to make it clear why this type of system is important, and why the pastures would need be small to actually work. The DEIS goes against prevailing science by proposing a 55,720acre pasture as if it was one of Belnap's recommendations, when actually it is the antithesis of her research.	See Agency Comment 65-8.

Response No.	Name	Affiliation	Comment(s)	Agency Response
65-13	Wooten, George		12 it is completely possible for WDFW to support grazing AND to reduce adjacent allotment pressures AND to protect soils.	Many organisms graze. The effects of grazing (by large herbivores) are defoliation, hoof impact, and manure deposition (organic matter, nutrients, bacteria, and water). The objective with this grazing plan is to control these individual influences such that they do no harm to the plant community. Reducing adjacent allotment grazing pressure is the mechanism to protect soils. The presence of the cow is not the problem, but the wrong combination of timing, duration, and intensity of use. The proposed plan avoids those wrong combinations, based on research.
65-14	Wooten, George		WDFW could support grazing and reduce adjacent allotment pressures and protect soils by dedicating irrigated pasture to the permittee.	This is outside the scope of this review.
65-15	Wooten, George		The climate is going to change such that we will have shorter winters, more rapid snowmelt, and more severe spring flooding. This means there will be longer, drier summers. Dry vegetation doesn't protect soil well. The proposed expansion of grazing flies against the Governor's intent (for land management agencies to consider climate change) and raises the bill for taxpayers.	With an annual monitoring and review process, WDFW will be able to respond to these changes should they occur. The currently proposed plan will be re-evaluated each year based on results.
65-16	Wooten, George		WDFW is understaffed and cannot pay attention to grazing lease management. WDFW lands in the Methow are heavily overgrazed.	Most of the funding that has been used for this project to date was provided by special legislation which would not have available but for this project. Other funding is from the capital budget, which can not be used for routine operation and maintenance. WDFW lands in the Methow are outside the scope of this review.
66-1	Form Letter #1 - 24 letters - See Chapter 5 for a list of names		We are strong supporters of the collaborative approach that the Coordinated Resource Management (CRM) process. CRM brings diverse groups together to solve complex issues. The CRM has allowed local input to solve issues. I support locally driven processes that allow for local solutions. Livestock grazing has been and continues to be an integral part of the Kittitas County economy and community. Livestock grazing has been a normal and customary management tool for landowners and managers throughout Kittitas County for as long as the valley has been settled. The WDFW will recognize this use by implementing the recommended management plan that will result in a 5 year grazing plan that will cover 10 of 13 pastures. I support the scientific monitoring that has been conducted to develop the Draft EIS and the monitoring that will continue into the future.	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
67-1	Form Letter #1 - Modified - Cameron, George		Managed grazing has always been of benefit to wildlife habitat and the environment. There has never been a scientific test comparing grazing and non-grazing that has shown grazing to be negative.	The effects of managed grazing on wildlife habitat are species and ecosystem-dependent. The intent of the Proposed Grazing System and BMPs is to minimize effects to shrub-steppe wildlife habitat, while participating in the CRM.
67-2	Form Letter #1 - Modified - Cameron, George		I am a supporter of the CRM program that has been going on in the Whiskey Dick unit. These tests will show that monitoring and management of grazing work.	Thank you for your comment.
68-1	Form Letter #1 - Modified - Stingley, Russ		However, I feel that the turn out and gather dates of the livestock should be more flexible and depend on the specific growing seasons and weather for each specific year. In water short years when the springs may not run, but the grass still grows adequate for grazing; hauling water into the troughs should be an option. I also feel improvements to fencing, troughs, etc. should be done continually as the pastures are used and not necessarily all in the first year. Some of the shared NRCS grant money cannot all be applied for in the first year, and is only given after a permit is issued to the livestock owner. This project is highly supported by the community and grazing was a part of the plan when WDFW purchased the land from American Minerals. Future purchases by the WDFW will most likely depend directly on this project being continued.	The FEIS has been redrafted to reflect these 3 comments. See Sections 2.3.1, 2.3.7, and 3.12.
69-1	Form Letter #2 - 140 letters - See Chapter 5 for a list of names	Conservation Northwest	One of the most important tracts of habitat, at the Whiskey Dick Wildlife Area, has been recovering from grazing for two decades, and today it is home to elk, mule deer, and several extremely rare plants and animals, including Washington's genetically distinct and highly endangered Columbia Basin sage grouse. There is very little shrub steppe habitat remaining in eastern Washington, and large ungrazed tracts are extremely rare. Whiskey Dick is a precious resource for wildlife and the people of Washington. Protecting Whiskey Dick and other wildlife areas from grazing is an opportunity to preserve and restore shrub steppe habitat.	Thank you for your comment.
69-1	Form Letter #2 - 140 letters - See Chapter 5 for a list of names	Conservation Northwest	I urge the Department to drop its plans to reintroduce cattle into a growing number of state wildlife areas, beginning with Whiskey Dick and including the Quilomene.	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
69-2	Form Letter #2 - 140 letters - See Chapter 5 for a list of names	Conservation Northwest	The proposal will likely harm federally listed species such as summer-run steelhead and candidate species sage grouse. Grazing cattle on the recovered Whiskey Dick Wildlife Area will likely be detrimental to efforts to recover endangered wildlife.	We disagree. In order to protect federally endangered Upper Columbia River (UCR) Steelhead within Skookumchuck Creek, the Upper Skookumchuck and Skookumchuck Pastures and WDFW ownership within the Wild Horse Crossing Pasture have been removed from the grazing rotation. UCR Steelhead Critical Habitat in Whiskey Dick Creek will be protected by temporary fencing. The level of grazing planned is compatible with sage-grouse as defined in the Greater Sage Grouse Recovery Plan (Stinson et al, 2004).
69-3	Form Letter #2 - 140 letters - See Chapter 5 for a list of names	Conservation Northwest	Riparian areas are vitally important for wildlife, especially in the shrub steppe environment. If they gain access, cattle will congregate in riparian areas where they feed on the vegetation, trample habitat, and pollute the water with manure. Efforts to keep cattle away from riparian areas are unclear: While the proposal claims temporary fencing will be installed to protect riparian areas, maps indicate very little temporary fencing will be installed.	Maps in the DEIS indicated temporary fencing along Parke Creek used during the 2008 grazing permit. Figure 2-2 of the FEIS has been updated to include other planned temporary fencing. The Proposed Grazing System includes light utilization and spring and early summer grazing periods. Furthermore, BMPs such as riparian utilization triggers, off-creek water development, and salt placement will be used to limit livestock use of riparian areas. Should the Proposed Grazing System and BMPs prove insufficient for protecting riparian areas, additional fencing will be constructed.
69-4	Form Letter #2 - 140 letters - See Chapter 5 for a list of names	Conservation Northwest	Fourteen natural springs will be disturbed to create cattle watering areas.	The springs that are proposed for re-development have all been developed in the past. See Section 3.1 for descriptions and pictures of current spring conditions. The current proposal includes fencing to protect the water source and any riparian vegetation, once a portion of the water is piped away from the spring.
69-5	Form Letter #2 - 140 letters - See Chapter 5 for a list of names	Conservation Northwest	There is a large body of scientific research that indicates that grazing degrades and destroys wildlife habitat. The native shrub steppe vegetation in the Columbia Basin evolved without large numbers of herbivores, and there is evidence that our native plants and biotic soil crusts may be significantly vulnerable to cattle grazing. The science being used to promote this project is based on research conducted in different ecosystems where large animals such as bison were historically more common. The department must use sound science applicable to local plant communities, fisheries, and wildlife habitats.	See Agency Response 36-4.
69-6	Form Letter #2 - 140 letters - See Chapter 5 for a list of names	Conservation Northwest	Working with ranchers to develop sustainable grazing practices is a worthy and important goal, but our rare and ecologically important wildlife areas serve other important functions. They should be protected and managed to support Washington's wildlife. Please do not reintroduce cattle into these high-quality wildlife areas.	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
70-1	Form Letter #2 - Modified - Barker, Becky		Although I support working with ranchers to develop sustainable grazing practices on currently grazed land as an alternative to the development of strip malls and subdivisions with so little ungrazed shrub steppe land left in the state and so precious few acres protected our rare and ecologically important wildlife areas serve other important functions and should be left undisturbed. They should be protected and managed to support Washington's wildlife.	WDFW owns many large blocks of shrub-steppe habitat and we continue to acquire more for long term protection. Nearly all shrub-steppe habitat had a long history of heavy grazing, prior to WDFW acquisition. Our acquisition program depends on support from the public, county commissioners and local legislators. The CRM process allows large tracts of land with multiple ownerships to be managed as a unit. Each landowner adjusts their objectives and management techniques to fit into the CRM plan. WDFW can't expect to influence management across all ownerships without joining the CRM and being willing to lead by example.
71-1	Form Letter #2 - Modified - Beus, Tana	Conservation Northwest	Once the effects of cattle grazing occur, returning functional native habitat is a reactive inefficient management strategy whose outcome will likely have irreversible effects. It is not a logical management strategy' to spend money, time and resources that could be used to proactively manage the states land and wildlife. I urge the Department to drop its plans to reintroduce cattle into a growing number of state wildlife areas, beginning with Whiskey Dick and including the Quilomene.	The Whiskey Dick and Quilomene WAs have a long history of cattle grazing, beginning with settlement of this area. The presence of functional native habitat over the majority of these wildlife areas underscores the point that carefully managed livestock grazing is compatible with maintenance of quality wildlife habitat. The Proposed Grazing System, along with monitoring and adaptive management, have been designed to maintain or improve rangeland condition and minimize effects to wildlife habitat.
72-1	Form Letter #2 - Modified - Burr, Eric	Conservation Northwest	Dan Dagget's book: Beyond Range Land Conflict, Toward a West That Works, provides examples of successful restoration work. Although I'm not familiar with the details at Whiskey Dick, I suspect that there is a political problem there, and I therefore urge the Department to drop its plans to reintroduce cattle into a growing number of state wildlife areas, beginning with Whiskey Dick and including the Quilomene.	Thank you for your comment.
73-1	Form Letter #2 - Modified - Closterman, Marilyn	Conservation Northwest	Although Eastern Washington supports a large agricultural industry it is still one of the most beautiful and carefully exploited areas in the country. Please help keep it this way by allowing restored wildlife habitats to remain off limits to cattle grazing!	Thank you for your comment.
74-1	Form Letter #2 - Modified - Forester, Brenna	Conservation Northwest	I am writing to ask WDFW to reconsider plans to reintroduce cattle into state wildlife areas, especially the Whiskey Dick and the Quilomene. The Whiskey Dick Wildlife Area has special ecological significance in Washington State as it is one of the few remaining areas of shrub steppe habitat in the eastern part of the state. As you know, this area has been recovering from grazing for the past twenty years, providing habitat for several rare plants and animals.	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
74-2	Form Letter #2 - Modified - Forester, Brenna	Conservation Northwest	With the certainty of impacting federally listed endangered species, trampling and polluting riparian systems, and degrading a recovering rare ecosystem, there can be little justification for grazing cattle on these state wildlife areas.	See Agency Response 69-2. The type of grazing prescribed in this plan is designed specifically to minimize adverse effects to riparian and shrub-steppe habitat. The primary purpose of monitoring and adaptive management is to detect early any negative trends and change course to ensure no degradation takes place.
74-3	Form Letter #2 - Modified - Forester, Brenna	Conservation Northwest	Please do not reintroduce cattle into these high-quality wildlife areas.	Thank you for your comment.
75-1	Form Letter #2 - Modified - Garcia, Dawn	Conservation Northwest	You know this letter so I will keep it short. I am interested in keeping some public entity with interest in wildlife-not just cows. Please, let's leave this recovering habitat ungrazed.	Thank you for your comment.
76-1	Form Letter #2 - Modified - Hagstrom, Erik	Conservation Northwest	I urge the Department to drop its plans to reintroduce cattle into a growing number of state wildlife areas, beginning with Whiskey Dick and including the Quilomene. As a former Wildlife Biologist who did studies on Rangeland resources I know first hand the damage that cattle do to fragile low water vegetation.	Thank you for your comment.
77-1	Form Letter #2 - Modified - Jacobs, Nancy	Conservation Northwest	Cattle grazing will have a significant; damaging, lasting impact on wildlife and plants. If this is reintroduced in state wildlife areas, beginning with Whiskey Dick and including the Quilomene. I urge The Department to drop its plans to reintroduce cattle into these areas.	The type of grazing prescribed in this plan is designed specifically to avoid the type of overuse that leads to shrub-steppe degradation. In addition, the primary purpose of monitoring and adaptive management is to detect any negative trends and change course to ensure no degradation takes place.
78-1	Form Letter #2 - Modified - McShane, Colleen	Conservation Northwest	1. As a wildlife biologist who has worked extensively in eastern Washington, I urge the Department to drop its plans to reintroduce cattle into state wildlife areas, beginning with Whiskey Dick and including the Quilomene. I have seen first hand the damage that grazing can do shrub-steppe habitats unless it is extremely well managed, which is rare. Even relatively low amounts of grazing can destroy the cryptogamic crust that is vital to preventing soil erosion, particularly on the rolling hills above the Columbia River. There is pathetically little shrub-steppe habitat remaining in the state; WDFW has designated it as one of the "priority habitats", suggesting it is worthy of more protection.	WDFW owns many large blocks of shrub-steppe habitat and we continue to acquire more for long term protection. Our acquisition program depends on support from the public, county commissioners and local legislators.
79-1	Form Letter #2 - Modified - Moore, Erin	Conservation Northwest	While cattle grazing lightly at the right time of the year might be less harmful, cattle overgrazing at the wrong times of the year can simply wreck everything.	We agree. The type of grazing prescribed in this plan is designed specifically to avoid the type of overuse that leads to shrub-steppe degradation.

Response No.	Name	Affiliation	Comment(s)	Agency Response
79-2	Form Letter #2 - Modified - Moore, Erin	Conservation Northwest	A decade or so ago when my family lived in Kittitas, we used to ride horses up at Whiskey Dick. In springtime the flowers were breathtaking. It was so heartening to be in high Washington desert that hadn't seen grazing for so long. These lands are few and precious and should be considered a valuable resource in their native form. Think of the opportunities for research into the natural ecology of our shrub steppe!	WDFW lands have always been available for research into natural ecology.
79-3	Form Letter #2 - Modified - Moore, Erin	Conservation Northwest	While elk and deer often benefit from increased brushy browse encouraged by cattle grazing, who preferentially eat grasses and herbs, the loss to other wildlife, from the many birds to native flowers, is, I fear, unacceptable.	The type of grazing prescribed in Alternatives 1 and 2 is not expected to significantly change plant species composition, by either increasing browse species or decreasing native wildflowers. See Section 3.4 for further discussion of expected effects to vegetation.
79-4	Form Letter #2 - Modified - Moore, Erin	Conservation Northwest	It seems to me that wildlife areas should be managed for all wildlife, not nonnative animals like cattle. Also, I'm very concerned about efforts to keep cattle away from riparian areas and the springs crucial to wildlife survival. Even best efforts with temporary fencing can easily fail in the face of the force of thirsty cows. I've been witness to this! The downsides are too many to continue this practice on healthy, recovering lands.	Thank you for your comment.
80-1	Form Letter #2 - Modified - Mulligan, Jim	Conservation Northwest	I urge the Department to drop its plans to reintroduce cattle into a growing number of state wildlife areas, beginning with Whiskey Dick and including the Quilomene. Working with ranchers to develop sustainable grazing practices is a worthy and important goal, but our rare and ecologically important wildlife areas serve other important functions. They should be protected and managed to support Washington's wildlife. Please do not reintroduce cattle into these high-quality wildlife areas.	Thank you for your comment.
81-1	Form Letter #2- Modified - Pearce, John	Conservation Northwest	It is very difficult to understand what reasonable goals of the Department of Fish and Wildlife can be furthered by the reintroduction of cattle into sensitive habitats. Even in times of dwindling appropriations, I would hope that protection of wildlife areas such as Whiskey Dick -and the effort that has gone into restoring them -would not be compromised to obtain revenues from their incompatible use.	Economic benefits and revenue to WDFW are not the overriding considerations in the decision making process. One of WDFW's objectives is to set aside more wild areas for native wildlife. WDFW owns many large blocks of shrub-steppe habitat and we continue to acquire more for long term protection. Nearly all shrub-steppe habitat has a long history of heavy grazing, prior to WDFW acquisition. Our acquisition program depends on support from the public, county commissioners and local legislators.

Response No.	Name	Affiliation	Comment(s)	Agency Response
82-1	Form Letter #2 - Modified - Nafziger, Charles	Conservation Northwest	1. This country does not set aside enough "wild" areas for native wildlife. Those areas are necessary for the ecological health of our nation. The ecological health is necessary for our basic survival and our spiritual well being. Wild areas do not function when they are trampled by cattle.	One of WDFW's objectives is to set aside more wild areas for native wildlife. WDFW owns many large blocks of shrub-steppe habitat and we continue to acquire more for long term protection. Nearly all shrub-steppe habitat has a long history of heavy grazing, prior to WDFW acquisition. Our acquisition program depends on support from the public, county commissioners and local legislators.
83-1	Form Letter #2 - Modified - Riggs, Logan	Conservation Northwest	I grew up in Yakima, went to college in Ellensburg and now unfortunately live in Seattle. I have always felt very strongly about the natural areas surrounding the Kittitas valley. It is truly a unique and beautiful place. I urge you to reconsider grazing plans for the Quilomene and Whiskey Dick wildlife areas. Much irreparable harm will be done for a slight monetary gain.	Thank you for your comments. Most of the rangeland that you appreciate around the Kittitas Valley, especially the Quilomene and Whiskey Dick, were heavily grazed for over 100 years. The levels of grazing proposed in this EIS represent only a small fraction of use compared to historic levels.
84-1	Form Letter #2 - Modified - Struck, Fred	Conservation Northwest	1. I understand the science and introducing cattle in those areas is unwarranted and ethically wrong.	Thank you for your comment.
85-1	Form Letter #2 - Modified - Sundquist, Liann	Conservation Northwest	There is very little shrub-steppe habitat left in Washington so it is important to preserve what is left. By allowing cattle to graze in this area, you are severely compromising its natural state. I don't believe it is necessary to allow cattle to graze in wildlife areas because it changes the ecosystem, which are important in their own right.	WDFW owns many large blocks of shrub-steppe habitat and we continue to acquire more for long term protection. Nearly all shrub-steppe habitat has a long history of heavy grazing, prior to WDFW acquisition. Our acquisition program depends on support from the public, county commissioners and local legislators.
86-1	Form Letter #2 - Modified - Varga, Steve	Conservation Northwest	This is my backyard and I've seen' too much damage already in many areas of our county where cattle are doing extensive damage. Please do not allow more of the same.	Thank you for your comment.
87-1	Form Letter #2 - Modified - Vitale, Laura	Conservation Northwest	I urge the Department to drop its plans to reintroduce cattle into a growing number of state wildlife areas, beginning with Whiskey Dick and including the Quilomene. Working with ranchers to develop sustainable grazing practices is a worthy and important goal, but our rare and ecologically important wildlife areas serve other important functions. They should be protected and managed to support Washington's wildlife. Please do not reintroduce cattle into these high-quality wildlife areas.	Thank you for your comment.
88-1	Form Letter #2 - Modified - Williams, David	Conservation Northwest	Our wildlife, wilderness, wild places and open spaces are a priceless national legacy that must be preserved for future generations at any cost.	Thank you for your comment.

Response No.	Name	Affiliation	Comment(s)	Agency Response
89-1	Form Letter #2 - Modified - Wilson, Sharon	Conservation Northwest	I urge the Department to drop its plans to reintroduce cattle into a growing number of state wildlife areas, beginning with Whiskey Dick and including the Quilomene. Working with ranchers to develop sustainable grazing practices is a worthy and important goal, but our rare and ecologically important wildlife areas serve other important functions. They should be protected and managed to support Washington's wildlife. Please do not reintroduce cattle into these high-quality wildlife areas.	Thank you for your comment.