Appendix L. Grazing

This appendix provides the background information regarding standards for range improvements, grazing allotments, and standards for rangeland health. These topics are referenced in Chapters 1 -3 in the Draft EIS.

In this appendix:

Standard Procedures and Design Elements for Range Improvements within the Klamath Falls Resource Area **1263**

Grazing Allotments in the Klamath Falls Resource Area and Medford District **1270**

Standards for Rangeland Health **1284**

Standard Procedures and Design Elements for Range Improvements within the Klamath Falls Resource Area

Table 282. Proposed Klamath Falls Range Improvements by Allotment.

Allotment	Allotment Number	Type of Improvement	Number	Approximate Location
Edge Creek*	00102	Reservoirs	2 each	T41S, R5E, S.11; T40S, R5E, S.35
		Fencing	3 miles	T41S, R5E, S.11,12; T41S, R6E, S.4,5,6,7,8
Buck Mountain	00103	Fencing	2 miles	T39S, R5E, S.11,13
Buck Lake	00104	Fencing	2 miles	T38S, R5E, S.15,28,29; T38S, R6E, S.20
Dixie*	00107	Fencing	2 miles	T41S, R5E, S.5,7; T41S, R4E, S.1,2,12
Grubb Springs	00147	Reservoirs	2 each	T39S, R6E, S. 7,15
Stock Drive	00802	Fencing	1 mile	T39S, R11E, S.31
J Spring	00803	Fencing	1 mile	T38S, R14E, S.32
Barnwell	00807	Reservoirs	2 each	T39S, R11.5E, S.4,8
Drew	00817	Reservoir	1 each	T38S, R11.5E, S.5
		Fencing	2 miles	T38S, R11.5E, S.5,6; T37S, R11.5E, S.31,32
North Horsefly	00821	Reservoir	1 each	T37S, R14E, S.16
Stukel-O'Neill	00822	Fencing	3 miles	T39S, R10E, S.25,26; T40S, R10E, S.1,2
North Horsefly	00823	Reservoir	1 each	T37S, R14E, S.4,9
		Fencing	2 miles	T37S, R14E, S.4,9
Haskins	00826	Fencing	1 mile	T38S, R11.5E, S.29,30
Stukel-High	00827	Reservoir	1 each	T39S, R11.5E, S.30,31
Horton	00829	Reservoir	1 each	T39S, R11.5E, S.15
Ketcham	00835	Fencing	1 mile	T39S, R11E, S.19
Harpold Chaining	00836	Reservoir	1 each	T39S, R11E, S.21,27,28
		Fencing	2 mile	T39S, R11E, S.21,27,28
Windy Ridge	00838	Reservoirs	2 each	T39S, R11.5E, S.24,25
Bryant-Loveness	00839	Fencing	2 miles	T41S, R13E, S.5,6,7,8,17
Short Lake	00842	Fencing	2 miles	T39S, R11E, S.27,28
OK	00846	Reservoirs	2 each	T40S, R9E, S.15,21,22
		Fencing	2 miles	T40S, R9E, S.15,21,22,27,28
Swede Cabin	00847	Fencing	2 miles	T36S, R15E, S.28,30,32
Harpold Ridge	00851	Reservoirs	2 each	T39S, R11E, S.29,30,31,32
		Fencing	2 miles	T39S, R11E, S.29,30,31,32
Rodgers	00852	Reservoirs	2 each	T40S, R11E, S.5,6,7,8
		Fencing	3 miles	T40S, R11E, S.5,6,7,8,9,10
McCartie	00860	Fencing	1 mile	T38S, R11E, S.26,35
		Reservoir	1 each	T38S, R11E, S.26,35
Yainax	00861	Fencing	1 mile	T38S, R11E, S.1,12,13
Mills Creek	00865	Reservoir	1 each	T41S, R13E, S.7
		Fencing	2 miles	T41S, R13E, S.7

continued on next page

Bear Valley	00876	Reservoir	1 each	T40S, R15E, S.17,18
		Fencing	2 miles	T40S, R14.5E, S.24,25; T40S, R15E, S.19,30,31
DeVaul	00879	Fencing	1 mile	T39S, R13E, S.10,11,15
Goodlow	00881	Fencing	1 mile	T39S, R13E, S.9,10,15
Horton	00883	Reservoir	1 each	T39S, R12E, S.22
Panky Basin	00884	Reservoir	1 each	T39S, R13E, S.27,28
		Fencing	1 mile	T39S, R13E, S.27,28
Dry Prairie	00885	Reservoirs	2 each	T38S, R13E, S.27,34,36
Rock Creek	00888	Fencing	2 miles	T41S, R15E, S.9,17
Timber Hill	00889	Reservoirs	2 each	T41S, R14.5E, S.11,12,14,23
Williams	00892	Fencing	2 miles	T39S, R12E, S.10,15

* Located within the Pokegama Herd Management Area

The following standard procedures and design elements would be adhered to in implementation of the proposed construction of range improvements within the Klamath Falls Resource Area.

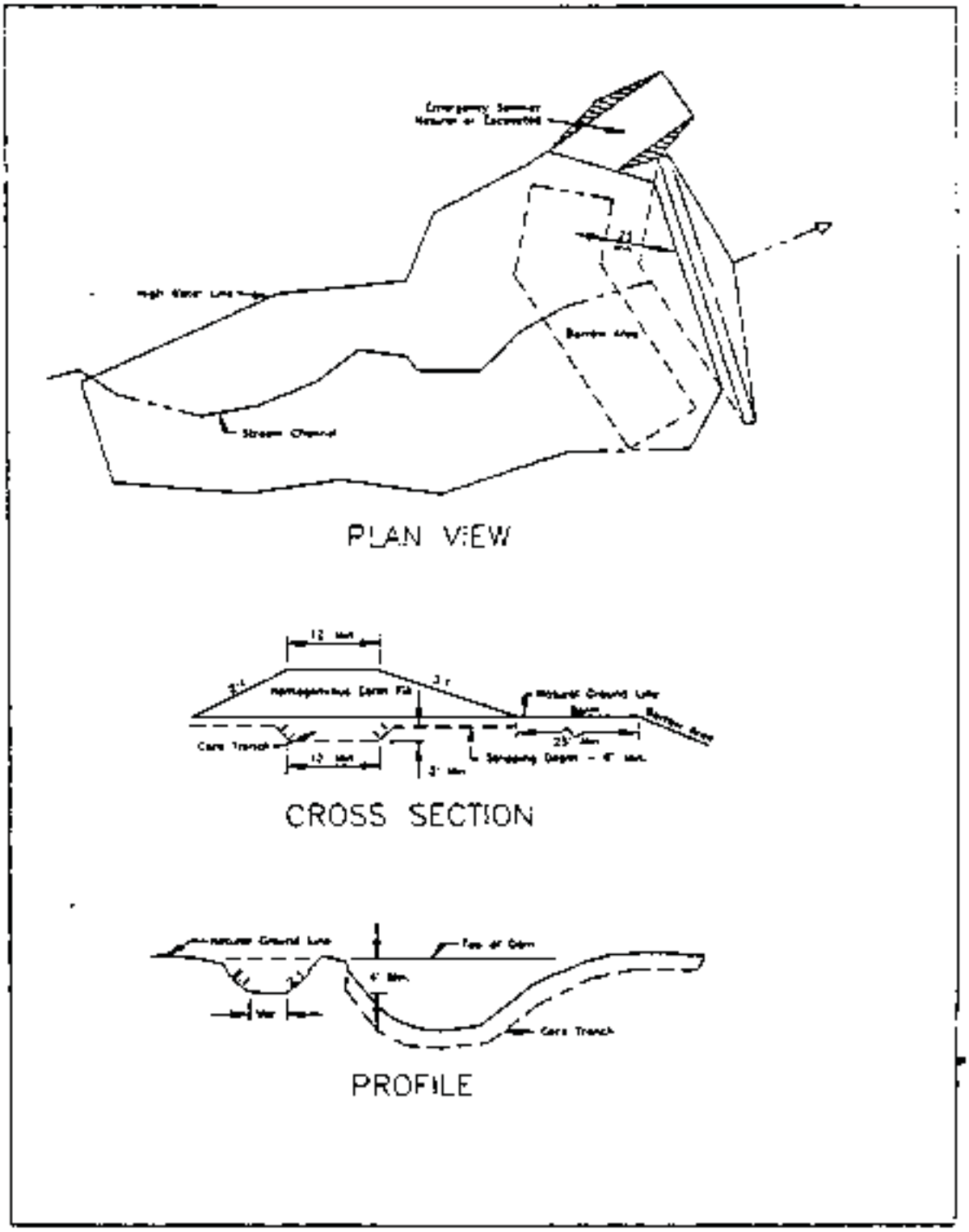
- Inventories and surveys for cultural resources, threatened and endangered species, and special status species would be conducted prior to authorization of any project construction, and appropriate mitigation implemented to reduce or eliminate potential effects.
- Surface disturbance at all project sites would be held to a minimum. Disturbed soil would be rehabilitated to blend into surrounding soil surface and reseeded as needed with a mixture of native grasses, forbs, and shrubs as applicable to replace ground cover, reduce soil loss from wind and water erosion, and discourage the potential establishment of any invasive, non-native plant species.
- Where possible, existing roads and trails would provide access for range improvement construction. If needed, unimproved trails and tracks would be created to reach construction sites and provide access for future maintenance of the improvements.

Additional design features specific to the individual types of improvements are described below.

Reservoirs

- Development of reservoirs would involve the construction of pits and dams to impound water for livestock and wildlife use as shown in Illustration 1.
- Pits would be in dry lake beds or other natural depressions. Dams would be constructed in drainages.
- Water rights applications would be coordinated with applicable agencies, irrigation districts, and other interested parties.
- Water rights would be obtained from the Oregon Water Resources Department prior to construction.
- Water storage capacity would range from 1.0 to 3.0 acre-feet.
- Dams would be located, if possible, to take advantage of natural spillway sites; otherwise a spillway would be constructed for the reservoir. The slopes of the dam must be a minimum 3 to 1 on the upstream face and minimum of 2 to 1 on the downstream face. Minimum width of the top of all dams would be 12 feet.
- The spillway would be designed to minimize the risk of the dam being overtopped during the design life of the structure.
- Fill material, if needed, would come from the impoundment area and/or a borrow area for dams.
- Excavated material from pits would be piled adjacent to the pit. Topsoil would be stockpiled and used to rehabilitate the borrow areas.

Figure 313. Reservoir Standards



Fencing

- Fences would be designed to prevent the passage of livestock without stopping the movement of wildlife as shown in Illustration 2.
- Wire spacing would follow the specifications found in Illustrations 3. The majority of fences would be constructed as follows: 4 wire with the bottom wire 16-18” off the ground with the sequence of the remaining three wires above this being 6”, 6”, and 12”; the maximum height of the fence (ground to top wire) would be 42”.
- The bottom wire on all fencing would be two-strand smooth wire, not barbed, to facilitate antelope crossings.
- Steel “t-post” spacing would be between 16’ and 24’ depending on local conditions.
- Brace posts, tree scabs, and/or rock jacks (rock cribs) would be constructed to enhance fence integrity with one at least every ¼ mile.
- No woven wire “sheep” fences would be constructed on public lands.
- Brushing and tree limb removal will be limited to only that necessary for surveying, placement, and construction of a fence.
- Where fences cross existing roads, either gates or cattleguards would be installed.

Figure 314. Fence Standards

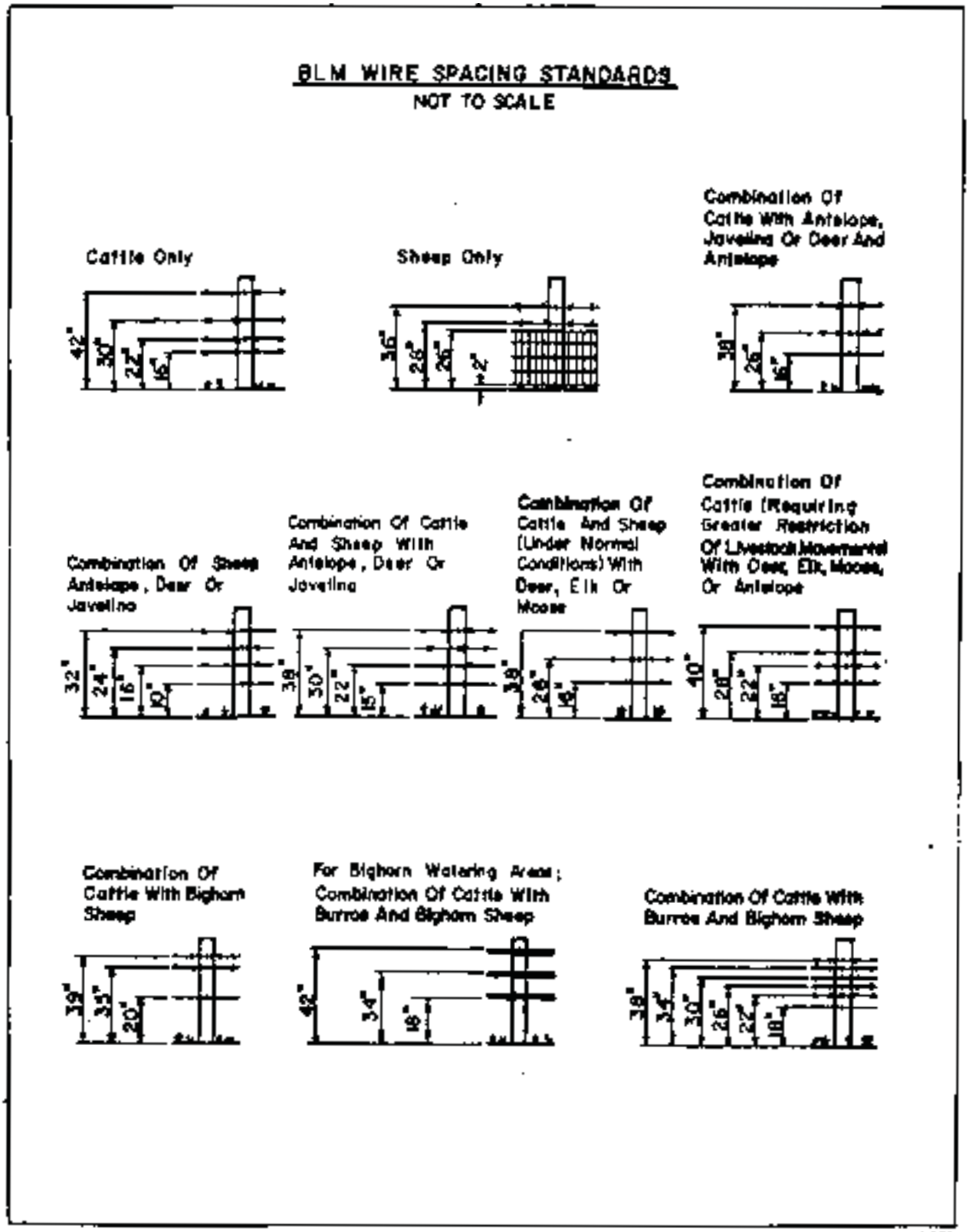
BLM Fence Standards for Livestock and Wildlife

Kinds of Use Combinations

Kinds of Livestock and Wild Burros	Predominant Big Game Wildlife Species	Number Wires	Max. Fence Height in Inches	Wire Spacing (From Ground Up, in Inches)	Wire Type	No. Stays Between Line Posts w/Spacing of 16.5' - 30'
STANDARD BULLEAD FENCES:						
Cattle	None	4	42	16, 4, 8, 12	Barbed.	1 to 4
Sheep	None	–	36	2, 24 (Woven) 2, 8	Woven, barbed.	
STANDARD BULLEAD MODIFICATIONS TO MEET MULTIPLE-USE NEEDS:						
Cattle (only)	Antelope, Javelina, or Deer and Antelope.	3	38	16, 10, 12	Bottom strand smooth, others barbed.	One w/post spacing of 16.5' — 1 or 2 w/post spacing of 30'.
Sheep (only)	Antelope, Javelina or Deer	4	32	12, 6, 8, 8 16.5' — 1 or 2	Bottom strand smooth, others barbed.	One w/post spacing of 16.5' — 1 to 3 w/post spacing of 30'.
Cattle and Sheep (Use only where sheep control is necessary.)	Antelope Javelina or Deer	4	38	13, 7, 8, 8	Bottom strand smooth, others barbed.	One w/post spacing of 16.5' — 1 to 3 w/post spacing of 30'.
Cattle and Sheep (normal conditions)	Deer, Elk Moose, or Antelope.	3	38	16, 10, 12	Bottom strand smooth, others barbed.	1 to 4
Cattle and sheep (requires greater restriction of livestock movements.)	Deer, Elk, Moose, or Antelope.	4	40	16, 6, 6, 12	Barbed.	1 to 4
Cattle	Bighorn Sheep*	3	36	20, 13, 4	Barbed.	1 to 4
Cattle, Wild Burros	Bighorn Sheep* (Use around watering area)	–	42	18 to bottom rail; 36 and 42 to top of middle and top rails.	Rails 1"-3" diameter.	Line Post spacing 30 feet
Cattle, Wild Burros	Bighorn Sheep*	6	38	18, 4, 4, 4 6, 6	Bottom strand smooth, others barbed.	1 to 2

*These fences also meet antelope, and deer standards.

Figure 315. Wire Spacings



If future rangeland improvement projects are proposed beyond those listed above, additional site-specific analysis of the environmental consequences would be necessary. Such changes could result from new initiatives or funding sources, changes in management priorities, new laws/regulations, litigation, site specific activity planning, or future Rangeland Health Assessments.

Grazing Allotments in the Klamath Falls Resource Area and Medford District

The Draft EIS provides a summary of the number and acres of grazing allotments for the Klamath Falls Resource Area and the Medford District. The following tables contain detailed information about these grazing allotments including proposed improvements.

Table 283. Klamath Falls Resource Area Grazing Allotments.

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[3]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding	Grazing System	Other Information
Chase Mountain	00101	8,823	195	0	5/15-8/13	C	2001	Not Meeting Standards, Grazing is not a factor	Yearly	None
Edge Creek	00102	8,860	207	0	5/1-9/1	I	2000	Not Meeting Standards, Grazing is not a factor	Deferred-Rotation	Proposed Range Improvement, Common Allotment, Exclosures or Other Areas Closed to Grazing, Portion Proposed for Closure
Buck Mountain[1]	00103	7,022	204	0	5/15-9/1	I	2000	Not Meeting Standards, Grazing is not a factor	Yearly	Proposed Range Improvement
Buck Lake	00104	11,971	280	0	6/15-10/15	C	2000	Not Meeting Standards, Grazing is not a factor	Yearly	Proposed Range Improvement, Common Allotment, Exclosures or Other Areas Closed to Grazing
Johnson Prairie	00105	120	12	0	5/1-10/1	C	2000	Not Meeting Standards, Grazing is not a factor	Yearly	None
Dixie[1]	00107	2,287	320	100	5/1-8/15	I	2002	Not Meeting Standards, Grazing is a factor	Yearly	Proposed Range Improvement Exclosures or Other Areas Closed to Grazing
Dry Lake	00140	145	10	0	5/1-6/30	C	2001	Not Meeting Standards, Grazing is not a factor	Yearly	None

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[3]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding	Grazing System	Other Information
Chicken Hills	00141	3,422	80	0	5/15-9/15	C	2001	Not Meeting Standards, Grazing is not a factor	Yearly	None
Long Lake	00142	363	18	0	6/16-9/30	C	2000	Meeting All Standards	Yearly	None
Grubb Springs	00147	3,524	130	0	5/1-9/30	C	2000	Not Meeting Standards, Grazing is not a factor	Yearly	Proposed Range Improvement
Adams	00800	40	6	0	4/15-7/15	C	2005	Not Meeting Standards, Grazing is a factor	Yearly	None
Haught	00801	400	27	0	5/1-7/31	C	Not Completed	Not Completed	Yearly	None
Stock Drive	00802	40	2	0	5/1-6/30	C	Not Completed	Not Completed	Yearly	Proposed Range Improvement
J Spring	00803	320	7	0	5/1-6/30	C	2003	Meeting All Standards	Yearly	Proposed Range Improvement
Bar CL	00804	480	20	22	5/1-5/31	C	Not Completed	Not Completed	Yearly	None
SE 80	00805	80	8	0	5/1-10/31	C	2006	Meeting All Standards	Yearly	None
Two Mile	00806	577	56	0	5/1-9/30	C	2006	Not Meeting Standards, Grazing is not a factor	Yearly	None
Barnwell	00807	1,708	100	0	5/1-6/15	C	Not Completed	Not Completed	Yearly	Proposed Range Improvement
Lee	00808	40	10	0	6/1-8/15	C	Not Completed	Not Completed	Yearly	None
Brown	00809	80	30	0	6/1-8/30	C	Not Completed	Not Completed	Yearly	None

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[3]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding	Grazing System	Other Information
Brenda	00810	185	18	0	5/16-6/30	C	2006	Meeting All Standards	Yearly	None
Cheyne	00811	875	51	0	5/1-6/15	C	2004	Meeting All Standards	Yearly	None
Stukel-Coffin	00812	760	55	0	5/1-7/1	C	2002	Meeting All Standards	Yearly	None
Cunningham	00814	840	108	0	5/1-6/15	C	Not Completed	Not Completed	Yearly	None
Stukel-Dehlinger C.	00815	1,680	240	0	4/15-8/8	I	2002	Meeting All Standards	Yearly	None
Stukel-Dehlinger H.	00816	440	30	0	5/10-8/10	C	2002	Meeting All Standards	Yearly	None
Drew	00817	720	72	0	5/1-6/30	C	2005	Meeting All Standards	Yearly	Proposed Range Improvement
Dupont	00819	79	7	0	4/15-6/1	C	Not Completed	Not Completed	Yearly	None
North Horsefly	00821	988	68	0	5/1-6/15	C	Not Completed	Not Completed	Yearly	Proposed Range Improvement
Stukel-O'Neill	00822	3,122	210	0	5/1-7/15	I	2002	Meeting All Standards	Yearly	Proposed Range Improvement Exclosures or Other Areas Closed to Grazing
North Horsefly	00823	920	60	0	6/16-8/1	C	Not Completed	Not Completed	Yearly	Proposed Range Improvement
Jeld-Wen	00824	240	24	0	6/1-7/15	C	2006	Meeting All Standards	Yearly	None
Naylox	00825	760	76	0	5/1-6/30	C	2005	Meeting All Standards	Yearly	None
Haskins	00826	560	80	0	5/1-7/15	C	2004	Meeting All Standards	Yearly	Proposed Range Improvement
Stukel-High	00827	239	17	0	5/1-6/15	C	2003	Meeting All Standards	Yearly	Proposed Range Improvement

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[3]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding	Grazing System	Other Information
Stukel-Hill	00828	960	60	0	5/1-6/15	C	2002	Meeting All Standards	Yearly	None
Horton	00829	760	26	0	4/21-6/30	C	Not Completed	Not Completed	Yearly	Proposed Range Improvement
Hungry Hollow	00830	280	40/H	0	6/1-8/30	C	2005	Meeting All Standards	Yearly	Proposed for Conversion from Horse to Cattle
Warlow	00831	460	50	0	5/1-9/30	C	Not Completed	Not Completed	Yearly	None
Jesperson	00832	1578	158	0	5/1-7/1	C	Not Completed	Not Completed	Yearly	None
Kellison	00834	335	19	0	5/1-6/13	C	2004	Not Meeting Standards, Grazing is a factor	Yearly	None
Ketcham	00835	320	20	0	5/1-6/15	C	Not Completed	Not Completed	Yearly	Proposed Range Improvement
Harpold Chaining	00836	900	96	0	5/1-5/30	C	Not Completed	Not Completed	Yearly	Proposed Range Improvement
Bryant-Horton	00837	1,249	130	0	6/1-7/9	C	2006	Meeting All Standards	Yearly	None
Windy Ridge	00838	600	52	0	5/1-5/31	C	Not Completed	Not Completed	Yearly	Proposed Range Improvement
Bryant-Loveness	00839	3,440	490	0	5/1-6/30	C	Not Completed	Not Completed	Yearly	Proposed Range Improvement
Bryant-Lyon	00840	565	38	0	5/1-9/30	C	Not Completed	Not Completed	Yearly	None
Marshall	00841	348	14	0	4/21-5/30	C	Not Completed	Not Completed	Yearly	None
Short Lake	00842	440	40	0	5/1-6/30	C	2005	Not Meeting Standards, Grazing is a factor	Yearly	Proposed Range Improvement

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[3]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding	Grazing System	Other Information
McAuliffe	00843	80	10	0	4/16-6/15	C	Not Completed	Not Completed	Yearly	None
Paddock	00844	440	31	0	5/1-6/30	M	2003	Meeting All Standards	Deferred-Rotation	None
Klamath Hills	00845	500	55	0	4/1-5/31	C	Not Completed	Not Completed	Yearly	None
OK	00846	1,260	105	35	5/1-6/15	C	Not Completed	Not Completed	Yearly	Proposed Range Improvement
Swede Cabin	00847	1,921	108	0	5/1-6/15	I	Not Completed	Not Completed	Yearly	Proposed Range Improvement
Pope	00848	724	57	0	5/1-7/31	C	Not Completed	Not Completed	Yearly	None
Rajnus Bros.	00849	240	16	0	5/1-6/17	C	Not Completed	Not Completed	Yearly	None
Wilkinson	00850	400	18	0	5/1-6/5	C	Not Completed	Not Completed	Yearly	None
Harpold Ridge	00851	1,043	108	0	4/21-6/30	M	2006	Meeting All Standards	Yearly	Proposed Range Improvement
Rodgers	00852	2,355	235	0	5/1-7/1	I	2003	Meeting All Standards	Yearly	Proposed Range Improvement Exclosures or Other Areas Closed to Grazing
7C	00853	688	104	0	5/1-6/30	C	Not Completed	Not Completed	Yearly	None
Jump	00854	200	20	0	5/1-5/30	C	Not Completed	Not Completed	Yearly	None
Bryant-Smith	00855	1,140	109	0	5/15-8/31	C	Not Completed	Not Completed	Yearly	None
Bryant-Stastny	00856	440	70	0	5/10-9/30	C	Not Completed	Not Completed	Yearly	None
Bryant-Taylor	00857	1,080	74	0	4/15-9/30	C	Not Completed	Not Completed	Yearly	None

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[3]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding	Grazing System	Other Information
Swan Lake Rim	00858	6,448	300	0	5/1-6/30	M	2006	Meeting All Standards	Rest-Rotation	Common Allotment
Cunard	00859	370	60/H	0	5/1-7/31	C	2002	Meeting All Standards	Rest-Rotation	Proposed for Conversion from Horse to Cattle
McCartie	00860	545	83	0	5/1-5/30	C	2004	Meeting All Standards	Rest-Rotation	Proposed Range Improvement
Yainax Butte	00861	2,520	120	0	7/1-9/30	M	2005	Meeting All Standards	Deferred-Rotation	Proposed Range Improvement Exclosures or Other Areas Closed to Grazing
Klamath Forest Estates	00862	2,520	47	0	5/1-5/31	M	2005	Meeting All Standards	Yearly	None
Wirth	00863	1,200	100	0	4/15-10/15	C	Not Completed	Not Completed	Yearly	None
Rajnus & Son	00864	1,440	110	0	5/1-6/30	C	Not Completed	Not Completed	Yearly	None
Mills Creek	00865	280	40	0	5/1-6/14	C	Not Completed	Not Completed	Yearly	Proposed Range Improvement
Bear Valley	00876	5,018	432	0	7/1-8/9	I	2000/2003	Meeting All Standards	Deferred-Rotation	Proposed Range Improvement, Common Allotment, Exclosures or Other Areas Closed to Grazing
Bumpheads	00877	9,220	420	265	4/21-6/30	I	2003	Not Meeting Standards, Grazing is a factor	Deferred-Rotation	Exclosures or Other Areas Closed to Grazing
Campbell	00878	1,465	47/H	13	5/1-10/26	C	2002	Meeting All Standards	Yearly	Proposed for Conversion from Horse to Cattle

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[3]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding	Grazing System	Other Information
DeVaul	00879	240	12	15	5/1-8/30	C	2003	Meeting All Standards	Yearly	Proposed Range Improvement
Goodlow	00881	285	32	52	5/1-8/31	C	2003	Meeting All Standards	Yearly	Proposed Range Improvement
Horsefly	00882	26,356	2656	2075	4/15-6/30, 10/1-11/15	I	1999/2003	Meeting All Standards	Rest-Rotation/ High Intensity-Short Duration	Exclosures or Other Areas Closed to Grazing, Common Allotment
Horton	00883	800	58	211	4/21-5/20	C	2002	Meeting All Standards	Yearly	Proposed Range Improvement
Pankey Basin	00884	282	43	38	5/15-8/31	C	2003	Not Meeting Standards, Grazing is a factor	Yearly	Proposed Range Improvement Exclosures or Other Areas Closed to Grazing
Dry Prairie	00885	7,231	642	358	5/1-9/30	I	1999/2003	Meeting All Standards	Rest-Rotation	Exclosures or Other Areas Closed to Grazing, Common Allotment, Proposed Range Improvement
Horse Camp Rim	00886	9,180	445	281	5/1-7/31	I	2003	Meeting All Standards	Rest-Rotation	Exclosures or Other Areas Closed to Grazing
Pitchlog	00887	9,280	434	796	5/10-6/30	I	1999/2003	Meeting All Standards	Rest-Rotation/ High Intensity-Short Duration	Exclosures or Other Areas Closed to Grazing
Rock Creek	00888	2,750	216	639	5/1-5/31	I	2003	Meeting All Standards	Rest-Rotation	Proposed Range Improvement
Timber Hill	00889	2,937	270	134	6/21-7/31	I	1999/2003	Meeting All Standards	Yearly	Proposed Range Improvement

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[3]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding	Grazing System	Other Information
Willow Valley	00890	20,460	1258	506	4/15-6/30	I	2000/2003	Not Meeting Standards, Grazing is a factor	Rest-Rotation	Exclosures or Other Areas Closed to Grazing, Common Allotment
Williams	00892	1,790	75	0	5/1-5/31	M	2004	Meeting All Standards	Yearly	Proposed Range Improvement
Fields	00893	180	6	0	4/21-5/20	C	2005	Meeting All Standards	Yearly	None
Voight	00894	112	8	0	5/1-6/15	C	2003	Meeting All Standards	Yearly	None
Harpold Canyon	00895	760	76	0	5/1-9/30	C	2006	Meeting All Standards	Yearly	None
McFall	00896	600	60	0	5/1-6/30	C	2006	Meeting All Standards	Yearly	Common Allotment
Bly Mountain	01800	120	9	0	6/1-8/31	C	Not Completed	Not Completed	Yearly	None
Wood River	30855	2,970	0	0	N/A	N/A	2000	Not Meeting Standards, Grazing is not a factor	N/A	Exclosures or Other Areas Closed to Grazing
		204,815	13,103	5,540						

[1]All or a portion of the allotment is located within the Cascade-Siskiyou National Monument

[2]Active Preference is cattle AUMs unless specified as H for domestic horse use

[3]Selective Management Categories: Improve (I)-managed to resolve a high level of resource conflicts and concerns and receive the highest priority for funding and management actions; Maintain (M)-managed to maintain satisfactory resource conditions and will be actively managed to ensure that resource values do not decline; Custodial (C)-managed custodially to protect resource conditions and values.

Table 284. Medford Grazing Allotments.

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[3]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding	Grazing System	Other Information
Lost Creek	10001	11,518	382	0	04/16-10/31	I	2001	Not Meeting Standards, Grazing is not a factor	Yearly	Common Allotment
Flat Creek	10002	12,421	328	0	05/01-10/15	C	2000	Not Meeting Standards, Grazing is not a factor	Yearly	None
Longbranch	10004	320	22	0	04/16-05/15	C	2002	Meeting All Standards	Yearly	Portion Proposed for Closure
Meadows	10007	1,564	92	0	04/16-06/30	I	2003	Meeting All Standards	Yearly	None
Neil-Tarbell	10008	552	56	0	04/16-05/31	C	2003	Meeting All Standards	Yearly	None
North Sams Valley	10009	120	8	0	06/16-07/31	C	2002	Not Meeting Standards, Grazing is not a factor	Yearly	None
Upper Table Rock	10012	1,240	66	0	05/01-05/30	I	2003	Not Meeting Standards, Grazing is not a factor	Yearly	None
Clear Creek	10013	3,790	45	0	05/16-10/31	C	2002	Meeting All Standards	Yearly	None
Lick Creek	10015	202	15	0	04/16-05/15	C	2003	Meeting All Standards	Yearly	None
Brownsboro Park	10016	381	68	0	04/16-05/31	I	2002	Not Meeting Standards, Grazing is not a factor	Yearly	None

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[3]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding	Grazing System	Other Information
Kanutchan Fields	10017	2,419	177	0	04/16-05/31	I	2002	Not Meeting Standards, Grazing is not a factor	Yearly	None
Sugarloaf	10019	1,566	15	0	04/16-06/30	C	2002	Meeting All Standards	Yearly	None
Section 9	10021	404	25	0	04/16-06/30	C	2003	Meeting All Standards	Yearly	None
Section 7	10022	371	11	0	04/16-05/31	C	2003	Not Meeting Standards, Grazing is not a factor	Yearly	None
Bull Run	10023	40	5	0	06/01-06/30	C	2003	Meeting All Standards	Yearly	None
Big Butte	10024	22,118	1,663	0	04/16-06/30	I	2000	Not Meeting Standards, Grazing is not a factor	Deferred-Rotation	Common Allotment
Reese Creek	10027	40	7	0	05/01-06/30	C	1999	Meeting All Standards	Yearly	Common Allotment
Derby Road Sawmill	10029	521	45	0	04/16-07/15	C	2003	Meeting All Standards	Yearly	None
Summit Prairie	10031	30,743	1,165	0	04/16-09/30	I	1999	Not Meeting Standards, Grazing is not a factor	Deferred-Rotation	Common Allotment
Vestal Butte	10035	2,240	120	0	04/16-06/15	I	2003	Not Meeting Standards, Grazing is not a factor	Yearly	None
Bear Mountain	10037	1,008	81	0	04/16-05/31	I	2002	Meeting All Standards	Yearly	None

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[3]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding	Grazing System	Other Information
Crowfoot	10038	7,393	365	0	04/15-16/30	I	2003	Meeting All Standards	Yearly	None
Crowfoot Creek	10039	521	70	0	04/16-06/30	C	1999	Meeting All Standards	Yearly	None
Cobleigh Road	10040	80	7	0	06/01-07/15	C	2003	Meeting All Standards	Yearly	None
Moser Mountain	10041	40	3	0	04/16-04/30	C	2003	Meeting All Standards	Yearly	None
Devon South	10043	402	33	0	04/16-06/30	C	1999	Meeting All Standards	Yearly	None
Salt Creek	10044	462	85	0	04/16-06/30	I	2002	Meeting All Standards	Yearly	None
Jenny Creek[1]	10108	1,417	115	0	05/16-09/10	I	Not Completed	Not Completed	Deferred-Rotation	
Agate[1]	10109	82	9	0	05/01-09/15	C	Not Completed	Not Completed	Yearly	
Soda Mountain[1]	10110	35,619	1,794	0	05/01-10/15	I	Not Completed	Not Completed	Deferred-Rotation	Common Allotment
Cove Creek	10112	1,207	75	0	05/01-06/15	I	Not Completed	Not Completed	Yearly	None
Buckpoint	10114	3,835	150	0	05/01-06/15	C	Not Completed	Not Completed	Yearly	None
Keene Creek[1]	10115	23,643	1,612	0	05/01-10/15	I	Not Completed	Not Completed	Yearly	Common Allotment
Howard Prairie	10116	320	60	0	10/16-11/15	M	Not Completed	Not Completed	Yearly	None
Siskiyou[1]	10118	2,163	200	0	05/01-09/15	I	Not Completed	Not Completed	Yearly	

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[3]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding	Grazing System	Other Information
Grizzly	10119	5,167	378	0	06/01-10/15	I	1999	Not Meeting Standards, Grazing is not a factor	Yearly	Common Allotment
Lake Creek Spring	10121	4,679	447	0	05/16-07/15	I	Not Completed	Not Completed	Yearly	None
Lake Creek Summer	10122	5,561	550	0	07/16-10/15	I	Not Completed	Not Completed	Yearly	None
Deer Creek-Reno Lease	10124	4,025	314	0	05/01-09/30	C	Not Completed	Not Completed	Yearly	None
Heppsie Mountain	10126	4,076	294	0	05/01-10/15	I	Not Completed	Not Completed	Yearly	None
Antelope Road	10132	200	19	0	04/16-05/30	C	2003	Not Meeting Standards, Grazing is not a factor	Yearly	None
Brownsboro	10133	80	7	0	04/01-06/15	C	2003	Meeting All Standards	Yearly	None
Yankee Reservoir	10134	120	15	0	05/01-06-15	I	2003	Meeting All Standards	Yearly	None
Canal	10136	440	58	0	05/01-06/15	C	2003	Meeting All Standards	Yearly	None
Box R Ranch[1]	10137	88	5	0	10/01-02/28	C	Not Completed	Not Completed	Yearly	None
Cove Ranch	10143	80	20	0	07/01-11/30	C	Not Completed	Not Completed	Yearly	None
North Cove Creek	10148	281	20	0	07/16-09/15	C	Not Completed	Not Completed	Yearly	None
Deadwood[1]	20106	8,004	788	0	06/16-08/15	I	Not Completed	Not Completed	Yearly	Common Allotment

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[3]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding	Grazing System	Other Information
Poole Hill	20113	1,760	25	0	10/01-10/15	C	2003	Not Meeting Standards, Grazing is not a factor	Yearly	None
Conde Creek	20117	5,346	591	0	06/16-09/30	I	Not Completed	Not Completed	Yearly	Common Allotment
Billy Mountain	20203	4,758	175	0	04/16-06/30	I	1999	Not Meeting Standards, Grazing is not a factor	Yearly	None
Lower Big Applegate	20206	11,712	258	0	04/16-06/15	I	Not Completed	Not Completed	Yearly	None
Foots Creek	20219	115	12	0	05/01-06/30	C	1999	Meeting All Standards	Yearly	None
Ferns Lease	20224	246	28	0	05/01-06/15	C	Not Completed	Not Completed	Yearly	None
Deer Creek	20308	887	77	0	04/01-12/15	C	2003	Not Meeting Standards, Grazing is not a factor	Yearly	Portion Proposed for Closure
		228,387	13,055	0						

[1]All or a portion of the allotment is located within the Cascade-Siskiyou National Monument

[2]Active Preference is cattle AUMs

[3]Selective Management Categories: Improve (I)-managed to resolve a high level of resource conflicts and concerns and receive the highest priority for funding and management actions; Maintain (M)-managed to maintain satisfactory resource conditions and will be actively managed to ensure that resource values do not decline; Custodial (C)-managed custodially to protect resource conditions and values.

Standards for Rangeland Health

The following section contains the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington. These standards and guidelines are referenced in Chapters 2, 3, and 4 of this Draft EIS. Livestock grazing would be managed in accordance with these standards and guidelines.

Figure 316. Standards for Rangeland Health.

STANDARDS FOR RANGELAND HEALTH

AND

GUIDELINES FOR LIVESTOCK GRAZING MANAGEMENT

FOR

PUBLIC LANDS ADMINISTERED BY THE BUREAU OF LAND MANAGEMENT IN THE STATES OF OREGON AND

WASHINGTON

AUGUST 12, 1997

Table of Contents

Introduction	1
Fundamentals of Rangeland Health	1
Standards for Rangeland Health	2
Standards and Guidelines in Relation to the Planning Process	3
Indicators of Rangeland Health	4
Assessments and Monitoring	5
Measurability	5
Implementation	6
Standards for Rangeland Health	7

Standard 1 Watershed Function – Uplands 7
Standard 2 Watershed Function - Riparian/Wetland Areas 9
Standard 3 Ecological Processes 11
Standard 4 Water Quality 13
Standard 5 Native, T&E, and Locally Important Species 14

Guidelines for Livestock Grazing Management 15
General Guidelines 15
Livestock Grazing Management 15
Facilitating the Management of Livestock Grazing 17
Accelerating Rangeland Recovery 17

Glossary 19

Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands in Oregon and Washington

Introduction

These Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands in Oregon and Washington were developed in consultation with Resource Advisory Councils and Provincial Advisory Committees, tribes and others. These standards and guidelines meet the requirements and intent of 43 Code of Federal Regulations, Subpart 4180 (Rangeland Health) and are to be used as presented, in their entirety. These standards and guidelines are intended to provide a clear statement of agency policy and direction for those who use public lands for livestock grazing, and for those who are responsible for their management and accountable for their condition. Nothing in this document should be interpreted as an abrogation of Federal trust responsibilities in protection of treaty rights of Indian tribes or any other statutory responsibilities including, but not limited to, the Taylor Grazing Act, the Clean Water Act, and the Endangered Species Act.

Fundamentals of Rangeland Health

The objectives of the rangeland health regulations referred to above are: "to promote healthy sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangelands to properly functioning conditions; . . . and to provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands."

and soil stability. The biological components addressed in the standards focus on the roles and interactions of plants, animals and microbes (producers, consumers and decomposers), and their habitats in the ecosystem. The biological component of rangeland ecosystems is supported by physical function of the system, and it is recognized that biological activity also influences and supports many of the ecosystem's physical functions.

Guidance contained in 43 CFR 4180 of the regulations directs management toward the maintenance or restoration of the physical function and biological health of rangeland ecosystems. Focusing on the basic ecological health and function of rangelands is expected to provide for the maintenance, enhancement, or creation of future social and economic options.

The standards are based upon the ecological potential and capability of each site. In assessing a site's condition or degree of function, it must be understood that the evaluation compares each site to its own potential or capability. Potential and capability are defined as follows:

Potential-The highest level of condition or degree of function a site can attain given no political, social or economic constraints.

Capability-The highest level of condition or degree of function a site can attain given certain political, social or economic constraints. For example, these constraints might include riparian areas permanently occupied by a highway or railroad bed that prevent the stream's full access to its original flood plain. If such constraints are removed, the site may be able to move toward its potential.

In designing and implementing management strategies to meet the standards of rangeland health, the potential of the site must be identified, and any constraints recognized, in order that plan goals and objectives are realistic and physically and economically achievable.

Standards and Guidelines in Relation to the Planning Process

The standards apply to the goals of land use plans, activity plans, and project plans (Allotment Management Plans, Annual Operating Plans, Habitat Management Plans, etc.). They establish the physical and biological conditions or degree of function toward which management of publicly-owned rangeland is to be directed. In the development of a plan, direction provided by the standards and the social and economic needs expressed by local communities and individuals are brought together in formulating the goal(s) of that plan.

When the standards and the social and economic goals of the planning participants are woven together in the plan goal(s), the quantifiable, time specific objective(s) of the plan are then developed. Objectives describe and quantify the desired future conditions to be achieved within a specified timeframe. Each plan objective should address the physical, biological, social and economic elements identified in the plan goal.

To help meet these objectives, the regulations on rangeland health identify fundamental principles providing direction to the States, districts, and on-the-ground public land managers and users in the management and use of rangeland ecosystems.

A hierarchy, or order, of ecological function and process exists within each ecosystem. The rangeland ecosystem consists of four primary, interactive components: a physical component, a biological component, a social component, and an economic component. This perspective implies that the physical function of an ecosystem supports the biological health, diversity and productivity of that system. In turn, the interaction of the physical and biological components of the ecosystem provides the basic needs of society and supports economic use and potential.

The Fundamentals of Rangeland Health stated in 43 CFR 4180 are:

1.Watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian-wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity and the timing and duration of flow.

2.Ecological processes, including the hydrologic cycle, nutrient cycle and energy flow, are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities.

3.Water quality complies with State water quality standards and achieves, or is making significant progress toward achieving, established Bureau of Land Management objectives such as meeting wildlife needs.

4.Habitats are, or are making significant progress toward being, restored or maintained for Federal threatened and endangered species, Federal Proposed, Category 1 and 2 Federal candidate and other special status species.

The fundamentals of rangeland health combine the basic precepts of physical function and biological health with elements of law relating to water quality, and plant and animal populations and communities. They provide direction in the development and implementation of the standards for rangeland health.

Standards for Rangeland Health

The standards for rangeland health (standards), based on the above fundamentals, are expressions of the physical and biological condition or degree of function necessary to sustain healthy rangeland ecosystems. Although the focus of these standards is on domestic livestock grazing on Bureau of Land Management lands, on-the-ground decisions must consider the effects and impacts of all uses.

Standards that address the physical components of rangeland ecosystems focus on the roles and interactions of geology and landform, soil, climate and water as they govern watershed function

Standards apply to all ecological sites and land forms on public rangelands throughout Oregon and Washington. The standards require site-specific information for full on-ground usability. For each standard, a set of indicators is identified for use in tailoring the standards to site-specific situations. These indicators are used for rangeland ecosystem assessments and monitoring and for developing terms and conditions for permits and leases that achieve the plan goal.

Guidelines for livestock grazing management offer guidance in achieving the plan goal and objectives. The guidelines outline practices, methods, techniques and considerations used to ensure that progress is achieved in a way, and at a rate, that meets the plan goal and objectives.

Indicators of Rangeland Health

The condition or degree of function of a site in relation to the standards and its trend toward or away from any standard is determined through the use of reliable and scientifically sound indicators. The consistent application of such indicators can provide an objective view of the condition and trend of a site when used by trained observers.

For example, the amount and distribution of ground cover can be used to indicate that infiltration at the soil surface can take place as described in the standard relating to upland watershed function. In applying this indicator, the specific levels of plant cover necessary to support infiltration in a particular soil should be identified using currently available information from reference areas, if they exist; from technical sources like soil survey reports, Ecological Site Inventories, and Ecological Site Descriptions, or from other existing reference materials. Reference areas are lands that best represent the potential of a specific ecological site in both physical function and biological health. In many instances potential reference areas are identified in Ecological Site Descriptions and are referred to as "type locations." In the absence of suitable reference areas, the selection of indicators to be used in measuring or judging condition or function should be made by an interdisciplinary team of experienced professionals and other trained individuals.

Not all indicators identified for each standard are expected to be employed in every situation. Criteria for selecting appropriate indicators and methods of measurement and observation include, but are not limited to: 1. the relationship between the attribute(s) being measured or observed and the desired outcome; 2. the relationship between the activity (e.g., livestock grazing) and the attribute(s) being measured or observed; and 3. funds and workforce available to conduct the measurements or observations.

Assessments and Monitoring

The standards are the basis for assessing and monitoring rangeland condition and trend. Carrying out well-designed assessment and monitoring is critical to restoring or maintaining healthy rangelands and determining trends and conditions.

Assessments are a cursory form of evaluation based on the standards that can be used at different landscape scales. Assessments, conducted by qualified interdisciplinary teams (which may

include but are not limited to physical, biological and social specialists, and interagency personnel) with participation from permittees and other interested parties, are appropriate at the watershed and sub-watershed levels, at the allotment and pasture levels and on individual ecological sites or groups of sites. Assessments identify the condition or degree of function within the rangeland ecosystem and indicate resource problems and issues that should be monitored or studied in more detail. The results of assessments are a valuable tool for managers in assigning priorities within an administrative area and the subsequent allocation of personnel, money and time in resource monitoring and treatment. The results of assessments may also be used in making management decisions where an obvious problem exists.

Monitoring, which is the well documented and orderly collection, analysis and interpretation of resource data, serves as the basis for determining trends in the condition or degree of function of rangeland resources and for making management decisions. Monitoring should be designed and carried out to identify trends in resource conditions, to point out resource problems, to help indicate the cause of such problems, to point out solutions, and/or to contribute to adaptive management decisions. In cases where monitoring data do not exist, professional judgment, supported by interdisciplinary team recommendation, may be relied upon by the authorized officer in order to take necessary action. Review and evaluation of new information must be an ongoing activity.

To be effective, monitoring must be consistent over time, throughout administrative areas, and in the methods of measurement and observation of selected indicators. Those doing the monitoring must have the knowledge and skill required by the level or intensity of the monitoring being done, as well as the experience to properly interpret the results. Technical support for training must be made available.

Measurability

It is recognized that not every area will immediately meet the standards and that it will sometimes be a long-term process to restore some rangelands to properly functioning condition. It is intended that in cases where standards are not being met, measurable progress should be made toward achieving those standards, and significant progress should be made toward fulfilling the fundamentals of rangeland health. Measurability is defined on a case-specific basis based upon the stated planning objectives (i.e., quantifiable, time specific), taking into account economic and social goals along with the biological and ecological capability of the area. To the extent that a rate of recovery conforms with the planning objectives, the area is allowed the time to meet the standard under the selected management regime.

Implementation

The material contained in this document will be incorporated into existing Land Use Plans and used in the development of new Land Use Plans. According to 43 CFR 4130.3-1, permits and leases shall incorporate terms and conditions that ensure conformance with 43 CFR 4180. Terms and conditions of existing permits and leases will be modified to reflect standards and guidelines at the earliest possible date with priority for modification being at the discretion of the authorized

officer. Terms and conditions of new permits and leases will reflect standards and guidelines in their development.

Indicators identified in this document will serve as a focus of interpretation of existing monitoring data and will provide the basis of design for monitoring and assessment techniques, and in the development of monitoring and assessment plans.

The authorized officer shall take appropriate action as soon as practicable but not later than the start of the next grazing year upon determining, through assessment or monitoring by experienced professionals and interdisciplinary teams, that a standard is not being achieved and that livestock are a significant contributing factor to the failure to achieve the standards and conform with the guidelines.

Standards for Rangeland Health

Standard 1 Watershed Function – Uplands

Upland soils exhibit infiltration and permeability rates, moisture storage and stability that are appropriate to soil, climate and landform.

Rationale and Intent

This standard focuses on the basic physical functions of upland soils that support plant growth, the maintenance or development of plant populations and communities, and promote dependable flows of quality water from the watershed.

To achieve and sustain rangeland health, watersheds must function properly. Watersheds consist of three principle components: the uplands, riparian/wetland areas and the aquatic zone. This standard addresses the upland component of the watershed. When functioning properly, within its potential, a watershed captures, stores and safely releases the moisture associated with normal precipitation events (equal to or less than the 25 year, 5 hour event) that falls within its boundaries. Uplands make up the largest part of the watershed and are where most of the moisture received during precipitation events is captured and stored.

While all watersheds consist of similar components and processes, each is unique in its individual makeup. Each watershed displays its own pattern of landform and soil, its unique climate and weather patterns, and its own history of use and current condition. In directing management toward achieving this standard, it is essential to treat each unit of the landscape (soil, ecological site, and watershed) according to its own capability and how it fits with both smaller and larger units of the landscape.

A set of potential indicators has been identified for which site-specific criteria will be used to determine if this standard is being met. The appropriate indicators to be used in determining attainment of the standard should be drawn from the following list.

Potential Indicators

Protection of the soil surface from raindrop impact; detention of overland flow; maintenance of infiltration and permeability, and protection of the soil surface from erosion, consistent with the potential/capability of the site, as evidenced by the:

° amount and distribution of plant cover (including forest canopy cover);
° amount and distribution of plant litter;
° accumulation/incorporation of organic matter;
° amount and distribution of bare ground;
° amount and distribution of rock, stone, and gravel;
° plant composition and community structure;
° thickness and continuity of A horizon;
° character of micro-relief;
° presence and integrity of biotic crusts;
° root occupancy of the soil profile;
° biological activity (plant, animal, and insect); and
° absence of accelerated erosion and overland flow.

Soil and plant conditions promote moisture storage as evidenced by:

° amount and distribution of plant cover (including forest canopy cover);
° amount and distribution of plant litter;
° plant composition and community structure; and
° accumulation/incorporation of organic matter.

Standard 2 Watershed Function - Riparian/Wetland Areas

Riparian-wetland areas are in properly functioning physical condition appropriate to soil, climate, and landform.

Rationale and Intent

Riparian-wetland areas are grouped into two major categories: 1. lentic, or standing water systems such as lakes, ponds, seeps, bogs, and meadows; and 2. lotic, or moving water systems such as rivers, streams, and springs. Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and which under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Riparian areas commonly occupy the transition zone between the uplands and surface water bodies (the aquatic zone) or permanently saturated wetlands.

Properly functioning condition of riparian and wetland areas describes the degree of physical function of these components of the watershed. Their functionality is important to water quality in the capture and retention of sediment and debris, the detention and detoxification of pollutants, and in moderating seasonal extremes of water temperature. Properly functioning riparian areas and wetlands enhance the timing and duration of streamflow through dissipation of flood energy, improved bank storage, and ground water recharge. Properly functioning condition should not be confused with the Desired Plant Community (DPC) or the Desired Future Condition (DFC) since, in most cases, it is the precursor to these levels of resource condition and is required for their attainment.

A set of indicators has been identified for which site-specific criteria will be used to determine if this standard is being met. The criteria are based upon the potential (or upon the capability where potential cannot be achieved) of individual sites or land forms.

Potential Indicators

Hydrologic, vegetative, and erosional/depositional processes interact in supporting physical function, consistent with the potential or capability of the site, as evidenced by:

° frequency of floodplain/wetland inundation;
° plant composition, age class distribution, and community structure;
° root mass;
° point bars revegetating;
° streambank/shoreline stability;
° riparian area width;
° sediment deposition;
° active/stable beaver dams;
° coarse/large woody debris;
° upland watershed conditions;
° frequency/duration of soil saturation; and
° water table fluctuation.

Stream channel characteristics are appropriate for landscape position as evidenced by:

° channel width/depth ratio;
° channel sinuosity;
° gradient;
° rocks and coarse and/or large woody debris;
° overhanging banks;
° pool/riffle ratio;
° pool size and frequency; and
° stream embeddedness.

Standard 3 Ecological Processes

Healthy, productive and diverse plant and animal populations and communities appropriate to soil, climate and landform are supported by ecological processes of nutrient cycling, energy flow and the hydrologic cycle.

Rationale and Intent

This standard addresses the ecological processes of energy flow and nutrient cycling as influenced by existing and desired plant and animal communities without establishing the kinds, amounts or proportions of plant and animal community compositions. While emphasis may be on native species, an ecological site may be capable of supporting a number of different native and introduced plant and animal populations and communities while meeting this standard. This standard also addresses the hydrologic cycle which is essential for plant growth and appropriate levels of energy flow and nutrient cycling. Standards 1 and 2 address the watershed aspects of the hydrologic cycle.

With few exceptions, all life on earth is supported by the energy supplied by the sun and captured by plants in the process of photosynthesis. This energy enters the food chain when plants are consumed by insects and herbivores and passes upward through the food chain to the carnivores. Eventually, the energy reaches the decomposers and is released as the thermal output of decomposition or through oxidation.

The ability of plants to capture sunlight energy, to grow and develop, to play a role in soil development and watershed function, to provide habitat for wildlife and to support economic uses depends on the availability of nutrients and moisture. Nutrients necessary for plant growth are made available to plants through the decomposition and metabolization of organic matter by insects, bacteria and fungi, the weathering of rocks and extraction from the atmosphere. Nutrients are transported through the soil by plant uptake, leaching and by rodent, insect and microbial activity. They follow cyclical patterns as they are used and reused by living organisms.

The ability of rangelands to supply resources and satisfy social and economic needs depends on the buildup and cycling of nutrients over time. Interrupting or slowing nutrient cycling can lead to site degradation, as these lands become increasingly deficient in the nutrients plants require.

Some plant communities, because of past use, frequent fire or other histories of extreme or continued disturbance, are incapable of meeting this standard. For example, shallow-rooted winter-annual grasses that completely dominate some sites do not fully occupy the potential rooting depth of some soils, thereby reducing nutrient cycling well below optimum levels. In addition, these plants have a relatively short growth period and thus capture less sunlight than more diverse plant communities. Plant communities like those cited in this example are considered to have crossed the threshold of recovery and often require great expense to be recovered. The cost of recovery must be weighed against the site's potential ecological/economic value in establishing treatment priorities.

The role of fire in natural ecosystems should be considered, whether it acts as a primary driver or only as one of many factors. It may play a significant role in both nutrient cycling and energy flows.

A set of indicators has been identified for which site-specific criteria will be used to determine if this standard is being met.

Potential Indicators

Photosynthesis is effectively occurring throughout the potential growing season, consistent with the potential/capability of the site, as evidenced by plant composition and community structure.

Nutrient cycling is occurring effectively, consistent with the potential/capability of the site, as evidenced by:

° plant composition and community structure;
° accumulation, distribution, incorporation of plant litter and organic matter into the soil;
° animal community structure and composition;
° root occupancy in the soil profile; and
° biological activity including plant growth, herbivory, and rodent, insect and microbial activity.

Standard 4 Water Quality

Surface water and groundwater quality, influenced by agency actions, complies with State water quality standards.

Rationale and Intent

The quality of the water yielded by a watershed is determined by the physical and chemical properties of the geology and soils unique to the watershed, the prevailing climate and weather patterns, current resource conditions, the uses to which the land is put and the quality of the management of those uses. Standards 1, 2 and 3 contribute to attaining this standard.

States are legally required to establish water quality standards and Federal land management agencies are to comply with those standards. In mixed ownership watersheds, agencies, like any other land owners, have limited influence on the quality of the water yielded by the watershed. The actions taken by the agency will contribute to meeting State water quality standards during the period that water crosses agency administered holdings.

Potential Indicators

Water quality meets applicable water quality standards as evidenced by:

° water temperature;
° dissolved oxygen;
° fecal coliform;
° turbidity;
° pH;

° populations of aquatic organisms; and
° effects on beneficial uses (i.e., effects of management activities on beneficial uses as defined under the Clean Water Act and State implementing regulations).

Standard 5 Native, T&E, and Locally Important Species

Habitats support healthy, productive and diverse populations and communities of native plants and animals (including special status species and species of local importance) appropriate to soil, climate and landform.

Rationale and Intent

Federal agencies are mandated to protect threatened and endangered species and will take appropriate action to avoid the listing of any species. This standard focuses on retaining and restoring native plant and animal (including fish) species, populations and communities (including threatened, endangered and other special status species and species of local importance). In meeting the standard, native plant communities and animal habitats would be spatially distributed across the landscape with a density and frequency of species suitable to ensure reproductive capability and sustainability. Plant populations and communities would exhibit a range of age classes necessary to sustain recruitment and mortality fluctuations.

Potential Indicators

Essential habitat elements for species, populations and communities are present and available, consistent with the potential/capability of the landscape, as evidenced by:

° plant community composition, age class distribution, productivity;
° animal community composition, productivity;
° habitat elements;
° spatial distribution of habitat;
° habitat connectivity; and
° population stability/resilience

Sage-Grouse Management Guidelines

Guidelines for Livestock Grazing Management

Guidelines for livestock grazing management offer guidance in achieving plan goals, meeting standards for rangeland health and fulfilling the fundamentals of rangeland health. Guidelines are applied in accordance with the capabilities of the resource in consultation, cooperation, and coordination with permittees/lessees and the interested public. Guidelines enable managers to

adjust grazing management on public lands to meet current and anticipated climatic and biological conditions.

General Guidelines

1. Involve diverse interests in rangeland assessment, planning and monitoring.

2. Assessment and monitoring are essential to the management of rangelands, especially in areas where resource problems exist or issues arise. Monitoring should proceed using a qualitative method of assessment to identify critical, site-specific problems or issues using interdisciplinary teams of specialists, managers, and knowledgeable land users.

Once identified, critical, site-specific problems or issues should be targeted for more intensive, quantitative monitoring or investigation. Priority for monitoring and treatment should be given to those areas that are ecologically at-risk where benefits can be maximized given existing budgets and other resources.

Livestock Grazing Management

1. The season, timing, frequency, duration and intensity of livestock grazing use should be based on the physical and biological characteristics of the site and the management unit in order to:

   a. provide adequate cover (live plants, plant litter and residue) to promote infiltration, conserve soil moisture and to maintain soil stability in upland areas;

   b. provide adequate cover and plant community structure to promote streambank stability, debris and sediment capture, and floodwater energy dissipation in riparian areas.

   c. promote soil surface conditions that support infiltration;

   d. avoid sub-surface soil compaction that retards the movement of water in the soil profile;

   e. help prevent the increase and spread of noxious weeds;

   f. maintain or restore diverse plant populations and communities that fully occupy the potential rooting volume of the soil;

   g. maintain or restore plant communities to promote photosynthesis throughout the potential growing season;

   h. promote soil and site conditions that provide the opportunity for the

establishment of desirable plants;

i. protect or restore water quality; and

j. provide for the life cycle requirements, and maintain or restore the habitat elements of native (including T&E, special status, and locally important species) and desired plants and animals.

2. Grazing management plans should be tailored to site-specific conditions and plan objectives. Livestock grazing should be coordinated with the timing of precipitation, plant growth and plant form. Soil moisture, plant growth stage and the timing of peak stream flows are key factors in determining when to graze. Response to different grazing strategies varies with differing ecological sites.

3. Grazing management systems should consider nutritional and herd health requirements of the livestock.

4. Integrate grazing management systems into the year-round management strategy and resources of the permittee(s) or lessee(s). Consider the use of collaborative approaches (e.g., Coordinated Resource Management, Working Groups) in this integration.

5. Consider competition for forage and browse among livestock, big game animals, and wild horses in designing and implementing a grazing plan.

6. Provide periodic rest from grazing for rangeland vegetation during critical growth periods to promote plant vigor, reproduction and productivity.

7. Range improvement practices should be prioritized to promote rehabilitation and resolve grazing concerns on transitory grazing land.

8. Consider the potential for conflict between grazing use on public land and adjoining land uses in the design and implementation of a grazing management plan.

Facilitating the Management of Livestock Grazing

1. The use of practices to facilitate the implementation of grazing systems should consider the kind and class of animals managed, indigenous wildlife, wild horses, the terrain and the availability of water. Practices such as fencing, herding, water development, and the placement of salt and supplements (where authorized) are used where appropriate to:

   a. promote livestock distribution;

b. encourage a uniform level of proper grazing use throughout the grazing unit;

c. avoid unwanted or damaging concentrations of livestock on streambanks, in riparian areas and other sensitive areas such as highly erodible soils, unique wildlife habitats and plant communities; and

d. protect water quality.

2. Roads and trails used to facilitate livestock grazing are constructed and maintained in a manner that minimizes the effects on landscape hydrology; concentration of overland flow, erosion and sediment transport are prevented; and subsurface flows are retained.

Accelerating Rangeland Recovery

1. Upland treatments that alter the vegetative composition of a site, like prescribed burning, juniper management and seedings or plantings must be based on the potential of the site and should:

   a. retain or promote infiltration, permeability, and soil moisture storage;

   b. contribute to nutrient cycling and energy flow;

   c. protect water quality;

   d. help prevent the increase and spread of noxious weeds;

   e. contribute to the diversity of plant communities, and plant community composition and structure;

   f. support the conservation of T&E, other special status species and species of local importance; and

   g. be followed up with grazing management and other treatments that extend the life of the treatment and address the cause of the original treatment need.

2. Seedings and plantings of non-native vegetation should only be used in those cases where native species are not available in sufficient quantities; where native species are incapable of maintaining or achieving the standards; or where non-native species are essential to the functional integrity of the site.

3. Structural and vegetative treatments and animal introductions in riparian and wetland areas must be compatible with the capability of the site, including the system's hydrologic regime, and contribute to the maintenance or restoration of

properly functioning condition.

Glossary

Appropriate action-implementing actions pursuant to subparts 4110, 4120, 4130 and 4160 of the regulations that will result in significant progress toward fulfillment of the standards and significant progress toward conformance with the guidelines. (see **Significant progress**)

Assessment-a form of evaluation based on the standards of rangeland health, conducted by an interdisciplinary team at the appropriate landscape scale (pasture, allotment, sub-watershed, watershed, etc.) to determine conditions relative to standards.

Compaction layer-a layer within the soil profile in which the soil particles have been rearranged to decrease void space, thereby increasing soil bulk density and often reducing permeability.

Crust, Abiotic-(physical crust) a surface layer on soils, ranging in thickness from a few millimeters to a few centimeters, that is much more compact, hard and brittle, when dry, than the material immediately beneath it.

Crust, Biotic-(microbiotic or cryptogamic crust) a layer of living organisms (mosses, lichens, liverworts, algae, fungi, bacteria, and/or cyanobacteria) occurring on, or near the soil surface.

Degree of function-a level of physical function relative to properly functioning condition commonly expressed as: properly functioning, functioning-at-risk, or non-functional.

Diversity-the aggregate of species assemblages (communities), individual species, and the genetic variation within species and the processes by which these components interact within and among themselves. The elements of diversity are: 1. community diversity (habitat, ecosystem), 2. species diversity; and 3. genetic diversity within a species; all three of which change over time.

Energy flow-the processes in which solar energy is converted to chemical energy through photosynthesis and passed through the food chain until it is eventually dispersed through respiration and decomposition.

Groundwater-water in the ground that is in the zone of saturation; water in the ground that exists at, or below the water table.

Guideline-practices, methods, techniques and considerations used to ensure that progress is made in a way and at a rate that achieves the standard(s).

Gully-a channel resulting from erosion and caused by the concentrated but intermittent flow of water usually during and immediately following heavy rains.

Hydrologic cycle-the process in which water enters the atmosphere through evaporation, transpiration, or sublimation from the oceans, other surface water bodies, or from the land and vegetation, and through condensation and precipitation returns to the earth's surface. The precipitation then occurring as overland flow, stream flow, or percolating underground flow to the oceans or other surface water bodies or to other sites of evapo-transpiration and recirculation to the atmosphere.

Indicators-parameters of ecosystem function that are observed, assessed, measured, or monitored to directly or indirectly determine attainment of a standard(s).

Infiltration-the downward entry of water into the soil.

Infiltration rate-the rate at which water enters the soil.

Nutrient cycling-the movement of essential elements and inorganic compounds between the reservoir pool (soil, for example) and the cycling pool (organisms) in the rapid exchange (i.e., moving back and forth) between organisms and their immediate environment.

Organic matter-plant and animal residues accumulated or deposited at the soil surface; the organic fraction of the soil that includes plant and animal residues at various stages of decomposition; cells and tissues of soil organisms, and the substances synthesized by the soil population.

Permeability-the ease with which gases, liquids or plant roots penetrate or pass through a bulk mass of soil or a layer of soil.

Properly functioning condition-Riparian-wetland: adequate vegetation, landform, or large (coarse) woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid in flood plain development; improve flood-water retention and ground water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse channel and ponding characteristics to provide the habitat and water depth, duration and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The result of interaction among geology, soil, water, and vegetation.

Uplands: soil and plant conditions support the physical processes of infiltration and moisture storage and promote soil stability (as appropriate to site potential); includes the production of plant cover and the accumulation of plant residue that protect the soil surface from raindrop impact, moderate soil temperature in minimizing frozen soil conditions (frequency, depth, and duration), and the loss of soil moisture to evaporation; root growth and development in the support of permeability and soil aeration. The result of interaction among geology, climate, landform, soil, and organisms.

Proper grazing use-grazing that, through the control of timing, frequency, intensity and duration of use, meets the physiological needs of the desirable vegetation, provides for the establishment of desirable plants and is in accord with the physical function and stability of soil and landform (properly functioning condition).

Reference area-sites that, because of their condition and degree of function, represent the ecological potential or capability of similar sites in an area or region (ecological province); serve as a benchmark in determining the ecological potential of sites with similar soil, climatic, and landscape characteristics.

Rill-a small, intermittent water course with steep sides; usually only a few inches deep.

Riparian area-a form of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and stream, glacial potholes, and shores of lakes and reservoirs with stable water levels area typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil. Includes, but is not limited to, jurisdictional wetlands.

Significant progress-when used in reference to achieving a standard: (actions), the necessary land treatments, practices and/or changes to management have been applied or are in effect; (rate), a rate of progress that is consistent with the anticipated recovery rate described in plan objectives, with due recognition of the effects of climatic extremes (drought, flooding, etc.), fire, and other unforeseen naturally occurring events or disturbances. Monitoring reference areas that are ungrazed and properly grazed may provide evidence of appropriate recovery rates. (See Proper Grazing Use)

Soil density-(bulk density)-the mass of dry soil per unit bulk volume.

Soil moisture-water contained in the soil; commonly used to describe water in the soil above the water table.

Special status species-species proposed for listing, officially listed (T/E), or candidates for listing as threatened or endangered by the Secretary of the Interior under the provisions of the Endangered Species Act; those listed or proposed for listing by the State in a category implying potential endangerment or extinction; those designated by each Bureau of Land Management State Director as sensitive.

Species of local importance-species of significant importance to Native American populations (e.g., medicinal and food plants).

Standard-an expression of the physical and biological condition or degree of function necessary to sustain healthy rangeland ecosystems.

Uplands-lands that exist above the riparian/wetland area, or active flood plains of rivers and streams; those lands not influenced by the water table or by free or unbound water; commonly represented by toe slopes, alluvial fans, and side slopes, shoulders and ridges of mountains and hills.

Watershed-an area of land that contributes to the surface flow of water past a given point. The watershed dimensions are determined by the point past, or through which, runoff flows.

Watershed function-the principal functions of a watershed include the capture of moisture contributed by precipitation; the storage of moisture within the soil profile, and the release of moisture through subsurface flow, deep percolation to groundwater, evaporation from the soil, and transpiration by live vegetation.

Wetland-areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and which under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.