Rangeland Resources & Best Management Practices Review - Targhee NF

Allotment: Cottonwood-East Camas S&G **Forest/District:** Caribou-Targhee NF, Dubois RD **Date:** 9/13/2006

Reviewers: Walt Grows (Forest Range); Shane Jacobson (District Natural Resource Specialist); Scott McCoy (District Range Specialist); Kara Kleinschmidt (S.O. Soils); Brad Higginson (S.O. Hydrology)

Grazing System: Deferred Rotation with Adaptive Management

Unit(s) Reviewed:	**On Date(s):**	**Off Date(s)**
Trail Creek Area	8/5	8/12
Cottonwood Creek Area	8/12	8/17
Coalmine	8/17	8/20

6TH Level Watersheds: 170402140606 – Ching Creek **Streams Examined:** Cottonwood, Trail, Salamander, Coon, Bear Trap, Pasture Creeks

Geology: Headwaters area: Sedimentary (EUI unit # 1140).
Middle & Lower watershed areas: Igneous (EUI unit # 1150 & 1197)

Major Soils and Community Types: Headwaters area (EUI 1140): ABLA/THOC Nearl (80%): Fine, smectitic Vertic Cryoborolls. Douglas-fir or quaking aspen with an herbaceous layer dominated by one or more of the following: western meadowrue, western sweetroot, Engelmann's aster, heartleaf arnica, cutleaf balsamroot or sticky geranium. The Winslow Fire altered these communities.

Lower and Middle watershed (EUI 1150): ABLA/CARU, CARU Rhylow (50%): Loamy-skeletal, mixed, superactive Vitrandic Cryumbrepts. ABLA/CARU, CARU Fitzwil (30%): Loamy-skeletal, mixed, active Vitrandic Paleboralfs. Communities are Douglas-fir/pinegrass, Douglas-fir/whortleleaf snowberry, Douglas-fir over an herbaceous layer dominated by non-native grasses, and snowbrush ceanothus or white spirea with an herbaceous layer dominated by elk sedge.

Notes:
History: The Forest formed this allotment in the 1960's by combining four allotments into one. Sheep numbers were also reduced then from four bands to two. The Forest further reduced numbers to one band in 1993. The Forest completed NEPA for the allotment in 2005 as part of the Porcupine East Environmental Impact Statement (EIS). The Record of Decision for the EIS included specific mitigation measures and adaptive management direction that is evaluated below.

In 2003, the Winslow Fire burned 4,000 acres within the allotment. The district rested the allotment for two years. A permitee grazed the allotment in 2006 for the first time following the fire. Vegetation has recovered well in most areas (Photo 1). However, there are scattered areas of low ground cover where burn severity was high. The permitee avoided those areas of while herding in 2006.

Field Review: After a short office review, the group toured the allotment by horse back. We started at the end of Forest Service Road (FSR) 029 (Cottonwood Creek) and headed north along Trail Creek to the Continental Divide. Then we rode west along the divide before dropping into the Coalmine area. Our ride ended near Coon Creek at the end of FSR 023. Last, we also stopped to examine Bear Trap and Pasture Creeks on our drive out. Overall, vegetation and riparian conditions appeared to be in good condition across the allotment (Photo 2).

Burned Area Emergency Response (BAER) Treatment: Sedge mats were planted along Trail Creek and also a tributary stream as part of the BAER efforts. We examined the mats placed along a short section of the Trail Creek tributary; the mats continue to function well. Other than the mat area, few sedges were detected along the stream. However, natural revegetation of other species is high.

Photo 1. Recovery within the burned area.

Coalmine Area: This tall forb area (carrot & lupine) was rested for 5 years because of less than desirable ground cover. During grazing analysis of this allotment in 2003 and 2004, an interdisciplinary team visited the Coalmine area to determine "suitability" of grazing on the site. It was determined that the area not be closed to grazing, but that it be grazed with caution and carefully monitored. The permitee used the area in 2006 according to FS instruction. Adaptive management plans include continued use of the area, although not every year. If ground cover falls below 60%, the area will be rested from grazing. The area is only a small portion of the allotment and can easily be avoided if needed. The bedding area was used this year and Kara estimated post-use ground cover to be 50%. Therefore, it is recommended that the area be avoided until ground cover returns to at least 60%

Water Quality: Most streams in the allotment are supporting beneficial uses (including Bear Trap and Pasture Creeks).

The group examined a sheep crossing on Pasture Creek. Shane described the sheep crossing study that Pat Clark with the Agricultural Research Service (ARS) is conducting. Researchers measured E. coli and sediment downstream of sheep crossings on Bear Trap Creek. This is the second year of data collection and the results are projected to be published within a year. Preliminary results indicate that when a band of sheep cross a stream, sediment and E. coli increase for a short period near the crossing and decrease downstream until they become undetectable after only a few hundred feet. Previous research (see Mosley et al 1997)[1] indicates that animal traffic can re-suspend fecal bacteria that collect in the stream bottom sediments. Elevated bacterial counts below a sheep crossing are most likely a result of re-suspension of instream bacteria rather than new inputs by the sheep.

[1] Mosley, J.C., P.S. Cook, A.J. Griffis, and J. O'Laughlin. 1999. Guidelines for Managing Cattle grazing in Riparian Areas to Protect Water Quality: Review of Research and Best Management Practices Policy. Idaho Forest, Wildlife and Range Policy Analysis Group. Report No. 15, December 1997. University of Idaho. See pages 13-15. http://www.uidaho.edu/cfwr/pag/reports.html#no15

Saw Creek is 303(d) listed as not supporting coldwater aquatic life use, salmonid spawning, and secondary contact recreation due to pathogens (i.e. E. coli). The fecal bacterial sources appear to be mostly natural (wildlife) because the sheep do not cross the creek (the herder works the sheep up and around the upper drainage). The perennial portion of Saw Creek on the Forest is a ½ to ¾ mile long beaver complex in great vegetative condition. On Forest, livestock have little to do with pathogens in Saw Creek.

Cottonwood Creek is also 303(d) listed due to unknown pollutants. This stream is more influenced by cattle grazing in the adjacent Allotment. The district has increased the residual stubble height indicator to 5 inches along the hydric greenline and 4 inches in the Aquatic Influence Zone for the East Side unit on the East Camas C&H allotment to accelerate water quality improvement.

Watershed Improvement Needs: The bridge on FSR 026 and Cottonwood Creek is undersized and in need of replacement. Flows have overwhelmed the bridge and been diverted down the road during the last two spring runoff events.

Photo 2. Open area where sheep grazing occurred in 2006.

Photo 3. Bedding area in the Coalmine Area; rested 5 years prior to 2006.

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Use the Following Rating Guide and Definitions to Score Each Practice

Implemented	Score
Exceeds objective of practice	5
Meets objective of practice	4
Minor departure from practice	3
Major departure from practice	2
Gross neglect of practice	1

Effective	Score
Improved protection of soil and water over pre-project conditions	5
Adequate protection of soil and water	4
Minor and temporary impacts on soil and water	3
Major and temporary, or minor and prolonged impacts on soil and water	2
Major and prolonged impacts on soil and water	1

Term	Definition
Adequate	Small amount of material eroded; material does not reach ephemeral draws, intermittent and perennial streams, or wetlands
Minor	Erosion and delivery of material to ephemeral draws but not intermittent and perennial streams, or wetlands
Major	Erosion and subsequent delivery of sediment to ephemeral draws, intermittent and perennial streams, or wetlands
Temporary	Impacts expected to last one year or less or no more than one runoff season
Prolonged	Impacts expected to last more than one year or one runoff season

Project Specific Measures from the Porcupine Pass East ROD & EIS – 2005

Project Specific Measure	Implemented	Effective	Notes
Avoid grazing or bedding on sites that have less than less than 40 percent ground cover until the cover increases to 60 percent.	4	4	The Coalmine Area was rested for 5 years because of less than desirable ground cover. Adaptive management plans are to cautiously use this area, although not every year. Kara estimated ground cover to be 50% during the 2006 review; therefore, the area will be avoided until ground reaches at least 60%.
Revised AMP's will describe how domestic livestock grazing, at proper use, would be conducted in accordance with 36 CFR 221.1(b)(2), which describes AMP provisions, and will include the following terms and conditions: • Revised Forest Plan standards and guidelines for utilization, streambanks and channel restoration, riparian area management, threatened & endangered species, wildlife, plant and fish habitat. • Requirements for livestock distribution, including herding and salting (i.e. no sheep bedding in riparian area, one-time watering in one location along riparian areas in sheep allotments, required riding for cattle placement in cattle allotments, no salt placed along a designated roads/trail).	4	4	The AMP has not been revised yet. Currently four of the nine allotments included in the 2005 EIS have been revised. The intent of this BMP is currently met by including it in the annual operating instructions (AOI). The AMP is expected to be completed by the end of 2008.
Domestic livestock will be removed from pasture or riparian areas when allowable forage utilization levels or stubble height indicators are reached. Site specific monitoring of each stream will be used to help determine which utilization criteria are most appropriate for a given unit/allotment. Once the allowable use is met, regardless of numbers of animals or time, livestock will be moved.	4	4	

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Project Specific Measures from the Porcupine Pass East ROD & EIS – 2005

Project Specific Measure	Implemented	Effective	Notes
The following monitoring practices will be incorporated, as applicable, into the AMP: • Monitor riparian and upland range sites to determine the effectiveness of (or need for changes in) herding, distribution, and improvements. • Monitor to determine compliance with utilization standards. • In allotments where it applies, monitoring of streams for change in bacteria (e-coli) after adapting new management practices and mitigation measures to note any changes (Saw Creek).	4	4	

Targhee NF – Revised Forest Plan Standard and Guidelines

Element	Standards and Guidelines	Implemented	Effective	Notes
Soils Quality/Forested Ecosystems[2]	Strive to maintain fine organic matter (FOM) over at least 50% of the area. The preference is for FOM to be undisturbed, but if disturbed, it should be of sufficient quantity and quality to avoid detrimental nutrient cycle deficits. If the soil and potential natural community are not capable of producing FOM over 50% of the area, adjust minimum amounts to reflect potential soil and vegetation capability. (G)	N/A	N/A	Influenced by the Winslow Fire. Sheep tend not to utilize heavy forested areas and grazing does not appear to be influencing FOM levels in those areas.
Watershed, General	Not more than 30% of any of the principal watersheds and their subwatersheds should be in a hydrologically disturbed condition at any one time. (G)	N/A	N/A	Influenced by the Winslow Fire. Sheep grazing is not resulting in a excessive amount of hydrologically disturbed areas.
Range – Upland Forage Utilization	Apply upland forage utilization levels to all allotments and/or management areas as shown below, unless determined otherwise through the IDT process. These guidelines apply to native and desirable non-native vegetation as recorded at the end of the growing season. (G) Season-Long Grazing: Unsatisfact. Range / Satisfact. Range; Rotation Grazing: Unsatisfact. Range / Satisfact. Range Grass Herb: 35% / 45% / 45% / 55% Shrubs: 25% / 35% / 35% / 35%	4	4	All upland areas examined were well within utilization levels.
Range - Riparian Forage Utilization - Woody Plant Utilization	Not more than 30% use on riparian woody plant species (current year's growth) is allowed. 30% is the maximum allowed use as recorded at the end of the grazing period. (S)	4	4	Riparian woody use levels were low in examined riparian areas.

[2] Timber related guideline. Determine if this guideline is appropriate for the allotment.

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Element	Standards and Guidelines	Implemented	Effective	Notes
Range - Riparian Forage Utilization – Riparian Vegetation Stubble Height Standard	1. At the hydric green-line (HGL), there will be at least 4 inches of stubble height remaining on key species at the end of the grazing period, unless determined otherwise through the IDT process. This standard applies to key species of native and desirable non-native hydric vegetation. (S) 2. Away from the HGL, at least 3 inches of stubble height will be left on the remainder of the key riparian species at the end of the grazing period, unless determined otherwise through the IDT process. (S)	4	4	These standards are more applicable to cattle allotments.
Range – Allotment Management Planning (AMP)	Salt should be placed greater than a ¼ mile from water, or as far from water as practicable. Salting should be designed to avoid conflicts with aspen regeneration, conifer plantations, and system trails. (G)	4	4	The herder typically salts while bedding. Fifty pound bags are distributed across a bedding area. These areas are generally on ridges away from streams.
Range – (AMP)	Permitees are allowed motorized access to maintain facilities. AMPs and AOIs will include direction that motorized access must be less than 2 vehicles per week (This permitted access is not included in the OROMTRD). (S)	4	4	
Range – (AMP) and Fisheries & Other Aquatic Resources	Within subwatersheds occupied by native cutthroat trout or designated as vital to meeting recovery goals, identify areas where livestock grazing is causing fisheries habitat conditions to fall below or retard the rate of recovery toward the values described in the "Expected values for healthy fish habitat conditions" (listed below). Include specific remedial actions in the AMP or AOI. Progress toward meeting these expected values should be monitored and grazing systems adjusted, as necessary. (G) Expected Values for Healthy Fish Habitat Conditions: • Pool frequency – at least 1 pool per length of stream equal to 5-7 times the channel width. • Water Temp. – 13º C or less with a max daily average no greater than 9 in spawning habitats or 16º C with a max daily average no greater than 12 in adult holding habitats. • LWD – Greater than 20 pieces/mile. • Bank stability – Greater than 80% Lower bank angle (non-forested systems) – Greater than 75% of banks with less than 90º angle. Width/depth ratio – suitable for Rosgen stream type.	4	4	Sheep grazing does not appear to be influencing the expected values at the watershed level. Sheep typically are associated with localized areas of disturbance like crossings. Disturbance at the crossing examined on Pasture Creek appears to be minimized to the extent practicable.
Aquatic Influence Zone (AIZ) – Range	Incorporate into AMPs, objectives for attainment of desired vegetation conditions for riparian plant community seral stage development and stream channel condition. (G)	4	4	The intent of this BMP is currently met by inclusion in the AOI. The AMP is expected to be completed by the end of 2008.
Aquatic Influence Zone (AIZ) – Range	Proposed livestock watering facilities, corrals, and holding pastures within these lands are allowed only if appropriate mitigation measures are implemented to reduce negative effects. (S) Existing livestock watering facilities, corrals, and holding pastures within these lands are allowed at permit issuance only if mitigation measures are implemented to reduce negative effects. (G)	N/A	N/A	

R1/R4 FSH 2509.22, Chapter10 - Soil and Water Conservation Practices

Practice	Objective and Implementation	Implemented	Effective	Notes
17.01 – Range Analysis, Allotment Management Plan, Grazing Permit System, and Permittee Operating Plan	To maintain and protect soil and water resources through sustained forage production and managed multiple use of range forage. Implementation: • Allotment is NEPA sufficient (if yes, give date) and AMP is sufficient (if yes, give date) • Preparation and approval of AMP • Revise AMP as needed • AOI prepared or revised (as needed) annually to adjust for current allotment conditions and trends and to incorporate special instructions • Permittee carries out the plan • Corrective action is taken if permitee does not comply with permit conditions designed to protect soil and water resources.	4	4	NEPA was completed in 2005. AMP has yet to be revised. Applicable measures are included in the AOI until the AMP can be revised. Majority of the allotment looked good with upward trends.
17.02 – Controlling Livestock Numbers and Season of Use	To maintain and protect soil and water resources through management of livestock numbers and season of use. Implementation: • Proper stocking rates and season of use specified in the grazing permit. • Annual field checks are made to identify needed adjustments: range readiness evaluations, livestock counts, forage & browse utilization, and periodic assessments of rangelands (soil and veg. trends) • Permit is modified, cancelled, or suspended if needed.	4	4	Range inspections completed on 7/18, 8/17, 9/7, and 9/13 of 2006 verify compliance.

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R1/R4 FSH 2509.22, Chapter10 - Soil and Water Conservation Practices

Practice	Objective and Implementation	Implemented	Effective	Notes
17.03 – Controlling Livestock Distribution	To maintain and protect soil and water resources, including riparian areas though controlling livestock distribution. Implementation: Proper techniques are used to reduce the impact on sensitive or naturally overused areas. Techniques may include: • Fence construction and use of seasonal or pasture system management • Water developments in areas that receive little use and closures of water developments when proper use is achieved. • Other Range improvements. • Riding & herding to shift livestock locations • Placing salt or supplements away from water in forage areas with light grazing use to attract livestock • Moving livestock when prescribed utilization levels are reached. • Goats and sheep – open herding, limited trailing, and use of new bed grounds nightly. Direction is incorporated into the AMP and AOI. The AOI reflects current allotment conditions and vegetative trends.	4	4	NEPA was completed in 2005. Majority of all allotments examined look good with upward trends.
17.04 – Rangeland Improvements	To maintain and protect soil and water resources the use of rangeland improvements. Implementation: Improvements are recognized in the allotment planning process. Improvements are used to improve management and restore or improve forage quality, quantity, or availability. Improvements may include: • Rest and/or deferment through rotation grazing, fencing, or lighter grazing use by changing the grazing season, kind, class, or permitted number of livestock. • Stream stabilization projects • Reseeding, fertilization, and/or other non-structural improvements • Water developments • ID teams provide consultation on improvements and they are constructed in manner that protects surface and ground water quality	4	4	

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R4 Soil Management Handbook, FSH 2509.18 – Chapter 2 – Soil Quality Monitoring

Practice	Objective and Implementation	Implemented	Effective	Notes
Detrimental Soil Disturbance[3]	No more than 15% of an activity area should have detrimentally disturbed soil after the completion of all management activities. In other words, at least 85% of an activity area should be in a non-detrimentally disturbed condition.	4	4	These measures were analyzed during the Porcupine East EIS. Adaptive management grazing strategy is being implemented to improve ground cover in the Coalmine area. The area received 5 years rest and is now used lightly so that conditions will continue to improve.
Effective Ground Cover	The minimum effective ground cover, following the cessation of disturbance in an activity area, should be sufficient to prevent detrimental erosion. Detrimental erosion includes erosion rates that cause long-term productivity losses from an activity area or soil losses that are beyond those acceptable for the activity area. Minimum amounts of ground cover necessary to protect a soil from erosion are a function of soil properties, slope gradient and length, and erosivity (precipitation factor).	4	4	

[3] Discuss the proper scale of the activity area (e.g. allotment, pasture, riparian areas ….). Activity Area is define in the handbooks as "an area impacted by a land management activity, excluding specified transportation facilities, dedicated trails, and mining excavations and dumps. Activity areas include such areas as: harvest units within timber sale areas and prescribed burn areas. Riparian and other environmentally sensitive areas may be monitored and evaluated as individual activity areas within larger management areas. It is recommended to describe the Activity Area for soil resources within planning and project implementation documents."