

Grazing BMP Review – Caribou NF

Allotment Name: Diamond Creek C&H **Forest:** Caribou-Targhee NF **District:** Soda Springs RD **Date:** 8-31-2006

Reviewers: Louis Wasniewski, Darren Olsen, Vic Bradfield, Katie Moore, and John Lott

Grazing System: Riparian Pasture

Unit(s) Reviewed:	On Date(s):	Off Date(s)
<u>1A</u>	<u>9/4/2006</u>	<u>9/25/2006</u>
<u>1B</u>	<u>9/26/2006</u>	<u>10/10/2006</u>
<u>2</u>	<u>6/24/2006</u>	<u>7/16/2006</u>
<u>3</u>	<u>7/31/2006</u>	<u>9/3/2006</u>
<u>4</u>	<u>7/17/2006</u>	<u>7/30/2006</u>

6TH Level HUB: <u>170402071201</u>	Stream Name(s) and Type(s): <u>Diamond Creek, Yellow Jacket, & Cabin Creek</u>
<u>170402071202</u>	<u>Bear Canyon, Hornet Canyon, Campbell Canyon,</u>
<u>170402071203</u>	<u>Terrace Canyon, & Coyote Creek</u>
	<u>Diamond Creek, Timber, & Stewart Creek</u>

Geology: Sedimentary alluvial outwash, fluvial deposits, fine-grained sandstone, siltstone

Soils: 044 Thayne family, 2-5% slopes, 552 Starley-Dranyon-Swede families 35-50% slopes, 066 Red Spur-Povey-Dranyon families 0-10% slopes, 551 Judkins-Cloud Peak-Farlow families 30-50%, 061 Venable-Argic Cryaquolk-Coski families complex 0-5% slopes, 081 Red Spur-Harkness families 10-20% slopes.

Community Types: Riparian, ABLA, Sage

Trip Overview: Met at the district office and discussed the Allotment Management Plan (AMP), AOI and Monitoring. We than travel to the field starting at the upper end of Diamond Creek in Unit 4 looking at a wide meadow setting, Moose pond watering area, and Stewart Canyon crossing area; then preceded downstream visiting units 3 and the riparian along Diamond Creek; Unit 2 and Bear Creek and Diamond Creek conditions, and finished with a brief look at Unit 1a on the lower end of Diamond Creek. The notes below are a summary of our office and field review.

Notes: The AMP was signed in 1997 and part of the first batch of NEPA following the 1995 NEPA direction. The allotment is in a differed rotation riparian pasture system that annually alternating starting unit. The allotment contains 280 head of cow/calf pairs rotated through 5 different units as shown above. Diamond Creek area contains a increasing recreation use including increased ATV, dispersed camping, and hunting use which has created conflicts between grazing and recreationalists. In 2006 it was recognized that heavy recreational use during the 4th of July and cattle grazing in Unit 2 in not a good combination. Therefore it was recognized to avoid this combination in the future. The high recreational use has caused impacts to streams and riparian areas that are currently being addressed by the district.

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The first stop was in a wide meadow along Diamond Creek, Unit 4 (photos 1) and associated with a historical photo (photo 2). This area also contained a greenline and cross-section riparian location established in 1992 by Heidi Heyrend then District Range Conservationist. Effort to identify and repeat this monitoring will occur in 2007 using Heidi's knowledge of the site since she is now on the Montpelier Range District. The riparian consisted of dense willow along the stream with a sedge complex through the meadow. Stubble heights in this area exceeded 6 inches and bank disturbance appeared well below 20%. The stream contained beaver complexes and was well connected to the flood plain.



Photo 1: Wide Meadow area along Diamond Creek and the location of a 1992 greenline and cross-section riparian monitoring location. Taken 8-31-2006

Photo 2: Historical photo taken in 1918 of the same area (top) and lower photo taken in 2004 by Vic Bradfield.

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The AMP proposed structural improvements that consisted of the installation of Bear Creek Trough (not installed), 3 water ponds called Moose Meadow Ponds (Unit 4), riparian exclosures on Stewart Creek (Unit 4) and Bear Creek (Unit 2)

Only one of the Moose ponds were constructed as shown in photo 3 and the site visit determined to be stable and functioning as designed.



Photo 3: Moose Meadow Pond Water Development

The riparian exclosure fences were installed on Stewart Creek (currently not effective photo 4) and installed on Bear Creek (photos 12 and 13) that is effective. Questions arose on the initial effectiveness of the knee-high single rail fence surrounding Stewart Creek and the need to evaluate next steps at restoring functioning channel conditions. There were a few signs in the enclosed area that were starting to develop a floodplain and riparian area within the entrenched conditions of Stewart Creek (photo 5). Photo 7 showed evidence of past restoration that has failed in trying to restore function to a downcut stream system.

Past restoration efforts on Diamond Creek in the vicinity of Unit 3 and Bear Creek within Unit 2 are showing some signs of improving stream and riparian conditions from grazing and recreational impacts (photos 8, 9, 11, 12, & 13). The Diamond Creek Riparian Project was done in 1999 whereby rock grade control structures were installed (photo 8) and trees and debris were placed along the channel to restrict cattle use (photo 9). However, below these treated areas the channel is entrenched by 4 feet with raw vertical bank representing a Rogsen G type channel. Changes in grazing impacts have occurred adjacent to the riparian as noted by John Lott who indicated he remembered a site next to the willows without vegetation and dusty beat-out areas. During our visit this same area contained grasses which has increased amount of ground cover.

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Bear Creek restoration occurred in the late 1990's installing the riparian enclosure and hardened ATV crossing which acted as instream grade control structures (Photos 11, 12, & 13). These efforts have caused section of Bear Creek to aggrade, reconnect the channel to a floodplain, and provide riparian and stream bank protection (fence). However, farther downstream the channel is entrenched by about 4 feet (photos 14).

Even though restoration efforts have been successful at improving sections of Diamond, Stewart, and Bear Creeks and changes in grazing practices have improved conditions with the Diamond Creek Allotment, the future success of improving hydrologic function with in this drainage will require a holistic approach. The approach needs to look at changes in channel conditions such as sinuosity, gradient, widths, extent of beaver complexes and riparian across the valley as it relates to historic management practices, current management including the continual increases in recreational and ATV use. Reference conditions needs to be compared to existing conditions so that the whole stream and riparian system can be moved to desired future condition.

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Photo 4: Stewart Creek upstream of FDR 102 crossing. Riparian fence not effective.



Photo 5: Stewart Creek upstream of FDR 102 crossing where a floodplain is trying to become established in a downcut system with the enclosure.



Photo 6: Stewart Creek upstream of FDR 102 crossing and enclosure.



Photo 7: Old log sill representing past restoration efforts within Stewart Creek. Erosion around structure widened the channel showing the ineffectiveness of this restoration technique.

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Photo 8: Hardened cattle crossing and watering area on Diamond Creek in Unit 3.



Photo 9: Large woody debris to restrict cattle from damaging bank and riparian along Diamond Creek in Unit 3.



Photo 10: Downcut stream conditions along Diamond Creek in Unit 3.



Photo 11: Upstream of hardened ATV crossing that acts as a stream grade control feature causing sediment deposition, increased channel elevation, and reconnection channel and floodplain on Bear Creek (unit 2).



Photo 12: Hardened ATV crossing / grade control structure and enclosure fence on Bear Creek within Unit 2.



Photo 13: Hardened ATV crossing / grade control structure and enclosure fence on Bear Creek within Unit 2.

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Photo 14: Downcut section of Bear Creek downstream of hardened ATV crossing before it enters Diamond Creek (Unit 2). Taken 8-16-2006

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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

Caribou National Forest – Forest Wide Standards and Guidelines

Element	Standards and Guidelines	Implemented	Effective	Notes
Soils – All Ecosystems	Suitability for resource management activities shall be disclosed in the site-specific analysis. (S)	4	4	
Soils – All Ecosystems	Resource developments and utilization should be restricted to lands identified in the Soil Resource Inventory as being capable of sustaining such impacts. (G)	4	4	
Soils – All Ecosystems	Maintain ground cover, microbiotic crusts, and fine organic matter that would protect the soil from erosion in excess of soil loss tolerance limits and provide nutrient cycling. (G)	4	4	
Soils – All Ecosystems	Detrimental soil disturbance such as compaction, erosion, puddling, displacement, and severely burned soils caused by management should be limited or mitigated to meet long-term soil productivity goals. (G)	4	4	
Soils – Forested Ecosystems ¹	Reduce soil erosion to less than the soil loss tolerance limits on lands disturbed by management activities within one growing season.	N/A	N/A	Soils never were below soil loss tolerances – All units.
Watershed and Riparian Resources	Not more than 30% of any of the principal watersheds and their subwatersheds (6 th HUC) should be in a hydrologically disturbed condition at any one time. (G)	4	4	
Watershed and Riparian Resources	Proposed actions analyzed under NEPA should adhere to the State Nonpoint Source Management Plan to best achieve consistency with both Sections 313 and 319 of the Federal Water Pollution Control Act. (G)	4	4	Diamond Creek is not supporting designated beneficial use (Aquatic Life Use – Cold & Salmonid Spawning) and on the 303(d) list for Siltation and Bacteria. All other streams have either not been assessed or fully supporting.

¹ Forested related guideline - Determine if this guideline is appropriate for the allotment.

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Caribou National Forest – Forest Wide Standards and Guidelines

Element	Standards and Guidelines	Implemented	Effective	Notes						
Grazing Management – Range Resources	Livestock grazing shall be restricted following prescribe or natural fire and/or rangeland planting or seeding before seed set of the 2 nd growing season, or until the objectives of the treatment are achieved. (S)	N/A	N/A							
Grazing Management – Range Resources	Stock driveways should be eliminated as opportunities occur. (G)	4	4	Sheep travel through all units mainly along road corridor and have little impact within this allotment						
Grazing Management – Range Resources	Where water is developed at springs and seeps, return water to point of origin after livestock leave unit, if possible. (G)	4	4	Moose Pond was the only water development visited and functioning as designed.						
Grazing Management – Range Resources	Seeding or establishment of monocultures should be avoided, and efforts should be made to establish and/or maintain a variety of desirable grass, forbs, and shrub species.	N/A	N/A							
Grazing Management – Forage Utilization	Apply upland forage utilization levels to all allotments as shown below, unless determined through development of site-specific standards in the allotment management planning process. These guidelines apply to native and desirable non-native key plant species as recorded at the end of the growing season. (G) <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th style="text-align: center;">Vegetation Component</th> <th style="text-align: center;">Allowable % Utilization</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Grasses & Herbaceous Species (% dry weight)</td> <td style="text-align: center;">35-55%</td> </tr> <tr> <td style="text-align: center;">Shrubs (% annual leader growth)</td> <td style="text-align: center;">25-35%</td> </tr> </tbody> </table>	Vegetation Component	Allowable % Utilization	Grasses & Herbaceous Species (% dry weight)	35-55%	Shrubs (% annual leader growth)	25-35%	4	4 (portion of Unit 3 rates as a 3)	The sage brush zone within the valley bottom adjacent to the riparian willows contain higher utilization. Changes in grazing impacts have occurred adjacent to the riparian as noted by John Lott who indicated he remembered a site next to the willows without vegetation and dusty beat-out areas.
Vegetation Component	Allowable % Utilization									
Grasses & Herbaceous Species (% dry weight)	35-55%									
Shrubs (% annual leader growth)	25-35%									
Grazing Management – Forage Utilization	FS administrative site livestock pastures should comply with the Forest-wide standards and guidelines for forage utilization and riparian management. (G)	N/A	N/A							
Grazing Management – Livestock Grazing Permits	Permittees may be allowed motorized access to maintain or develop range improvements assigned in their grazing permits or for other authorized administrative activities. AMPs and AOIs should include direction to comply; travel permits should be issued to authorize this use. (G)	4	4							
Aquatic Influence Zone (AIZ) – General Riparian Area Management	Use herbicides, pesticides, and other toxicants and chemicals only as needed to maintain desired AIZ attributes. (G)	N/A	N/A							

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Caribou National Forest – Forest Wide Standards and Guidelines

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AIZ – Grazing Management	<p>Use the AIZ grazing standards below until more site-specific standards are implemented using the Caribou Riparian Grazing Implementation Guide. If current AOIs have more stringent requirements they shall be used however. Generally, the factor most critical for maintaining riparian and stream channel characteristics shall be used. . These guidelines apply to native and desirable non-native key plant species as recorded at the end of the growing season. (S)</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th rowspan="2">Parameter</th> <th rowspan="2">Location Measured</th> <th colspan="3">Condition of Riparian (Lotic) Area</th> </tr> <tr> <th>PFC</th> <th>Functioning at risk</th> <th>Non-Functioning</th> </tr> </thead> <tbody> <tr> <td>% Herb. Species Utiliz</td> <td>Greenline</td> <td>45%</td> <td>35%</td> <td>30%</td> </tr> <tr> <td></td> <td>AIZ</td> <td>55%</td> <td>45%</td> <td>35%</td> </tr> <tr> <td>% Woody Spp Utiliz.</td> <td style="text-align: center;">-</td> <td>45%</td> <td>40%</td> <td>30%</td> </tr> <tr> <td>Stubble Height</td> <td>Greenline</td> <td>4 in.</td> <td>6 in.</td> <td>6 in.</td> </tr> <tr> <td>% Bank Disturbance</td> <td>Cumulative</td> <td>30%</td> <td>25%</td> <td>20%</td> </tr> </tbody> </table> <p>AMP Riparian Grazing Standards (1997- Change made after IDT review 7/2000)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Stream</th> <th>% Utiliz.</th> <th>Stubble Ht. (in)</th> <th>% Woody Spp Utiliz</th> <th>Annual Avg. Bank Distrub</th> <th>CUM Bank Distrub</th> <th>Riparian Soil Distrub</th> </tr> </thead> <tbody> <tr> <td>Diamond Cr.</td> <td style="text-align: center;">35</td> <td style="text-align: center;">6</td> <td style="text-align: center;">50%</td> <td style="text-align: center;">20%</td> <td style="text-align: center;">30%</td> <td style="text-align: center;">20%</td> </tr> <tr> <td>Lower Stewart Cr.</td> <td style="text-align: center;">35</td> <td style="text-align: center;">6</td> <td style="text-align: center;">50%</td> <td style="text-align: center;">20%</td> <td style="text-align: center;">30%</td> <td style="text-align: center;">20%</td> </tr> <tr> <td>Bear Cr.</td> <td style="text-align: center;">35</td> <td style="text-align: center;">6</td> <td style="text-align: center;">50%</td> <td style="text-align: center;">20%</td> <td style="text-align: center;">30%</td> <td style="text-align: center;">20%</td> </tr> </tbody> </table>	Parameter	Location Measured	Condition of Riparian (Lotic) Area			PFC	Functioning at risk	Non-Functioning	% Herb. Species Utiliz	Greenline	45%	35%	30%		AIZ	55%	45%	35%	% Woody Spp Utiliz.	-	45%	40%	30%	Stubble Height	Greenline	4 in.	6 in.	6 in.	% Bank Disturbance	Cumulative	30%	25%	20%	Stream	% Utiliz.	Stubble Ht. (in)	% Woody Spp Utiliz	Annual Avg. Bank Distrub	CUM Bank Distrub	Riparian Soil Distrub	Diamond Cr.	35	6	50%	20%	30%	20%	Lower Stewart Cr.	35	6	50%	20%	30%	20%	Bear Cr.	35	6	50%	20%	30%	20%	4	4	<p>The NEPA/AMP was completed prior to the Forest Plan. Both documents contains stds that are more stringent then the other and vis versa. The more stringent standard will apply.</p> <p>The allotment contains monitoring as identified in the AMP to monitor standards. Riparian greenline and stream cross-section monitoring established in 1992 by Heidi Heyrend then District Range Conservationist will be repeated in 2007 using Heidi’s knowledge of the site since she is now on the Montpelier Range District.</p>
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AIZ – Grazing Management	The most current version of the Caribou Riparian Grazing Implementation Guide shall be used for the primary source of direction for grazing in Forest riparian areas and shall be incorporated during allotment management planning. (S)	4	4																																																														
AIZ – Grazing Management	Avoid locating new livestock handling and/or management facilities inside of AIZs. (G)	4	4	Unit 3 – temp fence used for sheep check-in corral.																																																													
AIZ – Grazing Management	Where feasible, relocate or close existing livestock handling facilities that will not maintain progress towards desired AIZ attributes. (G)	4	4	Unit 3 – temp fence used for sheep check-in corral. Doesn’t appear to be hindering the attainment of desired AIZ attributes.																																																													

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

Practice	Objective and Implementation	Applicable	Implemented	Effective	Notes
17.01 – Range Analysis, Allotment Management Plan, Grazing Permit System, and Permittee Operating Plan	<p>To maintain and protect soil and water resources through sustained forage production and managed multiple use of range forage.</p> <p><u>Implementation:</u></p> <ul style="list-style-type: none"> • 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 permittee does not comply with permit conditions designed to protect soil and water resources. 	Y	4	4	AMP completed 1997
17.02 – Controlling Livestock Numbers and Season of Use	<p>To maintain and protect soil and water resources through management of livestock numbers and season of use.</p> <p><u>Implementation:</u></p> <ul style="list-style-type: none"> • 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. 	Y	4	4	

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

Practice	Objective and Implementation	Applicable	Implemented	Effective	Notes
17.03 – Controlling Livestock Distribution	<p>To maintain and protect soil and water resources, including riparian areas though controlling livestock distribution.</p> <p><u>Implementation:</u> Proper techniques are used to reduce the impact on sensitive or naturally overused areas. Techniques may include:</p> <ul style="list-style-type: none"> • 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. <p>Direction is incorporated into the AMP and AOI. The AOI reflects current allotment conditions and vegetative trends.</p>	Y	4	3	<p>Riparian enclosure on Stewart in disrepair and not effective causing minor impacts to soil and water. The Johnson Creek guard station enclosure could also use some repair. Moose Pond water development functioning well. Salting area observed in unit 4 and away from water.</p>
17.04 – Rangeland Improvements	<p>To maintain and protect soil and water resources the use of rangeland improvements.</p> <p><u>Implementation:</u> 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:</p> <ul style="list-style-type: none"> • 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 	Y	4	4	<p>Several rangeland, recreational, stream stabilization projects have been implemented in the past with particle success in localized areas. Current downcut stream systems (Diamond, Stewart, Bear Creeks) need a holistic approach to improve hydrologic function on the whole system. Refer to notes and photos above.</p>

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

Practice	Objective and Implementation	Applicable	Implemented	Effective	Notes
Detrimental Soil Disturbance ²	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.	Y	4	4	
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).	Y	4	4	

² 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.”