

Rangeland Resources & Best Management Practices Review - Targhee NF

Allotments: Canyon S&G Allotment **Forest/District:** Caribou-Targhee NF, Teton Basin RD **Date:** 9/14/2006

Reviewers: Thad Berrett (District Range), Jay Pence (District Ranger), Walt Grows (Forest Range), Kara Kleinschmidt (Soils), and Brad Higginson (Hydrology)

Grazing System: Modified Rest Rotation

Unit(s) Reviewed: Canyon Creek **On Date(s):** 6/20 **Off Date(s)** 7/15

6TH Level Watersheds: 170402040403 – Calamity Creek **Streams Examined:** Upper headwaters of Calamity Creek drainage, North Fork Canyon, South Fork Canyon Creek, & Canyon Creek
170402040404 – Canyon Creek

Geology: Mixed, local alluvium or colluvium derived from igneous or sedimentary rocks, loess, and volcanic ash

Community Types: Majority of Ecological Unit (EU) 1216 – ABLA/ACGL, Rhylow – PSME/ARTRV Povey Complex (35-60% slopes): Subalpine fir/Rocky Mountain Maple; quaking aspen-Douglas-fir/Saskatoon serviceberry; Douglas-fir/Rocky Mountain maple; Douglas-fir/white spirea; tall shrub dominated by Greene mountain ash or Rocky Mountain maple; shrub communities of whortleleaf snowberry, snowbrush ceanothus, or subalpine big sagebrush with California brome or slender wheatgrass.
Minor area of EU 1595 (upper Calamity Creek drainage) – ABLA/VAGL, Pamy Koffgo (10-30% slopes): Lodgepole pine/blue huckleberry.

Major Soils: Koffgo – Loamy-skeletal, mixed, superactive Vitrandic Cryochrepts
Rhylow – Loamy-skeletal, mixed, superactive Vitrandic Cryumbrepts
Povey – Loamy-skeletal, mixed, superactive Pachic Cryoborolls

Notes: The NEPA for AMP revision is currently underway and is expected to be completed in the spring of 2007. The group itinerary is as follows:

- Reviewed the headwaters of Calamity Creek
- Rode from Calamity headwaters into the upper end of North Fork Canyon Creek
- Followed North Fork Canyon Creek downstream to confluence with South Fork Canyon Creek
- Ventured slightly up South Fork Canyon Creek and examine the divide ridge near the confluence
- Continued down Canyon Creek to where a pack trail leaves Canyon Creek to road near upper Kirkham Hollow.

The upper Calamity Creek watershed appeared to be in good condition overall. The group did notice minor areas of low ground cover immediately adjacent to intermittent stream channels (Photo 1), but the apparent trend appeared to be upward. The Forest recently collected data at a nested frequency site located in this area (Photo 2). Although an ATV trail now bisects the site, the dominant presence of desirable species indicates long periods of stability. Ground cover was found to be 76.5%, which is a slight increase in ground cover from the 1960's range analysis, indicating upward or static ground cover for the area. There were no noxious weeds located on or near the study sight.

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Photo 1. Low ground cover located near intermittent channel in upper Calamity.



Photo 2. Nested Frequency study site in upper Calamity Creek watershed.



The sheep had recently worked through the North Fork Canyon Creek area. The group noted aspen regeneration and good ground cover along the trail as we entered the drainage (Photo 3). Along North Canyon Creek itself, a one minor area of low ground cover was noted immediately adjacent to the stream (Photo 4). Although the area is minor in size, it is a chronic source of fine sediment delivery to the stream channel. The group discussed the annual operating instructions (AOI) and if more direction should be included in the AOI to limit the time sheep use particular watering areas. The group also discussed whether herders should use the same watering areas each year. The group decided to monitor this issue through adaptive management since it could be added to the AOI as a requirement at anytime.

The group rated North Fork Canyon Creek as properly function condition (PFC). We also noted several improvements necessary to continue movement toward desired conditions:

- Continued maturing of riparian seral stage (riparian area continues to expand and shift from golden rod to more desirable species).
- Continue with the increase in beaver activity to provide for higher water tables and healthier riparian areas.

Improve bank stability: streambanks are probably greater than 80% stable at the watershed level, but local sites need improvements.

Two other concerns were noted in the North Fork Canyon Creek area. First, the group noticed an area of past salting within 200 feet of North Fork Canyon Creek. The area was not used this year, but the permittee will be made aware of it to ensure the area is avoided in the future. Second, we observed several trespass cattle in the riparian area (Photo 5). The trespass is of concern because left unmanaged (i.e. not grazing within standards), even a small number of cattle can degrade stream channel and riparian conditions. However, we did not observe degradation. Brands were noted and Thad contacted the proper permittees to request removal of the cattle from the area. The livestock were promptly removed.

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Photo 3. Along pack trail in upper North Fork Canyon Creek. Sheep recently worked through this area as evident by laid over vegetation.



Photo 4. North Fork Canyon Creek. Possible watering area. Note low ground cover immediately adjacent to stream, which is a source area for fine sediment.



Photo 5. Trespass cattle within the North Fork Canyon Creek riparian area.



Kara collected soil profile and ground cover at 3 sites in the allotment. These sites were chosen to reflect the perceived range of sheep grazing effects. Therefore, they were close to the streams and primarily in gently sloping to flat areas with a tall forb or sagebrush cover type. These sites are primarily minor inclusions in the EUI units, and are not representative of the major ecological types present in the allotment.

Soil compaction was measured at these 3 sites. The bulk density measurements ranged from 0.94-1.12g/cm³, which are well below the 1.55g/cm³ which is root-limiting for silt loam textured rangeland soils (NRCS, 2001). Sheep had obviously used two of the three sample sites in the last season as evidenced by trampled vegetation.

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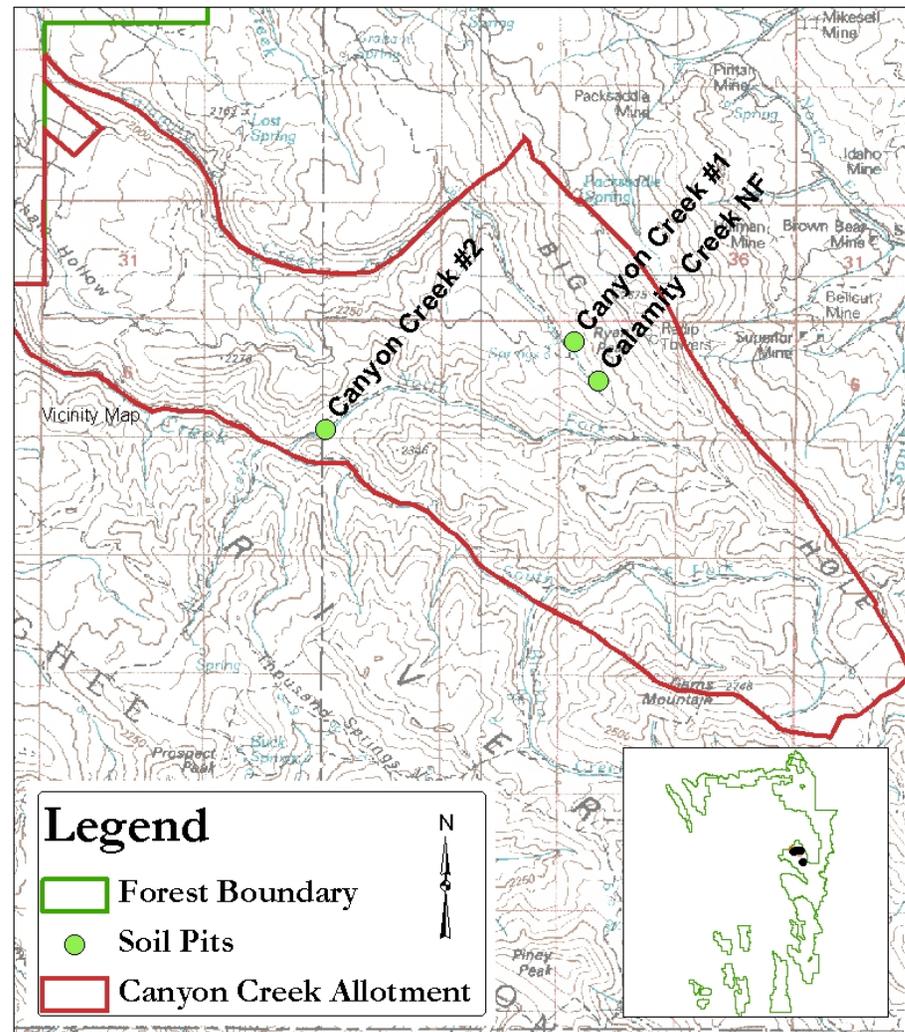
1. **Canyon Creek #1** - Tall forb site located in the drainage along the trail into Canyon Creek Allotment (see map). Sheep had recently used this site, probably for bedding. This spot was the most visually utilized by sheep along the trail. Ground cover was 48%, which is lower than the 73% average ground cover for this vegetation type in this area (calculated from Range Analysis green sheets), and lower than the 60% general maximum percent bare soil for limiting soil erosion (FSH 2209.21). **Note that areas similar to this site were few, scattered, and of minor extent in the allotment (less than 1% of the area).** The qualitative soil health rating for this site was satisfactory, but if signs of erosion increase due to reduced ground cover, heavily used areas such as this one could become degraded over time. For more specific details, see Canyon Creek #1 Soil Data Sheet.
2. **Canyon Creek #2** - Sagebrush site located in a saddle above the stream. This site did not appear to have been utilized this last grazing season. Ground cover was approximately 60% at this site, which is lower than the 72% average ground cover for this vegetation type in this area (calculated from Range Analysis green sheets), but within the 60% general maximum percent bare soil for limiting soil erosion (FSH 2209.21). Considering the rocky soil (lithic haplocryalf) the existing ground cover may be the potential of this site. The qualitative soil health rating for this site was satisfactory. For more specific details, see Canyon Creek #2 Soil Data Sheet.
3. **Calamity Creek NF Study Site** - Tall forb site located in the drainage along the trail into Canyon Creek Allotment (see map). Sheep had recently used this site. Ground cover was 76%, which is higher than the 73% average ground cover for this vegetation type in this area (calculated from Range Analysis green sheets), and higher than the 60% general maximum percent bare soil for limiting soil erosion (FSH 2209.21). This site had been assessed in 1966, and ground cover trend appears to be increasing over time. The qualitative soil health rating for this site was satisfactory. For more specific details, see Calamity Creek Soil Data Sheet.

Canyon Creek Soils Data

1-8-07 K. Kleinschmidt

Project filename: teton_rng_ce_1

00.25.5 1 Miles



Map of locations in Canyon Cr. Allotment where soil profile, bulk density, and ground cover data was collected.

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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 |

Revised Forest Plan Standard and Guidelines

| Element | Standards and Guidelines | Implemented | Effective | Notes | | | | | | | | | | | | | | | | | | | |
|--|--|------------------|---------------------|---|------------------|--|--------------------|------------------|--------------------|------------------|------------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--|--|--|
| Soils Quality/Forested Ecosystems ¹ | 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 | Did not look at many forested ecosystems. Sheep tend not to utilize heavy forested areas and sheep 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) | 4 | 4 | The allotment is well within this guideline - Grazing is not resulting in an 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) | 4 | 4 | All upland areas examined were well within allowed utilization levels. | | | | | | | | | | | | | | | | | | | |
| | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Season-Long Grazing</th> <th colspan="2">Rotation Grazing</th> </tr> <tr> <th>Unsatisfact. Range</th> <th>Satisfact. Range</th> <th>Unsatisfact. Range</th> <th>Satisfact. Range</th> </tr> </thead> <tbody> <tr> <td>Grass Herb</td> <td style="text-align: center;">35%</td> <td style="text-align: center;">45%</td> <td style="text-align: center;">45%</td> <td style="text-align: center;">55%</td> </tr> <tr> <td>Shrubs</td> <td style="text-align: center;">25%</td> <td style="text-align: center;">35%</td> <td style="text-align: center;">35%</td> <td style="text-align: center;">35%</td> </tr> </tbody> </table> | | Season-Long Grazing | | Rotation Grazing | | Unsatisfact. Range | Satisfact. Range | Unsatisfact. Range | Satisfact. Range | Grass Herb | 35% | 45% | 45% | 55% | Shrubs | 25% | 35% | 35% | 35% | | | |
| | Season-Long Grazing | | Rotation Grazing | | | | | | | | | | | | | | | | | | | | |
| | Unsatisfact. Range | Satisfact. Range | Unsatisfact. Range | Satisfact. Range | | | | | | | | | | | | | | | | | | | |
| Grass Herb | 35% | 45% | 45% | 55% | | | | | | | | | | | | | | | | | | | |
| Shrubs | 25% | 35% | 35% | 35% | | | | | | | | | | | | | | | | | | | |

¹ 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 - 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 the majority of examined riparian areas. |
| 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) | N/A | N/A | These standards are more applicable to cattle allotments. Area of past salting recovering in North Fork Canyon Creek. |
| Range - (AMP) | Permittees 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 | No noted problems |
| 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: <ul style="list-style-type: none"> • Pool frequency - at least 1 pool per length of stream equal to 5-7 times the channel width. • Water Temp. - 13° C or less with a max daily average no greater than 9 in spawning habitats or 16° 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 90° angle. Width/depth ratio - suitable for Rosgen stream type. | 4 | 4 | At the watershed scale, sheep grazing activities do not appear to be influencing the expected values within North Fork Canyon and Canyon Creeks |
| | | 3 | 3 | Minor watering areas that appear to be a chronic source of fine sediment. Width/depth is slightly higher than expected and bank stability is lower than expected at these sites (i.e. at the short reach scale, not the watershed scale). |
| 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 | NEPA to be completed in 2007 |

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| Element | Standards and Guidelines | Implemented | Effective | Notes |
|--------------------------------------|---|-------------|-----------|---|
| 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 | We did not observe any of these facilities. |

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. <u>Implementation:</u> <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. | 4 | 4 | NEPA scheduled for completion in 2007. |
| | | 3 | 3 | Although not reflective of this allotment, trespass cattle from another allotment were observed. |
| 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. <u>Implementation:</u> <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. | 4 | 4 | |

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| Practice | Objective and Implementation | Implemented | Effective | Notes |
|---|--|-------------|-----------|--|
| 17.03 – Controlling Livestock Distribution | <p>To maintain and protect soil and water resources, including riparian areas through 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> | 4 | 4 | <p>NEPA and AMP updated scheduled for 2007.</p> <p>Watering area use could be improved to avoid creation of chronic sediment source areas.</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 | 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 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. | 5 | 4 | Soil disturbance, including water troughs, fences, bed grounds, salting areas, loafing areas, and historic sheep driveways, was estimated for the allotment. Detrimental soil disturbance exists on less than 0.5% of the allotment (FSH 2509.18 r4_2509.18-2002-1). |
| 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). | 3 | 3 | Small minors areas noted: watering areas along North Fork Canyon Creek. |
| | | 4 | 4 | Majority of allotment. |

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.”