FISHLAKE NATIONAL FOREST
2003 LEVEL II RIPARIAN INVENTORY
Little North Creek Area

Little North Creek
Pine Creek
South Pine Creek
North Wildcat Creek
Wildcat Creek

Introduction

Shell Valley Consulting conducted fieldwork on the small streams of the Little North Creek Area on the Fishlake National Forest, on the 9th, 10th, 14th, and 15th of August and the 1st and 7th of September, 2003. Data collection included hydraulic geometry and stream channel morphology, vegetation identification, plant community descriptions, soil family descriptions, aquatic habitat descriptions, and photos of each riparian complex. The relative condition of these resources was also evaluated, and appropriate recommendations were made at sites where management may improve the riparian or aquatic condition. Inventory procedures are outlined in the Intermountain Region Integrated Riparian Evaluation Guide, 1992. The survey crew consisted of Jeff Petty, Hydrologist/ Ecologist, and Richard Denning, Soil Scientist. All hydrological and fisheries observations were documented by Jeff; the soil data were collected by Richard; and wildlife, vegetation and other data contributions were handled jointly.

Prior to field data collection, Jeff Petty divided each stream into several riparian complexes on 7.5 minute topographic quadrangle maps and aerial photos. Breaks in riparian types were determined by identifying changes in riparian width, stream gradient, stream morphology parameters, and changes in vegetation type discerned from the aerial photos. These riparian complex delineations were often readjusted in the field due to changes in vegetation or stream type boundaries. Tables found in Appendix A summarize data, and cross-section photos are found in Appendix B. Riparian delineations on the aerial photos and on electronically generated USGS Topographic Maps are provided in Appendix C and D respectively. Field data sheets are provided in Appendix E.

Field investigations included an examination of the entire stream. We walked every reach of each stream enabling us to compile a comprehensive assessment of the riparian resources. Within each reach the soil family, vegetation species and community types, and hydrologic characteristics were noted. A cross-section was selected within each reach that depicted typical channel geometry traits. At the cross-section photos were taken and measurements were made of stream channel characteristics such as width, depth, gradient, substrate features, streambank stability and channel stability. We employed methods outlined in Stream Reach Inventory and Channel Stability Evaluation (Pfankuch 1978) to estimate the degree of stream channel stability on each reach. Applied River Morphology (Rosgen 1996) was used to determine the stream type at each reach. Vegetation community types were determined using Riparian Community Type Classification of Utah and Southeastern Idaho (Padgett et al. 1989). To identify soil families, the Keys to Soil Taxonomy, 8th edition (1998), by the Natural Resources Conservation Service, was used.

Little North Creek

General

Data collection for the Level II Riparian Inventory on Little North Creek occurred on September 7th, 2003. Nineteen reaches were surveyed. The boundaries of the riparian complexes remained similar to delineations made on aerial photos in the office, although changes were made to reflect actual conditions found in the field. Three tables (Tables A20-A, A20-B and A20-C) summarize the stream, soils and vegetation data collected in the field. The field data sheets, photos of each reach cross-section, delineated USGS topographic quads and delineated aerial photos of each riparian complex accompany this report.

Little North Creek begins at an elevation of 9,120 feet elevation and flows southeast approximately 4.7 miles to cross the forest boundary at an elevation of 6,350 feet. As this drainage begins in the upper slopes of the watershed and flows through different precipitation and temperature regimes, a variety of plants, soil types and stream classification components were identified. A total of 11.5 acres of riparian area were surveyed on Little North Creek.

Hydrology

Little North Creek flows through a narrow and steep canyon with steep side slopes. The steepest reaches were the highest elevation reaches surveyed, and the lowest gradients occur in the lower elevations of the creek, thus forming a typical longitudinal profile of a mountain stream. The mean gradient measured in the field was 9.6%, although the highest seven reaches had an average gradient of 16.3% and the lowest seven reaches have a mean gradient of 4.4%. Seventeen reaches are "A" type channels (Rosgen 1996), and two are "B" type channels in reaches B20-2 and B20-12. The stream did not flow water below reach A20-10; water entered the alluvium at the lower end of the reach, and A20-18 was dry for most of the reach. This dry channel has seen very little flow in 2003, as indicated by the accumulation of litter in this section.

The mean Pfankuch (1978) stream score was measured at 92.8, which is considered "fair", although some of the reaches were rated as "poor", using the adaptation of the Pfankuch rating to Rosgen's stream type classification. The stream in these sections is suffering from the impacts of heavy grazing on the riparian areas. This results in low bank vegetation cover and vigor, mass wasting of the upper banks and bank cutting. These problems were considerable in reaches A20-1 through A20-3 and A20-6, A20-7, A20-11 and A20-12. The road culvert in reach A20-9 is causing accelerated erosion below the Forest Service Road #118.

There are several springs in reaches A20-12 through A20-17 which contribute flow to the stream, although these areas are being trampled by cattle. The water in the stream was usually clear and the water temperatures were relatively low (mean water temperature = 52°F). Beaver activity was not noted on this stream and fish were not recorded.

Irrigation diversions were seen in Reach C20-1 and C20-3 which divert water onto private lands west of the forest boundary. The headgate was in poor condition in both locations and silted in. We also noted a dead calf in reach C20-1 in the spillway of the headgate. The headgates divert water during high flows in the spring, and they have been used this year. Recent maintenance work at the upper headgate has occurred.

Photo 1. Lower diversion structure on Little North Creek in reach A20-1.

Soils

Reach A20-1 through A20-5 and A20-11 through A20-19 are Entisols. Reaches A10-6 through A20-10 are Mollisols. Areas of higher soil structure and organic matter were identified as Mollisols, however, due to compaction and loss of organic matter cycling the soils are losing structure. This is primarily due to cattle grazing. Table A20-B summarizes the soil data.

Vegetation

The Little North Creek riparian area is dominated by cottonwood communities in reaches A20-1 through A20-10. Reach A20-11 is a river birch/big tooth maple community type and the remaining reaches are conifer or aspen community types. Forage condition in many reaches is in a downward trend, due primarily to cattle concentrating on the riparian areas.

Narrowleaf cottonwood (*Populus angustifolia*), river birch (*Betula accidentalis*), big tooth maple (*Acer gradentatum*), Rock Mountain juniper (*Junperus scopulorum*), pinyon pine (*Pinus edulis*), skunkbush (*Rhus tribulata*), chokecherry (*Prunus viginiana*) and Gambel oak (*Quercus gambelii*), make up the overstory component of the cottonwood communities, with cottonwood usually greater than 30% of the canopy cover. Understory vegetation includes Woods rose (*Rosa woodsii*), mountain snowberry (*Symphoricarpos oreophilus*), big sagebrush (*Artimesia tridentata*), woolly mullen (*Verbascum thapusus*), curly dock (*Rumex crispus*), dandelion (*Taraxacum officinale*),

western yarrow (*Achillia millefolium)*, thread-leaf sedge (*Carex filifolia*), Kentucky bluegrass (*Poa pratensis*) and cheatgrass (*Bromus techtorum*).

The river birch/big tooth maple community type has a similar species composition, however, with less cottonwood and more birch. Other notable species include quaking aspen (*Populus tremuloides*), tufted hairgrass (*Deschampsia cespetosa*), redtop bent (*Agrostis scabra*) and fowl mannagrass (*Glyceria striata*).

In the aspen community type, quaking aspen was the dominant tree, although big tooth maple, river birch, subalpine fir (*Abies lasiocarpa*), blue spruce (*Picea pungens*) and Douglas fir (*Pseudotsuga menziensii*) were also present. Understory species included monkey flower (*Mimulus guttatus*), Fendlers meadowrue (*Thalictrum fendleri*) and brookgrass (*Catabrosia aquatica*), as well as many of the species seen in lower reaches such as Kentucky bluegrass and fowl mannagrass.

Conifer community types were dominated by subalpine fir, blue spruce and Douglas fir, with occasional aspen and understory subdominants such as raspberry (*Rubus idaeus)*, monkshood (*Aconitum columbianum*), baneberry (a*ctaea rubra*) and brook saxifrage (*Saxifraga odontoloma*).

Photo 2. Although the soil in the lower reaches of Pine Creek is capable of growing lush riparian vegetation, much of the riparian area is barren due to intense livestock grazing.

The lower and middle reaches show the impacts of continuous grazing, which were evident from the measured stubble height in the riparian of 1-3 inches, in reaches A20-8 and A20-12. Reach A20-11 had a stubble height of 1-6 inches, and 4-6 inches was noted in A20-17. Most of these measurements were made on Kentucky bluegrass and tufted hairgrass. Also documented were large barren areas in reaches below A20-12 were cattle have removed all of the vegetation.

Recommendations

Better grazing management is needed on this steam as many areas are showing grazing over use. The cattle are confined to the riparian area in this watershed, as shrub growth is so heavy in the uplands that cattle cannot use them. Therefore, cattle spend most of their time on the riparian. The side slopes are also very steep. Prescribed burns would regenerate and lower the age structure of Gambel oak, as well as remove other low growing trees and shrubs such as juniper and sagebrush. This would allow room for herbaceous forage to grow, and create access for livestock into the upland slopes. In addition, water developments located to water livestock on the slopes and mesas of the area would be needed, as well as better herding, and possibly riparian exclosures.

This stream is remote and difficult to reach, which often is where the most severe abuses occur. A four wheeler trail which accesses the creek above where Road #118 crosses the creek (reach A20-10) is causing excessive erosion, and needs to either be closed, or rerouted and water bars placed in it. Reaches A20-12 and A20-8 would be excellent locations for Level III Riparian Surveys. However, these areas are in the poorest condition and the forage trend can only go up.

Pine Creek

General

Data collection for the Level II Riparian Inventory on Pine Creek occurred on August 7th, 2003. Fifteen reaches were surveyed. The boundaries of the riparian complexes remained similar to delineations made on aerial photos in the office, although changes were made to reflect actual conditions found in the field. Three tables (Tables A21-A, A21-B and A21-C) summarize the stream, soils and vegetation data collected in the field. The field data sheets, photos of each reach cross-section, delineated USGS topographic quads and delineated aerial photos of each riparian complex accompany this report.

Pine Creek forms a channel at an elevation of 9,100 feet and flows southeast approximately 3.9 miles where it leaves the forest at an elevation of 6,550 feet. As this drainage begins in the upper slopes of the watershed and flows through different precipitation and temperature regimes, a variety of plants, soil types and stream classification components were identified. A total of 6.6 acres of riparian area were surveyed on Pine Creek and the total length is 3.94 miles.

Hydrology

At these higher elevations, Pine Creek flows through a ‘v’ shaped valley, with a mean gradient of 7.8%, and steep side slopes. The stream changes to a trough-like form as it descends and the gradient and side slopes are not as steep. Thirteen of the fifteen reaches are classified as “A” type streams (Rosgen 1996), and A21-7 and A21-9 are “B” type channels. The mean stream stability score (Pfankuch 1978) was measured at 65.9, which is a “good” rating. Three springs were noted

on reach A21-10. Small trout were seen in reach A21-11. Beaver activity was not seen on this stream, although there is suitable habitat

Soils

All reaches had a volcanic geologic parent material. Several different soil families were noted on Pine Creek. Mollisols were present on reaches A21-1 and A21-3. Reaches A21-2 and A21-4 though A21-9 contained Inceptisols. Entisols were observed on reaches A21-10 through A21-15. On all reaches the soil was slightly compact. No mottles were observed on Pine Creek.

Vegetation

Reaches A21-10 through A21-15 have a conifer dominated riparian community. The conifer component includes subalpine fir (*Abies lasiocarpa*) and spruce (*Picea spp*). Columbine (*Aquilegia spp.),* field horsetail (*Equisetum arvense*) , river birch (*Betula occidentalis*), red osier dogwood (*Cornus sericea),* and quaking aspen (*Populus tremuloides*) were also noted. Some grasses identified were tufted hairgrass (*Deschampsia caespitosa*), fowl mannagrass (*Glyceria striata*), Kentucky bluegrass (*Poa praetensis*) and blue wildrye (*Elymus glaucus.)* Common monkey flower (*Mimulus guttatus*), northern bedstraw (*Galium boreale*), red clover (*Trifolium*

Photo 3. The vegetation within the exclosure in reach A21-2 is representative of the riparian plant potential of the area if livestock grazing is managed properly. Although there has been a drought for the past four years, the vegetation inside the exclosure is still lush and vigorous.

Photo 4. Vegetation outside of the exclosure is not as vigorous and bare ground is much more common.

praetense), western yarrow (*Achillea millefolium*), Richardson geranium (*Geranium richardsonii*), Ross sedge (*Carex rossi),* Nebraska sedge (*C. nebraskensis*), raspberry (*Rubus idaeus*) and monk's hood *(Aconitum columbianum*) were also present.

The dominant riparian vegetation on reach A21-9 was river birch and Kentucky bluegrass. Other species were big tooth maple *(Acer granentatum*), quaking aspen, red osier dogwood, Woods rose (Rosa woodsii), curly dock *(Rumex crispus*), cheatgrass (*Bromus tectorum*), and stinging nettle (*Urtica diocia).*

Narrowleaf cottonwood *(Populus angustifolia*) dominated riparian communities on reaches A21-1 through A21-4, and A21-7 through A21-8. Big tooth maple, Kentucky bluegrass, quaking aspen, scouler willow (*S. scouleriana*), Booth willow (*S. boothii),* western yarrow, red osier dogwood, water hemlock *(Cicuta spp*.) and red clover were noted. Also observed were river birch, Gambel oak (*Quercus gambeii),* field horsetail, fowl mannagrass, bull thistle (*Cirsium vulgare*), woolly mullein (*Verbascum thapsus*), and tufted hairgrass.

River birch and Kentucky bluegrass dominate reaches A21-5 and A21-6. Red osier dogwood, Gambel oak, coyote willow *(S. exquia),* Booth willow, big tooth maple, mountain snowberry

(Symphoicarpos oreophilus), western yarrow, water hemlock, and fowl mannagrass are also part of this riparian community.

Of the fifteen total reaches, the forage trend in four reaches (A21-3, A21-4, A21-5 and A21-7) was determined to be "down". Reach A21-3 contained stubble measured at 2-6 inches and excessive grazing was noted on reaches A1-1 through A21-6. Riparian grazing exclosures on reaches A21-2 and A21-9 were examined, and vegetation inside this structure is meeting potential, although the condition of vegetation in surrounding riparian areas was less than desirable.

Recommendations

Better grazing management is needed to enable the stream and vegetation conditions to improve. Livestock grazing is lowering plant vigor and density, as well as altering species composition, although it is hard to determine the true extent of the impact from grazing due to the drought. The riparian exclosures showed what the potential of the riparian vegetation and stream channel could be with the removal of grazing. Currently cattle concentrate on the riparian because there is little forage and poor access to the uplands. Management prescriptions should emphasis better distribution. Prescribed burns and water developments in the upland slopes and mesas would reduce the grazing pressure on the riparian areas.

The trout in this stream are barely surviving and need habitat protection if the Forest Service wants a fishery here. Introduction of beaver would provide diversity and better overall habitat to the stream, as well as providing additional recreation locations. This area is used by the public for camping and other outdoor activities, and it would be a benefit to the area if beaver were active here. Weed control efforts are needed to prevent the spread of noxious and invasive weeds.

South Fork Pine Creek

General

Data collection for the Level II Riparian Inventory on South Fork Pine Creek occurred on July 10th, 2003. Thirteen reaches were surveyed. The boundaries of the riparian complexes remained similar to delineations made on aerial photos in the office, although changes were made to reflect actual conditions found in the field. Three tables (Tables A22-A, A22-B and A22-C) summarize the stream, soils and vegetation data collected in the field. The field data sheets, photos of each reach cross-section, delineated USGS topographic quads and delineated aerial photos of each riparian complex accompany this report.

South Fork Pine Creek begins in a small meadow at an elevation of 8,820 feet and flows north approximately 2.30 miles. A total of 3.1 acres of riparian area were surveyed on this creek.

Hydrology

South Fork Pine Creek flows through a valley that alternates between a trough-like shape and a "v" shape. As a "v" shape, the valley is narrow, with steep side slopes and a high gradient; whereas the trough shape has a moderate gradient and bottom width, with lower slopes. The mean gradient of the creek is 13.6 %. Rosgen's (1996) stream classification shows mainly "A" type channels. Reach A22-13 recorded as having a "B" type channel. The stability rating, based on Pfankuch (1979), shows a variance from "good" (reach A22-2) to "poor" (A22-10); the overall stability rating was

84.8, which is a "fair" condition. The stream is intermittent and reaches A22-4, A22-10 and A22-11 are dry. The lowest point of the stream in reach A22-1 lost all of the water to the alluvium as well.

Bedrock control was noted on A22-2 and A22-9. The upper control feature maintains the shallow gradient above in reach A22-10, however, a 6-10 foot incision was seen on reach A22-10. With very little vegetation cover on the uplands (A22-12b), sediment delivery to the stream is high during spring runoff and following thunderstorms. One fish was seen in a deep pool below a seven foot rock shelf on reach A22-2. No beaver activity was noted on this creek.

Soils

The thirteen reaches of South Fork Pine Creek contained two different soil families. Reaches A22-1 and 13 were Mollisols. Reach A22-13 was extremely overgrazed and the meadow soil is losing its granular structure. The remainder of soil types were identified as Entisols. Soil compaction was "slight" to "moderate". No mottles were observed on South Fork Pine Creek.

Vegetation

The riparian community (A22-13) at the highest elevation on South Fork Pine Creek was dominated by water sedge, with a subdominant component of Kentucky bluegrass. Other species observed were Nebraska sedge, marsh marigold (*Caltha leptosepata*), dandelion (*Taraxacum officianale*), and red clover. Reach A22-12b was dominated by a subalpine fir/Kentucky bluegrass complex. Also present were blue spruce, mountain snowberry, common monkey flower, and brookgrass (*Catabrosa aquatica*). Quaking aspen and Gambel oak were the vegetation community types in A22-11 and 12a. Also noted was yellow willow, Kentucky bluegrass, bull thistle, Canada thistle (*Circium arvense*), brookgrass and woolly mullen.

Reach A22-10 was a Kentucky bluegrass dominated community, with Woods rose, Gambel oak, western yarrow, chokecherry (*Prunus virginiana*), gooseberry currant (*Ribes montigemum*) and lupine (*Lupine spp*.). Reaches A22-6, A22-7 and A22-9 are dominated by big tooth maple and quaking aspen. Other species present are yellow willow, marsh marigold, brookgrass, fowl mannagrass, woolly mullein, red clover, gambel oak, tufted hairgrass and chokecherry. Conifer was the complex type on reach A22-8. Subalpine fir, big tooth maple and quaking aspen were in the overstory, with blue wildrye, Kentucky bluegrass, river birch, and dandelion noted in the understory.

Reaches A22-3, A22-4, and A22-5 are all Kentucky bluegrass dominated riparian communities. Big tooth maple, Woods rose, woolly mullen, Gambel oak, chokecherry, brookgrass, bull thistle, red clover, and lupine are also present. Reach A22-2 is a narrowleaf cottonwood and big tooth maple dominated area. Other species are Woods rose, chokecherry, Gambel oak, tufted hairgrass, fowl mannagrass, western yarrow, and bearberry *(Arctostaphylos uva-ursi*).

The forage trend on South Fork Pine Creek was "down" on all reaches but one (A22-2), which was "stable". Grazing was heavy on reaches A22-3, A22-4, A22-8, A22-12a and A22-13, where the stubble height was measured at 1-3 inches. The herbaceous understory on A22-12a was about 15%; potentially the cover under the aspen should be 50-80%. Reach A22-13 had stubble heights of 1-2 inches on grasses, and 2-6 inches on the carex in the meadow. Overgrazing has changed the vegetation composition from a riparian type to an upland type.

Photos 6 & 7. The exposed soil of the upland areas and the narrow riparian area indicates the severity of grazing on South Fork of Pine Creek.

Recommendations
A change in livestock grazing management is needed to restore stream integrity and vegetation health to the riparian corridor of South Pine Creek. This should include riparian exclosures, placed on reach C22-10 and 11, along with better herding efforts by the permittee. Cattle management should emphasize leaving the area after a utilization limit has been reached on the riparian and the upland vegetation. The current riparian conditions on this creek are unacceptable, and either the permittees comply with better management or they should not be allowed to graze the area.

Although beaver activity was not seen on this creek, there is suitable habitat and reintroduction could stabilize the stream. Weed control efforts are needed to prevent the spread of noxious and invasive weeds.

North Wildcat Creek

General
Data collection for the Level II Riparian Inventory on North Wildcat Creek occurred on September 1, 2003. Seven reaches were surveyed. The boundaries of the riparian complexes remained similar to delineations on aerial photos in the office, although changes were made to reflect actual conditions found in the field. Three tables (Tables A23-A, A23-B and A23-C) summarize the stream, soils and vegetation data collected in the field. The field data sheets, photos of each reach cross-section, delineated USGS topographic quads and delineated aerial photos of each riparian complex accompany this report.

North Wildcat Creek begins at an elevation of 7,720 feet and flows west approximately 2.0 miles. A total of 2.6 acres of riparian area were surveyed on this creek.

Hydrology
North Wildcat Creek flows through a trough-like valley, with increases in side slope height and a narrowing in the bottom to produce a 'v' shaped valley in the lower elevation reaches. The mean gradient was 7.3%. The Rosgen (1996) stream type classification was all "A" type channels, with the exception of A23-2, which was a "B" type channel. The mean Pfankuch score (1979) was 117, which is a "poor" stability rating. Instability was generally caused from the lack of streambank vegetation, mass wasting, and raw and eroding channels. This stream had the worst mean stability score of any we surveyed during this field season.

The three highest elevation reaches were not flowing water and had fine colluvial deposition in the channel, and 10-15 foot incisions. The entire channel of this creek is used as a cattle trail.

Soils
The riparian soil family present on all reaches are Entisols. No mottles were noted in the soil and rock layers were at 15 centimeters on reaches A23-1 through A23-5. Soil compaction was "slight" on this creek.

Vegetation
The lowest five riparian areas, reaches A23-1-5, are all dominated by Kentucky bluegrass. A small component of coyote willow (*S. exiqua)* was observed on reach A23-3. Other species were

Photo 8. This upland area, approximately 100 yards from North Wildcat Creek is nearly devoid of herbaceous vegetation.

big tooth maple, Gambel oak, Rocky Mountain juniper (*Juniperous scopulorum*), Woods rose, houndstongue (*Cynoglossum spp.),* mountain snowberry, western yarrow, dandelion, chokecherry, big sage (*Artemesia tridentata*), brookgrass, and clover (*Trifolium spp.).*

Reaches A23-6 and 7 were Rocky Mountain juniper and big tooth maple vegetation complexes. Gambel oak, mountain snowberry, western yarrow, Canada thistle, cheatgrass, Woods rose, Kentucky bluegrass, and scarlet gilia (*Gilia spp*.) were noted.

Heavy grazing was evident on the narrow riparian area of North Wildcat Creek. The forage trend for all reaches was "down". Although there is forage in the uplands, cattle are concentrating on this tiny riparian area and do not leave. Stubble heights were 3-4 inches on upland grasses and 1-2 inches on the riparian areas. Extensive areas of bare ground were observed on the benches above the channel, where cattle have completely denuded the soil surface.

Recommendations

There is no apparent grazing management on this creek and the ecology of the area is suffering dramatically. Cattle management should emphasize leaving the area after a utilization limit has been reached on the riparian and the upland vegetation. The current riparian conditions on this creek

Photo 9. The narrow strip of riparian vegetation along North Wildcat Creek is the only forage available for livestock and wildlife. The stream channel has become a cattle trail, as they walk up and down the stream looking for something to eat.

are unacceptable, and either the permittees comply with better management or they should not be allowed to graze the area.

Weed control efforts are needed to prevent the further spreading of Canada thistle and other noxious and invasive weeds.

Wildcat Creek

General

Data collection for the Level II Riparian Inventory on Wildcat Creek occurred on August 14th and 15th, September 1, 2003. Nineteen reaches were surveyed. The boundaries of the riparian complexes remained similar to delineations on aerial photos in the office, although changes were made to reflect actual conditions found in the field. Three tables (Tables A24-A, A24-B and A24-C) summarize the stream, soils and vegetation data collected in the field. The field data sheets,

photos of each reach cross-section, delineated USGS topographic quads and delineated aerial photos of each riparian complex accompany this report.

Wildcat Creek starts at a spring approximately 50 feet above the cross-section, at an elevation of 9,280 feet and flows southwest approximately 4.53 miles to the forest boundary at 6,900 feet. As this drainage begins in the upper slopes of the watershed and flows through different precipitation and temperature regimes, a variety of plants, soil types and stream classification components were identified. A total of 6.0 acres of riparian area were surveyed on Wildcat Creek and it has a length is 4.53 miles.

Wildcat Creek flows down a valley that alternates between a trough-like form and a‘v ’shaped canyon. The ‘v’ shape has very high gradient and narrow width, with moderate to steep side slopes. The reaches in the trough-like valley are not as steep or as narrow. The mean gradient of this creek is 7.6. Reach A24-1 is the only Rosgen stream type that has a channel classification of “B”. The remaining 18 reaches are all “A” type channels. The mean Pfanckuch stability score is 81.2, which is a “fair” stability rating. Reaches A24-10 through A24-19 were all rated as “good”, however the remaining lower reaches were rated “fair”.

The lower section of the stream flowed intermittently as reaches A24-1 through A24-3, and A24-7 had no water, and A24-5 and 9 has only intermittent flow. A spring located on reach A24-19 produced water flow, but no channel development or water above the spring was observed. Reach A24-12 has a road crossing at the bottom of the reach.

Soils

Entisols were the only soil types present on Wildcat Creek. The soil compaction was “slight” on all reaches. No mottles were observed on this creek, and on reaches A24-11 through A24-19 water was noted at the surface.

Vegetation

Riparian vegetation communities present on Wildcat Creek at the high elevation reaches (A24-15 through A24-19, A24-11, A2412 and A24-6) were dominated by conifer and monk’s hood. Spruce, Douglas fir, Ponderosa pine (*Pinus ponderosa*), white fir (*Abies concolor),* big tooth maple, quaking aspen, Kentucky bluegrass, clover, brook saxifraga (*Saxifraga odontoloma),* dandelion, common monkey flower, river birch, Gambel oak, common juniper (*Juniperus commonis*), chokecherry, and swordleaf rush (*Juncus ensifolius)* were also identified. Other species were narrowleaf cottonwood, red osier dogwood, bull thistle, stinging nettle and raspberry.

Reaches A24-7, A24-8, A24-9 and A24-10 were narrowleaf cottonwood communities, with river birch, Kentucky bluegrass, and big tooth maple as subdominant species. Plants also identified were Woods rose, Gambel oak, Rocky Mountain juniper, western yarrow, skunkbush (*Rhus trilobata),* swordleaf rush, gooseberry currant, yellow willow, bull thistle and dandelion.

Reaches A24-1through A24-5 has big tooth maple, Rocky Mountain juniper, and narrowleaf cottonwood as the most common species. These lower elevation reaches also contains Gambel oak, skunkbush, mountain snowberry, Woods rose, chokecherry and Kentucky bluegrass.

Forage trends on Wildcat Creek were designated as “down” on all reaches, except A24-1- and A24-11, which received a “stable” rating. A fire which occurred several years ago was noted on reaches A24-4, A24-5 and A24-12; the *populus* species are responding well, as young suckers are growing everywhere. Grasses have been grazed to an average measured stubble height of 2 inches on several reaches. Stubble heights of 1-2 inches were measured on reaches A24-16 and A24-17.

Recommendations

The stream channel and riparian area are protected from cattle grazing on some of the reaches because of steep banks that do not allow access. The remainder of the stream is in poor overall condition, as riparian vegetation is overgrazed and there appears to be no effort to keep cattle off the riparian areas. Better livestock management needs to be implemented to prevent further deterioration of this area. Cattle management should emphasize leaving the area after a utilization limit has been reached on the riparian and the upland vegetation. This will mean the permittee will have to ride the allotment and herd cattle away from heavily used areas. The current riparian conditions on this creek are unacceptable, and either the permittees comply with better management or they should not be allowed to graze the area.

Weed control efforts are needed to prevent the further spreading of Canada thistle and other noxious and invasive weeds.

Photo 10. Very little riparian vegetation was observed in the lower reaches of Wildcat Creek.

Report Summary

The watersheds described in this report are experiencing rapid ecological and hydrologic change, which involves excessive erosion of hill slopes and stream channels, modifications of storm discharge patterns, as well as changes in vegetation composition on both the uplands and riparian area. These changes are evident after reviewing the data and survey notes of the five streams. To altered the downward trend, which is occurring in these watersheds, better livestock management is required. The recommendations listed in this document should be evaluated and strongly considered; however, removal of livestock should be considered as an option on these lands. There has been such deterioration in plant production that the amount of forage currently growing on these rangelands does not sustain the stocking rates.

Most of the channels are incised and have relatively low vegetation bank cover; soil structure is changing and the riparian vegetation composition is comprised of either low seral species, weeds or plants that are resistant to grazing. Management actions are needed to reverse this trend and restore the area to a productive and stable ecological and hydrological state.