HFQLG
Project Evaluation Form

Project Name: Jenkins Timber Sale Project and Blakeless Watershed Restoration Project

Project Type: Jenkins Timber Sale implemented Aspen Restoration, Defensible Fuel Profile Zones (DFPZ) and Group Selection and Area Thinning treatments. The Blakeless Riparian Restoration Project implemented grade control structures to arrest erosion and restore hydrology to a meadow system. The project also implemented stream bank restoration and revegetation activities.

Forest: Plumas Ranger District: Beckwourth Date: October 9, 2008

Attendance: 31 people
Agency- Gordon Leppig, Environmental Scientist-California Department of Fish & Game; Gale Dupree, Sierra County Resource Conservation District and Sierra Brooks Resident.

Public – Bill Powers, Plumas County Supervisor; Lauri Krusi, Nevada City; Brian Wayland, Sierra Pacific Industries; Bill Wickman, Quincy Library Group and American Forest Resources Council.

USFS- Maria Garcia, Deputy Forest Supervisor; Barbara Boaz, Ecosystem Manager and Acting District Ranger; Sabrina Stadler, Senior NEPA Planner; Antonio Duenas, District Hydrologist; Russell Nickerson, Wildlife Biologist; Jon Lamb, Fire Ecologist; Mike Friend, District Botanist; Lynée Crawford, Assistant Botanist; Dave Wood, HFQLG Team Leader; Colin Dillingham, HFQLG Monitoring Team Leader; Elise Reierson, HFQLG Office Assistant; John Yembu, HFQLG GIS Volunteer; Renée Wimer HFQLG Public Affairs Officer; Steve Goodson, Sale Preparation Officer; Thoebe Oestreich, District Timer Sales; Dan Laird, Timber Sales; Ben Rau, Soils Scientist; BrendanWaterman, Hydrologist; Beth Lesar, Wildlife Biologist Trainee; Kyla Sabo, NEPA assistant; Mary Kliejunas, District Archeologist; Karen Newsted, Timber Harvest Inspector; Beth Stewart, Silviculturist; Tina Hopkins, Forest Fisheries Biologist; Angela Gregory, Forest Fisheries Biologist.

Type of treatment and acres:
Jenkins Timber Sale started implementation in fall of 2007 and the sale is still ongoing. The project has planned 96 acres of Aspen Restoration, 711 acres of Defensible Fuel Profile Zones (DFPZ), 421 acres of area thinning and 39 acres of Group Selection treatments.

Aspen restoration involved whole-tree removal of most conifers less than 30 inches diameter at breast height (with the exception of sugar pine, which would be left to maintain diversity). Visual integrity from Road 24N10, a major road receiving heavy recreational traffic, was considered in the size of aspen release. Large clearings surrounding aspen was considered negative from a public perspective.

DFPZ construction involved mechanical thinning from below, retaining trees greater than 29.9” diameter, removing sawlogs as well as smaller material (limbs, tops, small diameter understory trees) as biomass wood product (chips). Wood chips were delivered to cogeneration plant to create electricity. Prescribed fire is being planned. Snags >15” and large logs were retained for soil and wildlife habitat enhancement.

Group Selection involved creating 1-2 acre openings within forested stands. Long-term management of groups would create diversity in the larger forest stands.

The Blakeless Riparian Restoration Project implemented grade control structures to arrest erosion and restore hydrology to a meadow system. The project also implemented stream bank restoration and revegetation activities.

Resource Area	Attribute	Objective	Source of Objective	Objectives Met?	Comments
Silviculture	Canopy cover in DFPZ	Reduce canopy to 40% cover.	HFQLG Appendix J	Yes	Canopy cover effectively reduced in DFPZ units 132 and 42
Fuels	DFPZ	Create a safe and effective DFPZ	HFQLG Appendix J	Yes	Commercially thinned stands looked excellent. Surface fuels reduced, canopy broken, ladder fuels removed.
Silviculture and Wildlife	Aspen Stands	Increase area of aspen stands by providing space and conditions for regeneration.	Freeman EIS	Yes	Logging increased size of aspen stand and reduced competition
Wildlife	Bald Eagle Habitat and other wildlife habitat.	Reduce catastrophic wildfire potential, increase growth rate in residual stand.	Freeman EIS	Yes	DFPZ thinned stand to create larger trees faster and can help prevent catastrophic wildfire.
Wildlife	Spotted Owl, Bald Eagle, Willow Flycatcher, Northern Goshawk, Great Gray Owl	Prevent disturbance during nesting season	Freeman EIS	Yes	Limited Operating Periods were adhered to and coordinated with the wildlife biologist to prevent disturbance to wildlife
Archeology	Arborglyphs	Protect aspen trees with Basque Shepherd carvings	Freeman EIS	Yes	SHPO allowed entry into site because of plan to protect all aspen trees. Trees protected as planned.
Wildlife/ Botany	Native Grass	Reduce noxious weeds and bare ground and increase native grass component	Freeman EIS	Yes	Noxious weed control methods implemented and seeding with native species occurred and were successful.
Hydrology	Stream Channel	Stop head cutting in stream areas.	EA	Yes	Gravel filling of meadow areas has prevented stream head cutting
Soils	Productivity	Prevent excessive compaction and maintain soil nutrients	Plumas LRMP	Yes	Sale administrators kept skidders to main skid trails, which were ripped after use to mitigate compaction. Logs retained on site for long term soil productivity concerns.

Discussions:
The first stop of the field trip was in Jenkins Unit 56, an aspen restoration unit. Aspen stands were declining due to competition from conifer trees. Aspen Stands were restored by removing encroaching conifers to maintain this relatively rare, yet important ecosystem type (Figure 1). Careful conifer tree felling was conducted to retain particularly important aspen trees with "arborglyph" carvings by Basque Sheep Herders (Figure 2).

Figure 1. Field trip attendees discuss aspen restoration project. Conifers have been removed to allow for aspen regeneration and retention of this important ecosystem type.

Figure 2. Mary Kliejunas, District Archeologist, shows arborglyph carving by Basque Shepherd in retained aspen tree.

Two more stops visited some eastside pine habitats where the goal was to create a safe and effective Defensible Fuel Profile Zone (DFPZ). Hazardous fuels were treated in DFPZ Units 132 and 42 by eliminating ladder fuels through biomass product removal and whole tree yarding (Figure 3). The continuous canopy was broken up by thinning the forest with commercial saw log removal and biomass product removal. The forest was thinned from below, meaning the smaller understory trees were cut and removed and the larger diameter and dominant trees were retained. Biomass, or small diameter trees, limbs and tops of saw logs, are chipped and hauled to a biomass cogeneration plant where the material is burned to create electricity. Sawlogs were hauled to the Sierra Pacific Industries – Quincy Mill and made into dimensional lumber. Fire Ecologist Jon Lamb explained why the DFPZ construction would be a safe area to deploy firefighters during a wildfire.

Figure 3. Sabrina Stadler, District NEPA Planner, is shown leading discussion about construction of Defensible Fuel Profile Zone in Jenkins Unit 132. This photo illustrates effective removal of ladder fuels and vastly more open canopy than pretreatment conditions.

Unit 132 is within a secondary Bald Eagle nesting zone, which has a management goal of recruitment of CWHR size class 4 to CWHR size class 5 trees for future nest and roost trees. The DFPZ thinning and area thinning prescriptions would allow for development of large size class trees more quickly, which are the preferred trees used by Bald Eagles.

Group selection unit 13A was visited and discussions focused on the value of creating diversity in the larger, single story stand that was created during the railroad logging around the turn of the century (Figure 4). Natural pine regeneration was noted in the unit, less than a year after harvest. Some large logs were retained on the site to meet wildlife and soil objectives. Group selections were often centered in areas of pine beetle outbreak, annosus or mistletoe infestations with the goal of reducing these insects and disease agents within the overall stand. The main skid trails and landing were ripped to reduce soil compaction.

Figure 4. Jenkins Unit 13a, group selection unit approximately 2 acres in size. Ripped skid trail evident in foreground.

The Jenkins project was sold above minimum bid prices to operator Randy Pew. This project contributed to the economic stability of the local communities. However, due to a 90-day hold on the project after the project was bid, there was a large crash in the timber market making the project less economically viable. There was discussion about other work that could have been done with the Jenkins project, such as pruning to raise the base to live crown height. Forest service personnel explained that the follow up underburn would sufficiently raise the crown base height. Bill Wickman, representative from the American Forest Resources Council, emphasized that when projects are created, don't add unnecessary work to contracts to keep the projects as economically viable as possible.

Soil management used an adaptive management approach to determine need for subsoiling. Although the soil management prescription called for universal ripping of all skid trails, a determination was made by the district hydrologist that not all skid trails needed ripping and it was only conducted where considered necessary.

The last stop in the Jenkins project was in unit 42 where a second effective DFPZ had been constructed. A pre-treatment photo of the site was shared with the group so that the heavy stocked conditions could easily be

visualized. Tina Hopkins, Forest Fisheries Biologist, explained that the adjacent Cow Creek was part of the Stream Condition Inventory monitoring used to evaluate the HFQLG Pilot Project. Preliminary evidence suggests little effect from HFQLG projects thus far from data collected in streams with both pre- and post-project data. Wildlife biologist Russell Nickerson explained that although the stand meets minimum canopy and size class definitions for suitable spotted owl habitat, the lack of old legacy trees for nesting and lack of multiple canopy layers make this unit unsuitable for spotted owls. A discussion of allowing DFPZ treated areas, already deemed unsuitable as spotted owl habitat, to be reduced below 40% canopy ensued. Bill Wickman emphasized that a small sale to remove some more trees to bring the residual basal area down to 30% of what existed pre-harvest would help keep small operators in business. Retention of 30% of existing basal area is the Standared and Guide stated in Appendix J for DFPZ construction in eastside pine type and all other CWHR 4M and 4D classes. A 40% canopy cover requirement is only applicable in CWHR stands 5M, 5D and 6. Therefore, the Standards and Guides allow for more aggressive treatments than was pursued on the Jenkins project.

The field trip participants traveled to the Blakeless Stream and Meadow Improvement site where hydrologist Antonio Duenas introduced the project. The purpose of the project was to improve the condition by reducing soil and stream channel erosion from pre-existing eroding channel banks, head cuts and gullies as well as to enhance the herbaceous cover within the meadow by increasing the water table through the construction of grade control structures (Figure 5). Grade control structures were placed in head cuts in the stream.

Figure 5. Hydrologist Antonio Duenas explains construction of grade control structure that was completed by installing small to mid-sized rock in head cuts to prevent further erosion and restore hydrology. Pre-project conditions were steeply eroded, unvegetated stream banks. The restored water table and cattle exclusion allowed vegetation to become reestablished on the stream bank and into the meadow ecosystem.

Successes and Shortcomings:
Aspen stands were restored and expected regeneration of the stand is anticipated in the next few years.

A safe and effective Defensible Fuel Profile Zone was constructed.

An economical timber sale was sold, bringing economic benefits to the local communities.

The Blakeless riparian restoration project repaired all head cuts and gullies in the stream. Approximately 120 cubic yards of soils and stream channel erosion was arrested. The project restored hydrologic function on approximately 35 acres.

Follow up actions:

Monitor cattle grazing in aspen stands. Initiate corrective action if cattle are over-utilizing aspen.

Follow-up underburning is planned to complete surface fuel treatments in DFPZ units. Fire use will be evaluated in aspen management units. Logging slash debris piles will be burned. Aspen management units will be observed to see the effects of cattle grazing.

Continued monitoring and actions to protect springs and stream bank vegetation from cattle impacts in the Blakeless project are planned (see Appendix).

Notes prepared by: */s/ Colin Dillingham* Date: 9 October 2008
Monitoring Team Leader, HFQLG Implementation Team

Acting District Ranger: */s/ Barbara R. Boaz* Date: 14 Oct 2008
Ecosystem Manager and Acting District Ranger

Appendix 1. Blakeless Stream and Meadow Improvement handout.

Blakeless Stream and Meadow Improvement Project
Beckwourth Ranger District 2005 & 2006

BLAKELESS STREAM AND MEADOW IMPROVEMENT PROJECT

PURPOSE

The USDA Forest Service, Plumas National Forest, Beckwourth Ranger District, proposed to improve the condition of Blakeless stream and stringer meadow system in the Lower Indian Creek Hydrologic Unit Code (HUC) 5 Watershed by reducing soil and stream channel erosion from pre-existing eroding channel banks, headcuts, and gullies and enhance the herbaceous cover within the meadow by increasing the water table through the construction of grade control structures. This action is consistent with the direction for riparian management described in the Herger-Feinstein Quincy Library Group Forest Recovery Act (the Act) to provide "a program of riparian management, including wide protection zones and riparian restoration." In addition, it addresses the direction in the Environmental Impact Statement for the Act, that riparian areas would be managed to sustain "healthy aquatic and riparian ecosystems protected from the impacts of land use activities, but able to adjust to impacts caused by natural-occurring disturbance processes such as wildfire, flood and drought. "Streams and their riparian areas would be restored to their proper functioning condition." This action is also consistent with the direction for riparian management described in the Sierra Nevada Forest Plan Amendment, Final Supplemental Environmental Impact Statement, Appendix A: Management Direction, Management Goals and Strategies; Aquatic, Riparian, and Meadow Ecosystems and Associated Species to "maintain and restore, water quality, floodplains and water tables, watershed connectivity, watershed condition, streamflow patterns and sediment regimes, streambanks and shorelines."

NEED

The Lower Indian Creek HUC5 Watershed has been cumulatively impacted by mining activities, timber harvests activities, roads situated along stream channels, and livestock grazing. Streams such as Blakeless Creek are relatively sensitive stream systems with high fishery values. Streams and tributary reaches along Blakeless Creek are in poor to fair condition; however, within the last twelve years numerous efforts have been made to improve stream channel condition and enhance trout habitat along Blakeless Creek. Many of the stream channel improvements consisted of stream bank stabilization, headcut control, revegetation, road decommissioning and culvert removal or replacement.

Some of these rehabilitation efforts within the project area have failed over time from lack of maintenance and grazing impacts. Some of this work was successful in raising the base level of the channel in localized areas or in stopping up-meadow migration of head cuts. However, it was unsuccessful at restoring meadow function and stopping the gully erosion within the meadow. It was hypothesized that low flow and peak flow conditions, fishery habitat, meadow species composition and cover, and water quality could be improved through channel and meadow restoration and improvement of forest and range practices throughout the watershed.

The "Sale Area Improvement Plan" for Blakeless Two Insect SSTS and Cinderella 2 Insect Salvage Sale Knutson-Vandenberg (KV) Plans identified fish and hydrology restoration projects on Blakeless Creek in 1993. Those proposed projects consisted of: 1) planting willows and grass seed mixture on the banks of Blakeless Creek below the road to Little Grizzly Creek; and 2) a 'pond and plug' project on Blakeless Creek above the road through the meadow, along with

fencing out three springs to prevent livestock from entering and damaging these sensitive areas. More recent surveys conducted in 2005 identified numerous head cuts, gullies, and unstable and eroding stream channels within the project area (Figure 1).

ACTION TAKEN

The Beckwourth Ranger District's Watershed Department routed the Blakeless KV Stream and Meadow Improvement Project Initiation Notice (PIN) to the Forest Service specialist in 2005. Issues brought forward by the specialists included presence of special interest species and noxious weeds, archeological sites, and sensitive wildlife species. Mitigations to address these concerns included placing black matting on approximately 30 feet of the noxious weed Canada Thistle (*Cirsium arvense*) on one of the banks to Blakeless Creek below the road and flagging and avoiding the special interest plant species *Trichodon cylindricus*, avoiding archeological sites, and working with the Limiting Operating Periods (LOPs) identified for the sensitive wildlife species of concern.

Sections of the stream channels were incised into the meadow, resulting in gully erosion and meadow decline. Individual headcuts had formed in the channels and in the meadow and were treated to stop up-stream migration. Unstable banks existed throughout the stream and meadow system. Bank slope modification expedited natural processes and mitigated continued erosion of sediment into the system. The project also included lowering the surface elevation in the threshold between the spillway of a gully into the meadow to restore sheetflow. The design utilized bioengineering techniques that perform well and do not require frequent maintenance.

The treatment types(s) were determined on a site-specific individual basis. Headcuts were treated by filling with small to midsized rock and if extra soil was available the structure was covered with the soil, seeded and bioengineering erosion control coconut, straw and jute blankets were placed and secured to the top of the structure. A steep pool system / grade control structures were constructed on the northern perennial stream channel on the upper portion of the project area.

Revegetation and erosion control BMP's included reuse of topsoil that contained a seed bank, application of native seed and coverage of bare soil using weed free straw and/or erosion cloth blankets. Revegetation also utilized 400 sedges and rushes and 450 willows, along with a native seed mixture. In some cases vegetation harvested from the project area was reused to plant in repaired channel bottoms and where slope stabilization occurred. Plant material salvaged for revegetation consisted of mature and young willows, meadow sod, and topsoil that contained a seed bank. Application of native seed occurred prior to fall rains on disturbed soil within the meadow and on the recontoured road. Revegetation is critical to soil protection, habitat enhancement, and reduction of overland flow velocities.

Lovejoy Unit of the Grizzly Valley Community Allotment was grazed soon after the lower portion of the project work was completed. The need for temporary exclosures was identified for both projects in 1993. The project below the road was completed in 2005 and reseeded again in 2006. The willow planting and grass seeding below the road was unsuccessful due to livestock impacts by trampling on the erosion cloth blankets and sloughing the willows planted in the banks to the creek's edge.

The project area above the road was grazed the following years after the project was completed in 2007 and 2008. However, temporary electric fencing was placed on the area above the road

during 2007 and 2008 to allow vegetation to establish and to prevent potential damage to the restored site. The Hydrologist and the Rangeland Management Specialist will review the project area to determine if an extended rest period or fencing is needed while the stream system continues to recover. Recommendations to the Beckwourth District Ranger with respect to the continuation of grazing, including livestock numbers, season of use and duration would be made based on their findings.

IDENTIFIED RESOURCE CONCERNS

Archeological sites: There were three sites identified in the vicinity of the project area. The project was designed to completely avoid one of the sites. The other two sites were found to be outside of the project area.
Wildlife: Spotted Owl and Northern Goshawk (NOGO) Protection Activity Centers (PAC) were identified in the project area. However, the limited operating periods (LOP) for these sensitive species were waived based upon historical occupancy of the territory, distance from known Northern Goshawk nest sites and the short duration of mechanical restoration activity.
Botany: The project area includes a site of Canada thistle (*Cirsium arvense*) a noxious weed and a population of the special interest plant species *Trichodon cylindricus*. Both species were flagged and avoided.
Range: The project falls within the Lovejoy Unit of the Grizzly Valley Community Allotment. One permitee is allowed to run 157 pair from 6/16 to 9/15 and another permitee is allowed 120 pair from 6/16 to 9/15. Temporary electric fences were constructed in 2007 and 2008 around restoration sites.
Fisheries: To mitigate the potential of sediment traveling down stream during project implementation weed-free straw bales and wattles were placed downstream to help filter out any sediment.

EFFECTIVENESS OF THE TREATMENT

With few exceptions, the treatment was successful. All headcuts and gullies have been repaired and energy dissipaters are in place to slow the flow of surface water. Approximately 3240 ft^3 (120 yd^3) of soil and stream channel erosion has been arrested. The project restored hydrologic function on approximately 35 acres.

ISSUES TO ADDRESS

Issue 1: Protection of the three springs from potential livestock impacts.
Solution: There are current discussions on having the Forest Service providing the fencing material on a 50:50 cost share basis for the 2009 grazing season. The Permittees will provide the labor to build exclosures around the small springs prior to 2009 turnout. Annual maintenance of these three small spring exclosures will be assigned to the Permittees.

Issue 2: Bank disturbance from livestock after implementation of the downstream portion of the project appears to have prevented a full recovery of some banks due to the displacement of vegetation, seeds, and erosion cloth blankets that were applied to the disturbed banks.
Solution: Reconstruct electric fence on the downstream portion of project area, scarify, reseed, and possibly apply bioengineering material to banks.
Alternative Solution to be Applied: Seeding will be completed using a hydro-mulcher.

PROJECT BUDGET

Total Available KV Project Funds: 33,126

Planning Budget

Planned	**Salary Costs**	**Travel & Training**	**Supplies & Other Costs**	**Fleet Costs**	**Total Costs**
	5,149	0	0	1000	6,149
Spent	**Salary Costs**	**Travel & Training**	**Supplies & Other Costs**	**Fleet Costs**	**Total Costs**
	6,608	0	0	1,184	7,792

Implementation Budget

Planned	**Salary Costs**	**Travel & Training**	**Supplies & Other Costs**	**Fleet Costs**	**Total Costs**
	9,987	0	4,290	4,574	18,851
Spent	**Salary Costs**	**Travel & Training**	**Supplies & Other Costs**	**Fleet Costs**	**Total Costs**
	13,836	0	646	5,998	20,480

Additional Cost

Fisheries' KV funds paid for re-vegetation (willows, sedges & rushes) 3,900

Total KV Project Cost 32,172

Watershed (NFVW) funds paid for fencing material 5,500

Total Project Cost (KV and NFVW) 37,672

Figure 1.0 - Pictures of degraded sites pre restoration.