

**HFQLG
Project Evaluation Form**

Project Name: Davis/Merrill Watershed Restoration Project Type: Plug and Pond Watershed Restoration
Scraps EA -Bits and Beak projects DFPZ (biomass/thinning) and Group Selection
Treasure EA –Crown project Biomass Thinning and Underburn
Forest: Tahoe Ranger District: Sierraville Date: 12 June 2008

Attendance:

Agency- Douglas Cushman, Lahontan Regional Water Quality Control Board.

Public- Frank Stewart, Counties Forester and Quincy Library Group (QLG); Brian Wayland, Sierra Pacific Industries (SPI) Quincy; Tom Downing, SPI Quincy.

USFS- Quentin Youngblood (District Ranger), Timothy Evans (Resource Officer), Bruce Troedson (Sale Administration), Craig Wilson (Wildlife Biologist), Randy Westmoreland (Truckee-Sierraville Watershed Specialist), Dave McComb (District Soil Scientist), Teri Banka (District Silviculturist), Erin Ernst (Assistant District Silviculturist), Lance Noxon (Truckee-Sierraville Fuels Officer), Eric Petterson (District Fuels Officer), Ruby Banks (Assistant District Fuels Officer), Walt Levings (Tahoe NF Natural Resource Staff Officer), Dave Evans (Lassen NF Forest Silviculturist), Colin Dillingham (HFQLG Monitoring Coordinator), Dave Wood (HFQLG Team Leader), Tamara Schmidt (HFQLG Public Affairs).

Project completed by: Pew Forest Products (Bits & Beak Timber Sale) Date completed: 2006
Folchi Excavation (Davis/Merrill Watershed Restoration) Date completed: 2007
(Crown Service Contract) Date completed: 1999 (thin from below); 2007 (hand thin/grapple pile)

Type of treatment and acres:

Crown Unit 1 – Thin from below, grapple pile, burn piles	58 acres
Bits Unit 15 – Mechanically thin from below	25 acres
Beak Unit 86/87 – Mechanically thin with imbedded group selection units	98 acres

Resource Area	Attribute	Objective	Source of Objective	Degree Met	Comments
Soils	Erosion (Davis/Merrill projects)	Reduce Active Erosion	Watershed Analysis	Yes	Installed plugs in eroding channel, redirected flow into historical channel.
Hydrology	Meadow hydrology (Davis/Merrill project)	Restore water to dewatered meadow system	Watershed Analysis	Yes	Installed plugs in eroded creek channel, brought water table up 3-4 feet in project area
Silviculture	Basal Area	Reduce tree density to 100 sq ft of basal area /acre	Scraps EA/Silvicultural Prescription	Yes	Basal area (sq ft/ acre) reduced from 159 to 88 in Bits Unit 15 and from 126 to 100 in Beak 86
Silviculture/ Wildlife	Canopy Cover	Reduce canopy to approximately 30%	Scraps EA	Yes	Canopy reduced from 41% to 34% in Bits Unit 15
Silviculture	Species composition	Return stands to historical pine dominated forests	Scraps EA	Yes	Understory white fir reduced – Beak 86 converted from Sierra Mixed Conifer to Eastside Pine type
Heritage	Control Area Protection	No Equipment allowed in Control Area (Bits U-15)	Scraps EA	Yes	Control Area protected during harvest operations.
Fuels	DFPZ	Create an effective DFPZ as part of network	Scraps EA	Yes	Ladder fuels/Height to live crown base/fuel loading all effectively reduced and now meeting objectives.
Soils	Compaction	Prevent detrimental compaction over more than 15% of the treatment unit	Tahoe LRMP	Bits U-15 over 15% threshold (24%), Beak 86 was 12% compacted	Appears some additional compaction in each unit monitored. Previous harvest compaction in Bits 15 caused unit to be over threshold. Due to soil type (sandy loam), no loss to long term soil productivity.
Soils/ Wildlife	Large Woody Material	Retain large wood in project area where available	Scraps EA	Yes/where available	Some areas appeared to have fewer large logs than desirable, but there were few logs present prior to treatment

Shortcomings and Successes:

Successful implementation of DFPZ in Crown, Bits and Beak Projects –vegetation and fuels management objectives were met. Future prescribed fire is still recommended to maintain the low fuel loading and to reintroduce fire as an important landscape component to meet ecological objectives.

The Bits and Beak projects were implemented under Sierra Nevada Framework 1 (2001 ROD), which did not allow the removal of trees greater than 20” in diameter. If implemented under Framework 2 (2004 ROD), the few units we looked at would not have been very different because the stands were composed largely of trees less than 24 inches in diameter, and the few larger trees would have been marked for retention under guidelines from either Framework. There were other units not reviewed in today’s field review, including some reviewed during the 2007 field trip, that would have yielded greater volume and the project may have been able to be sold as a timber sale and contributed money to the federal treasury, instead of established as a service contract, consequently using taxpayer dollars. Implementation under Framework 2 would have allowed inclusion of additional sawlogs 20 – 30 inches in diameter, and would have made the project more economical.

Lahontan Regional Water Quality Control Board (RWQCB) did not see any major items of concern in any of the timber units reviewed. Doug Cushman liked the open stands that remained forested, saw benefits to wildlife in the group selection units, and was pleased to see that they were placed out of riparian buffer zones as well as being placed in flatter topographic areas. The water bars on temporary roads were well constructed. Cushman did point out one site at Beak Unit 87 that had a road drainage ditch that had been blocked by a road grading berm which would impede road drainage.

Cushman was pleased with the Plug and Pond project results and saw the project as a good watershed restoration project. Quentin Youngblood asked if the road drainage improvements and Plug and Pond projects that were being implemented could be used as ERA credits. Cushman explained that although there is not a mechanism to allow that right now, the Lahontan RWQCB sees what the district is doing and can provide Silvicultural Waivers rather than requiring a permit. Cushman went further to explain that if the Forest was to provide a new ERA calculation mechanism to include credits for Plug and Pond type projects, road restoration projects or other watershed restoration projects being accomplished, the Lahontan RWQCB would consider new analysis methods.

Westmoreland and Youngblood explained how successful they have been at attaining grant money (\$2,000,000) that has come to the Sierraville Ranger District to fund watershed restoration projects. HFQLG dollars are spent doing watershed analysis and NEPA and then grant dollars are sought to fund the on-the-ground projects.

Randy Westmoreland explained that they have established a monitoring program at the Davis/Merrill Project and have partnered with the Desert Research Institute. They have monitoring wells established that can document change in water holding capacity in the projects. Data was not available for this field trip. Dillingham will work with Westmoreland to get data available on the HFQLG website in the future.

Follow up actions:

Implement planned underburns in Bits Unit 15 and Beak Units 86 and 87 to meet DFPZ maintenance objectives and to reintroduce fire as a landscape component.

District Ranger: /s/ Quentin L. Youngblood

Date: June 17, 2008

HFQLG Field Trip

Sierraville Ranger District

Monitoring Field Tour Agenda

June 12, 2008

9:00 Meet at Location/ Introduction of Project Participants

9:15 Load Up and Leave for Project

Stop 1 Little Truckee Summit – Fuels Treatment - Grapple Piles and burned last year. Discussion leaders. Lance Noxon (East Zoned FMO), Eric Peterson (Fuels Officer), Ruby Burks (Assistant Fuels Officer).

Stop 2 Beak Unit # 15. Brief summary of discussion topics. Discussion leader(s) Bruce Troedson (Sierraville Timber Staff Administrator, Teri Banka (Sierraville Silviculturist)

Stop 3 Bits Unit # 86. Brief summary of discussion topics. Discussion leader(s) Bruce Troedson (Sierraville Timber Staff Administrator, Teri Banka (Sierraville Silviculturist)

Stop 4 Beak Unit # 87. Brief summary of discussion topics. Discussion leader(s) Bruce Troedson (Sierraville Timber Staff Administrator, Teri Banka (Sierraville Silviculturist)

Stop 5 Davies – Merrill Restoration Project – Site # 3. Discussion leader: Randy Westmoreland (Eastside Zoned Watershed Specialist)

Scraps EA

Sierraville Ranger District

Project Objectives and Prescriptions (from EA pages 09-12):

Stop # 1 – Grapple Piles and burned last year. Discussion Leaders: Lance Noxon (East Zoned FMO), Eric Peterson (Fuels Officer), Ruby Burks (Assistant Fuels Officer).

Fuel Treatment: Implement a Defensible Fuel Profile Zone (DFPZ) as a part of an extensive fuel treatment network that is effective in reducing the potential size of wildfires, providing fire suppression personnel safe locations for taking actions against a wildfire, and providing protection for the community of Sierraville in the event of a wildfire.

Objectives include:

- Reduce the potential for crown fire.
- Manage timber stands to improve their health while protecting soil, water, sensitive plants, fish and wildlife habitats.
- Reduce excessive fuel loading and provide for safe fire suppression action in the future.
- Protect and maintain tree plantation investments.
- Protect human safety and private property by increasing fire suppression effectiveness.
- Protect air quality by conducting all activities affecting air quality to meet CARB and local A.Q.M.D standards.
- Reduce piled fuels by 75% to 100%

Range of Acceptable Results Expected

- Reduce piled fuels by 75% to 100%
- Protect private property, cultural and high value resources

Prescription:

Stop # 2

Bits Unit # 15. Service Contract. Discussion Leader(s) Bruce Troedson (Sierraville Timber Staff Administrator, Teri Banka (Sierraville Silviculturist)

Thin trees to approximately 21' X 21' spacing. Sample Mark Area is leave tree (LTM) with ORANGE paint. The remainder of the unit is designated by description. Minimum dbh is 4.0". Retain 80 – 130 trees/acre. Leave trees in the following species preference: Sugar pine, Ponderosa/Jeffery pine, western white pine, incense cedar, red fir, white fir, lodgepole pine. Sugar pine will not be cut unless it is an inferior tree **AND** shows obvious signs of blister rust. Leave trees should have $\geq 30\%$ crown ratio. Select leave trees that are taller, healthiest, best form, undamaged, and largest diameter trees. Do not consider juniper trees or Snags or junipers do not count towards the leave tree spacing. Leave all juniper trees, and snags $\geq 15''$ dbh will be left contractually. Cut all mistletoe infested trees with a Hawksworth rating of ≥ 4 . Leave **ALL** live trees $\geq 20''$ dbh. Trees that are growing close together at the base: either leave both trees or cut both trees. If a tree or snag is leaning at an angle of > 30 degrees into another tree, leave both trees.

Require mechanized harvest equipment with an articulating boom capable of reaching > 12 feet. Require application of borate compound to freshly cut conifer stumps $\geq 12''$ diameter. Whole tree yard to landing to reduce activity fuels.

Stop # 3

Beak Unit # 86. Thinning and Groups. Discussion Leader(s) Bruce Troedson (Sierraville Timber Staff Administrator, Teri Banka (Sierraville Silviculturist)

Thin trees to approximately 21' X 21' spacing. ITM live cut trees with **BLUE** tracer paint. Minimum DBH is 6.0". Retain 80 – 130 trees/acre. Leave trees in the following species preference: Sugar pine, Ponderosa/Jeffery pine, western white pine, incense cedar, red fir, white fir, lodgepole pine. Sugar pine will not be cut unless it is an inferior tree **AND** shows obvious signs of blister rust. Snags and Junipers do not count toward the leave tree spacing. Leave trees should have $\geq 30\%$ crown ratio. Leave trees which are taller. Do not mark to cut any snags. All snags $\geq 15''$ dbh will be left contractually. Cut all mistletoe infested trees with a Hawksworth rating of ≥ 4 . Leave **ALL** live trees $\geq 20''$ dbh. Cut all red and white fir $\leq 16''$ dbh with basal scars over 1/3 the circumference of the bole of the tree. Treat aspen as a desirable leave tree and cut nearby conifers unless it is an exceptionally good tree, then leave both. If a tree or snag is leaning at an angle of > 30 degrees into another tree, leave both trees. When there are some large trees and/or snags associated with smaller trees creating vertical cover, leave trees at a closer spacing to maintain the cover. These patches should range in size 0.1 – 0/25 acres.

There are 2 group selection areas in the unit. All trees within the group down to the minimum dbh are to be cut expect sugar pine trees free of blister rust and trees with exceptional growth characteristics of wildfire values. There is no maximum tree size to be cut in the group.

Stop # 4

Beak Unit # 87. Group Selection. Discussion Leader(s) Bruce Troedson (Sierraville Timber Staff Administrator, Teri Banka (Sierraville Silviculturist)

Group Selection: Implement group selection as directed in the HFQLG Act to achieve an all-aged mosaic of timber stands, while contributing to the local economy through a sustainable output of forest products.

Thin trees to approximately 21' X 21' spacing. ITM live cut trees with **ORANGE** tracer paint. Minimum DBH is 6.0". Retain 80 – 130 trees/acre. Leave trees in the following species preference: Sugar pine, Ponderosa/Jeffery pine, western white pine, incense cedar, red fir, white fir, lodgepole pine. Sugar pine will not be cut unless it is an inferior tree **AND** shows obvious signs of blister rust. Snags and Junipers do not count toward the leave tree spacing. Leave trees should have $\geq 30\%$ crown ratio. Leave trees which are taller. Do not mark to cut any snags. All snags ≥ 15 " dbh will be left contractually. Cut all mistletoe infested trees with a Hawksworth rating of ≥ 4 . Leave **ALL** live trees ≥ 20 " dbh. Cut all red and white fir ≤ 16 " dbh with basal scars over 1/3 the circumference of the bole of the tree. Treat aspen as a desirable leave tree and cut nearby conifers unless it is an exceptionally good tree, then leave both. If a tree or snag is leaning at an angle of > 30 degrees into another tree, leave both trees. When there are some large trees and/or snags associated with smaller trees creating vertical cover, leave trees at a closer spacing to maintain the cover. These patches should range in size 0.1 – 0/25 acres.

There are 9 group selection areas in the unit. All trees within the group down to the minimum dbh are to be cut expect sugar pine trees free of blister rust and trees with exceptional growth characteristics of wildfire values. There is no maximum tree size to be cut in the group.

Stop # 5

Davies – Merrill Restoration Project - Site # 3. Discussion leader: Randy Westmoreland (Eastside Zoned Watershed Specialist)

Multiple railroad grade alignments were constructed in the channel and floodplain in this area. This has diverted the natural flow and has caused the channel to downcut. The flow is now trapped in the eroded trough. The proposal for this site is to:

- Remove 500 feet of railroad grade from the floodplain. Use soil excavated to construct plugs. Disturbance would be about .23 acres.
- Divert the flow out of the eroding trough and into stable remnant channels where the stream can access the floodplain surface.
- Close off 300-feet of the abandoned stream section using pond and plug construction. Approximately 600 cubic yard of material excavated from ponds along side the abandoned channel would be used to construct plugs. Disturbance would be about $\frac{1}{2}$ to 1 acre.+

2008 Field Trip

Contract	Contract Type	Cost per acre	Treatment Date	Treatment Prescription	Acres	Total Sawtimber Volume (MBF)	Thinning Sawlog Avg. vol/acre (MBF)	GS Sawlog Avg. vol/acre (MBF)	Non-saw Avg. vol/acre (GT)	Minimum Tree DBH (Inches)
Crown - 1	Service	\$305.60	Dec-99	Thin From Below	58	148	2.5	0.0	9.0	4.0
Grapple				Hand						
Pile	Service	\$458.00	Jun-07	Thin/Grapple Pile	59	0	0.0	0.0	0.0	4.0
Bits - 15	Service	\$378.00	Aug-06	DFPZ - Thin	25	58	2.3	0.0	9.4	0.0
Beak - 86	Timber Sale	N/A	Aug-06	DFPZ - Thin w/ GS	19	81	4.1	11.0	14.5	6.0
Beak - 87	Timber Sale	N/A	Aug-06	DFPZ - Thin w/ GS	79	329	4.1	11.0	14.5	6.0

HFQLG Monitoring Field Trip, June 12, 2008 Sierraville Ranger District, Tahoe National Forest

Post Treatment Soil Monitoring Summary

Units were treated September 2006

200 points in each unit were evaluated for soil compaction, disturbance, displacement and effective soil cover. Every fifth point was evaluated for large down wood (>20'' in diameter, >10 ft long)

Soil: Jorge sandy loam
Soil Compaction Risk- moderate

Bits 15

Compaction- 24% (48 points), 13 of 18 points on skid trails were compacted.
Soil Cover- 77%
Disturbance- 24%
Displacement- 5%
Large Down Wood- 1 log/ac

Beak 86

Compaction- 12% (23 points), 16 of 31 points on skid trails were compacted.
Soil Cover- 76%
Disturbance- 28%
Displacement- 5%
Large Down Wood- 2 logs/ac

Tahoe NF Soil Standards and Guidelines

Soil compaction: no more than 15%
Effective soil cover (duff, vegetation, rock) at least 50%
Large Down wood – 5 logs/ac
Minimum 20% undisturbed forest duff

Bits Unit 15

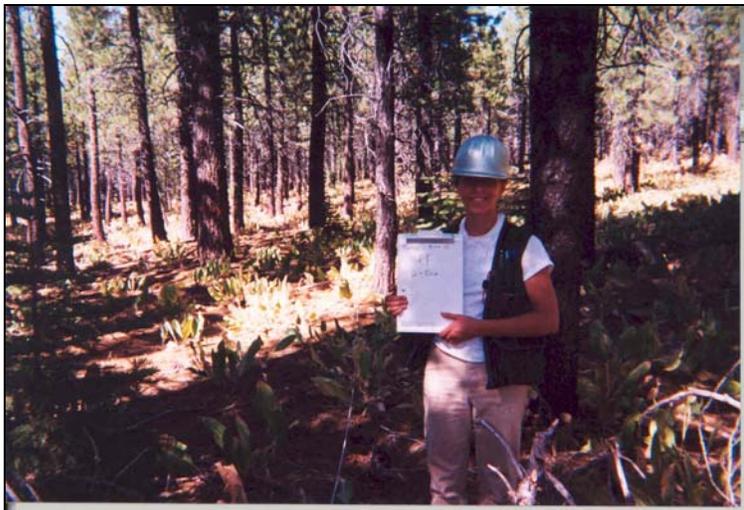
Pre-Treatment Photos Taken October 2002; Treated in 2007; Post-Treatment Photos Taken June 2008



Bits Unit 15, 11, Pre-Treatment View 1



Bits Unit 15, 11, Post-Treatment View 1



Bits Unit 15, Pre-Treatment View 2



Bits Unit 15, Post-Treatment View 2



Bits Unit 15, Pre-Treatment View 3

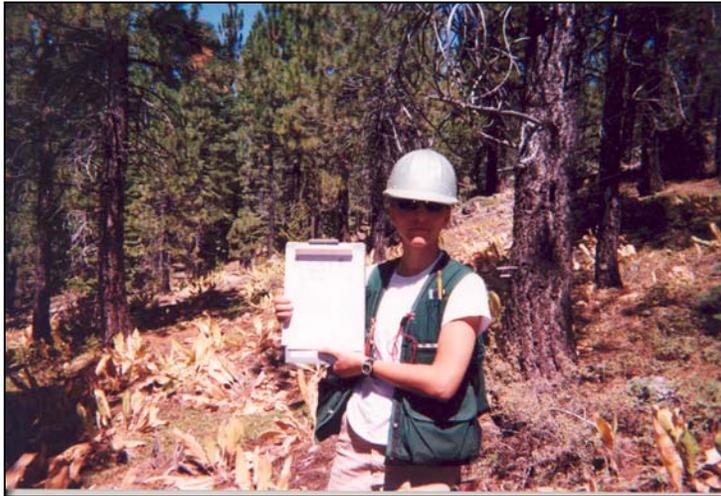


Bits Unit 15, Post-Treatment View 3

Project Name	Bits		Elevation	6400 ft
Unit Number	15		Aspect	NW
Year Mechanically Treated	2007		Slope	10%
Year Burned	Not Yet		Eastside Pine?	Yes
Treatment Prescription	Thin to 21' by 21' spacing. Leave all snags > 15" DBH. Underburn to reduce fuels.		Monitoring Data	
Item	Units	Treatment Objective	Pre_Data	Post-Data
Date			Oct-02	Jun-08
Strata	Veg Type	E3P	M3N	M3P
CWHR- Calif Wildlife Habitat Relationship	Veg Type	EPN4P	SMC4M	SMC4P
Canopy Cover (sighting tube)	percent	Minimum 30%	41%	34%
Quadratic Mean Codom/dominant trees	inches	Increase	13	15.5
Quadratic Mean of trees > 5" DBH	inches	Increase	11.73	14.3
Total Basal Area	sq ft/acre	100 sq ft/acre	159	88
Basal Area Large Trees > 30" DBH	sq ft/acre	No reduction	0	0
Basal Area Medium Trees 24-29.9" DBH	sq ft/acre	retain largest trees	0	0
Basal Area Small Trees 12-23.9" DBH	sq ft/acre	retain largest trees	116	79
Basal Area Small Trees 6-11.9" DBH	sq ft/acre	retain largest trees	41	7
Basal Area Small Trees 1-5.9" DBH	Trees/acre	Reduce by 95%	1	2
Tree Seedlings < 1.0" DBH	seedl/acre	Reduce by 95%	800	50
Shrub cover	percent		4%	4%
Snags/acre > 15" DBH	snag/acre	Retain 4 per acre	10.7	5.3
duff depth	inches	<4 inches	0.8	1.6
fuelbed	inches	<6 inches	1.7	1.4
0 - 3" woody fuels	Tons/acre	<2 ton/acre	1.8	2.3
3 - 9" woody fuels	Tons/acre	<2 ton/acre	0.4	0.8
9 - 20" woody fuels	Tons/acre	<3 ton/acre	4	2.5
20.1" + woody fuels	Tons/acre	3-10 tons/acre	0	0
total down woody fuels	Tons/acre	<15 tons/acre	6.1	5.6
Height to base of Live Crown	feet	Increase	NA	NA

Beak Unit 86

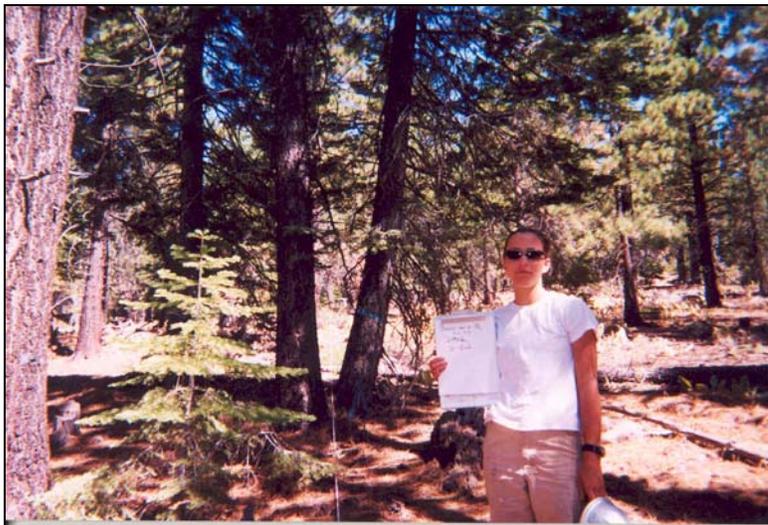
Pre-Treatment Photos Taken August 2002; Treated in 2007; Post-Treatment Photos Taken June 2008



Beak Unit 86, Pre-Treatment View 1



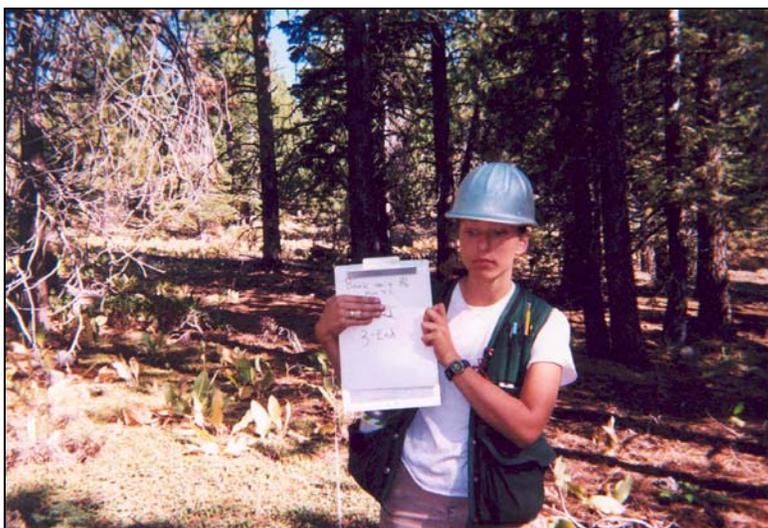
Beak Unit 86, Post-Treatment View 1



Beak Unit 86, Pre-Treatment View 2



Beak Unit 86, Post-Treatment View 2



Beak Unit 86, Pre-Treatment View 3



Beak Unit 86, Post-Treatment View 3

Project Name	Beak		Elevation	6400 ft
Unit Number	86		Aspect	NW
Year Mechanically Treated	2007		Slope	10%
Year Burned	Not Yet		Eastside Pine?	Yes
Treatment Prescription	Thin to 21' by 21' spacing. Leave all snags > 15" DBH. Underburn to reduce fuels.		Monitoring Data	
Item	Units	Treatment Objective	Pre_Data	Post-Data
Date			Aug-02	Jun-08
Strata	Veg Type	E3P	M3N	E3N
CWHR- Calif Wildlife Habitat Relationship	Veg Type	EPN4P	SMC4M	EPN4M
Canopy Cover (sighting tube)	percent	Minimum 30%	41%	41%
Quadratic Mean Codom/dominant trees	inches	No reduction, increase expected	13.1	15.1
Quadratic Mean of trees > 5" DBH	inches	No reduction, increase expected	13	12.8
Total Basal Area	sq ft/acre	100 sq ft/acre	126	100
Basal Area Large Trees > 30" DBH	sq ft/acre	No reduction	0	0
Basal Area Medium Trees 24-29.9" DBH	sq ft/acre	retain largest trees	0	0
Basal Area Small Trees 12-23.9" DBH	sq ft/acre	retain largest trees	106	86
Basal Area Small Trees 6-11.9" DBH	sq ft/acre	retain largest trees	21	13
Basal Area Small Trees 1-5.9" DBH	Trees/acre	Reduce by 95%	0	0
Tree Seedlings < 1.0" DBH	seedl/acre	Reduce by 95%	1200	16.7
Shrub cover	percent		24%	11%
Snags/acre > 15" DBH	snag/acre	Retain 4 per acre	0	0
duff depth	inches	<4 inches	1.3	0.8
fuelbed	inches	<6 inches	2	2.1
0 - 3" woody fuels	Tons/acre	<2 ton/acre	2	2.1
3 - 9" woody fuels	Tons/acre	<2 ton/acre	0.4	0.9
9 - 20" woody fuels	Tons/acre	<3 ton/acre	5.1	3.7
20.1" + woody fuels	Tons/acre	3-10 tons/acre	0	0
total down woody fuels	Tons/acre	<15 tons/acre	7.5	6.7
Height to base of Live Crown	feet	Increase	NA	NA