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Status Report to Congress Fiscal Year 2007

Herger-Feinstein Quincy Library Group Forest Recovery Act Pilot Project



Report Preparation & Contact Information

This document was prepared by the Herger-Feinstein Quincy Library Group Pilot Project Implementation Team for the Lassen, Plumas and Tahoe National Forests.

This report will be made available online following finalization. Printed copies or CDs of the document will be available upon request by contacting the team.

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Cover Photos

Clockwise from Top Center: The Toro Defensible Fuel Profile Zone (DFPZ) on the Sierraville Ranger District of the Tahoe National Forest. Aspen regeneration on the Beckwourth Ranger District of the Plumas National Forest. Quincy Library Group (QLG) members offer feedback to Forest employees during a monitoring field trip on the Feather River Ranger District of the Plumas National Forest. A group selection unit on the Almanor Ranger District of the Lassen National Forest.

Photos on Inside Cover from Upper Left: Meeting with Forest Service officials and partners regarding watershed health in May 2007. Plumas Fall Fest booth in October 2006. Industry meeting on Feather River Ranger District on the Plumas National Forest regarding Slapjack stewardship contracts. QLG presentation on meadow restoration during the appropriations field visit in April 2007.

Photo on Introduction Page: Forest Service employees preparing for a monitoring field trip on the Feather River Ranger District of the Plumas National Forest.

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Introduction & Background

The Fiscal Year 2007 (FY07) Herger-Feinstein Quincy Library Group (HFQLG) Pilot Project Status Report to Congress is the eighth annual status report required by Sections 401 (j)(1)(A-G) of the HFQLG Forest Recovery Act. The Pilot Project covers the Lassen and Plumas National Forests and the Sierraville Ranger District of the Tahoe National Forest.



This is the second year of the streamlined report, reducing repetition, improving flow, and presenting the information required by the act clearly and concisely. For organizations or individuals looking for more detailed information, a separate FY07 HFQLG Monitoring Report is available at www.fs.fed.us/r5/hfqlg. Printed copies of both documents are also available upon request.

Accomplishments continue to be affected by litigation and appeals. Court decisions are pending on cases that have been in litigation for up to three years. As a result, Forests in the Pilot Project area shifted to the use of environmental impact statements a few years ago. While these documents take longer to prepare, the more in-depth analysis is typically easier to defend in court.

There were numerous changes in FY07, including leadership for the Plumas and Lassen National Forests and the HFQLG Implementation Team. The Forests also experienced an intense fire season, with the Plumas suffering its largest wildfire in recent history.

The HFQLG Act was extended in December 2007 as part of the Omnibus Appropriations Bill. As part of the FY08 Program of Work, the Forest Service must initiate a collaboration process to consider modifications to the Pilot Project by June 1, 2008 with plaintiffs and the QLG. There are also Healthy Forest Restoration Act (HFRA) authorities now extended to the HFQLG Pilot Project.

Continued monitoring efforts are providing effective feedback to adapt planning and implementation of current and future projects. Response to ongoing issues with soil

compaction are addressed, as well as reviewing actions regarding air quality from prescribed burn activities. Socioeconomic monitoring continues to track the effects of the Pilot Project on local economies using a series of indicators. Local economies appear to be diversifying; however there continue to be concerns about the level of economic activity generated by the National Forests in terms of timber production. Increased appeals and litigation following the 2004 Framework has affected the amount of timber available from the Forests.

Background

The HFQLG Forest Recovery Act became law in October 1998 as part of the Department of the Interior and Related Agencies Appropriations Act. The Pilot Project has been extended twice and is now scheduled to conclude in September 2012.

The Pilot Project area covers approximately 1.53 million acres in the Lassen and Plumas National Forests and Sierraville Ranger District of the Tahoe National Forest. It is designed to implement and demonstrate the effectiveness of fuels and vegetation management activities to meet ecologic, economic and fuel reduction objectives. These activities include shaded fuelbreaks or Defensible Fuel Profile Zones (DFPZs), group selection (GS), and individual tree selection (ITS). The Record of Decision and Final Environmental Impact Statement for Pilot Project implementation were released August 1999.

Implementation has been subject to a variety of challenges, including restrictions from land and resource management documents being used at the time. The Sierra Nevada Forest Plan Amendment Final Supplemental Environmental Impact Statement and Record of Decision signed in January 2004 provides a stronger framework for full implementation of the act.

Currently, the Pilot Project Forests are accomplishing a variety of projects fulfilling the objectives of the act. This includes establishing an all-aged, multi-storied, fire-resilient forest that will provide a continuous supply of forest products and promote community stability. Full implementation of the act would require annual funding of \$43.8 million and produce approximately 378,000 hundred cubic feet (CCF) of timber and treat 68,800 acres.

Funding

As the HFQLG Pilot Project completes its ninth year of implementation, it has seen fluctuations in funding. However, as implementation continues to improve and become more efficient, the remaining year-end balances have dropped significantly.

Allocation & Expenditures, 1999-2007 (millions)

Fiscal Year	Available Funding	Indirect Cost	Funding to Projects	Total Expenditures	Year End Balance	Not Returned to Project
1999	\$ 8.0	\$.0	\$ 2.0	\$ 2.0	\$ 6.0	\$.0
2000	\$ 12.2	\$.8	\$ 6.4	\$ 7.2	\$ 5.0	\$ 5.0
2001	\$ 31.2	\$ 3.1	\$ 25.1	\$ 28.2	\$ 3.0	\$ 3.0
2002	\$ 26.2	\$ 3.1	\$ 18.4	\$ 21.5	\$ 4.7	\$ 1.3
2003	\$ 29.6	\$ 3.1	\$ 20.0	\$ 23.1	\$ 6.5	\$ 1.9
2004	\$ 30.8	\$ 3.1	\$ 27.0	\$ 30.1	\$.7	\$.7
2005	\$ 31.0	\$ 3.1	\$ 26.1	\$ 29.2	\$ 1.8	\$ 1.8
2006	\$ 26.2	\$ 3.4	\$ 22.4	\$ 25.8	\$.4	\$.4
2007	\$ 26.2	\$ 3.1	\$ 23.1	\$ 25.9	\$.3	TBD
Total	\$221.4	\$22.8	\$170.5	\$193.0	\$28.4	\$14.1

Note: Numbers have been rounded.

FY07 project expenditures include:

- ✓ Administering and monitoring projects from prior years
- ✓ Implementing projects from prior-year planning
- ✓ Planning and implementing FY07 projects
- ✓ Planning projects for FY08 and beyond
- ✓ Responding to appeals
- ✓ Responding to litigation
- ✓ Obligating funds for Independent Scientific Review as required by the HFQLG act

Three primary fund codes are used to track project expenditures:

- ✓ Wildland Fire Hazardous Fuels (WFHF) – Fuels reduction project (including Defensible Fuel Profile Zones (DFPZs)) planning, preparation, implementation, monitoring and administration.
- ✓ National Forest Timber Management (NFTM) – Timber sale planning, preparation and administration.
- ✓ National Forest Vegetation and Watershed (NFVW) – Forest health improvement, watershed and riparian restoration project planning, preparation and implementation.

FY07 Pilot Project Expenditures (millions)

Forest/Unit	WFHF	NFTM	NFVW	Total
Lassen	\$ 4.305	\$2.765	\$1.622	\$ 8.692
Plumas	\$ 7.012	\$3.271	\$.317	\$10.600
Tahoe	\$ 1.394	\$.363	\$.173	\$ 1.930
HFQLG Implementation Team	\$ 1.5	-	-	\$ 1.5
Total	\$14.211	\$6.399	\$2.112	\$22.722
12% Indirect Cost	-	-	-	\$ 3.144
Remaining Balance	-	-	-	\$.334
Total FY07 Budget	-	-	-	\$ 26.2

Indirect costs are expenses for general administration support, office space, rental agreements, communications and other expenses, which are not to exceed 12 percent of the annual HFQLG budget.

Revenue & Resource Accomplishments

To help monitor the effects of the Pilot Project and the level of accomplishment, the HFQLG act requires a report of the revenue, expenditures and timber management activities between 1992 and 1997 for the National Forests in the Pilot Project area.

This information provides a valuable perspective on the activities and accomplishments of the Pilot Project, as well as an opportunity to compare historic and current figures.

Sawlog volume is measured in hundred cubic feet (CCF). A standard log truck hauls approximately 10 CCF per load. Biomass is also measured in CCF and a standard chip truck hauls approximately 10 CCF per load.



Trees marked on a timber sale on the Hat Creek Ranger District of the Lassen National Forest.

Historic Revenue, Expenditures and Timber Activity for the HFQLG Pilot Project Area

Fiscal Year	Revenue (millions)	Expenditure (millions)	Regeneration (Acres)	Site Prep (Acres)	Timber Stand Improvement (Acres)	Sawlog Vol. Offered (CCF)	Sawlog Vol. Sold & Awarded (CCF)	Total Area Harvested (Acres)
1992	\$67.187	\$25.856	8,634	6,176	10,045	426,000	329,400	55,689
1993	\$34.408	\$18.194	7,853	5,264	10,600	424,000	535,200	70,885
1994	\$44.501	\$17.376	8,206	4,667	8,740	375,000	332,600	57,922
1995	\$52.873	\$22.596	7,531	2,363	13,866	555,200	316,400	47,317
1996	\$24.590	\$20.490	9,063	3,321	15,062	374,200	242,600	38,917
1997	\$24.465	\$22.207	15,591	3,321	22,646	383,000	353,400	32,223

For FY99 through FY06, sawlog and biomass volume were reported as accomplished once a project was offered. In FY07 the agency's reporting of accomplishment shifted from timber offered to timber sold. Litigation and appeals, including continuous National Environmental Policy Act (NEPA) adjustments due to ongoing court decisions, had a direct effect on FY07 revenue and accomplishments. Market conditions also affected sawlog and biomass values.

Revenue, Expenditures and Timber Management for HFQLG Pilot Project

Fiscal Year	Revenue (millions)	Expenditures (millions)	Number of Projects	Sawlog Vol. Offered/ Sold (CCF)	Biomass Vol. Offered/ Sold (CCF)	Sawlog & Biomass Vol. Removed (CCF)
1999	\$.000	\$ 1.943	1	4,785	4,278	0
2000	\$.020	\$ 7.182	10	44,422	64,517	5,754
2001	\$.140	\$ 28.267	34	88,802	143,117	33,151
2002	\$.989	\$ 21.557	33	37,168	31,354	99,163
2003	\$.960	\$ 23.100	28	41,418	44,402	61,810
2004	\$ 1.958	\$ 30.100	55	203,012	198,204	61,792
2005	\$ 2.914	\$ 29.200	37	143,373	129,814	222,770
2006	\$ 4.613	\$ 25.800	23	14,625	25,132	191,875
2007	\$ 2.048	\$ 25.866	33	57,904	68,818	82,368
Total	\$13.642	\$193.015	254	635,509	709,636	758,683

Accomplishments, cont.

In addition to tracking accomplishment through sawlog and biomass volume, the Pilot Project is also tracking the number of acres receiving fuels reduction treatments.

The focus of timber management on the National Forests in the Pilot Project area changed with passage of the act. Instead of traditional elements like regeneration, site preparation and timber stand improvement, the Pilot Project reports on different treatments, including:

- ✓ Defensible Fuel Profile Zone (DFPZ) construction
- ✓ Group Selection (GS)
- ✓ Individual Tree Selection (ITS)

Riparian Restoration is also an important part of the HFQLG Pilot Project. It includes meadow restoration and enhancement, stream channel improvement, road relocation, road closure, slope stabilization and aspen enhancement. In FY07, there were nine projects restoring 306 acres. Approximately 14 miles of road and 10 road crossings were eliminated, while 10 road crossings were restored.



A treated stand in the Toro Project on the Sier-raville Ranger District, Tahoe National Forest.

Acres Accomplished

Fiscal Year	DFPZ	GS	ITS	Riparian Restoration	Total
1999	640	0	172	0	812
2000	7,215	200	772	81	8,268
2001	41,197	1,836	528	945	44,506
2002	16,651	1,258	395	838	19,142
2003	24,442	0	44	537	25,023
2004	36,635	1,738	80	603	39,056
2005	21,073	1,792	2,327	836	26,028
2006	8,503	6	0	159	8,668
2007	14,427	405	1,235	306	16,373
Total	170,783	7,235	5,553	4,305	187,876

Most projects, though reported as accomplished, have contracts that extend for several years. Actual project work may not begin until the next operating season. Thus, the number of acres treated on the ground each year through the activities of harvest, prescribed fire and riparian restoration work varies and is not the same as the acres reported as accomplished annually.

Acres Treated

Fiscal Year	DFPZ (Mechanical)	DFPZ (Fire)	GS	ITS	Total Acres Treated
1999	0	0	0	0	0
2000	366	0	0	64	430
2001	5,109	1,453	17	256	6,835
2002	18,235	3,725	486	785	23,231
2003	4,244	9,816	498	762	15,320
2004	12,211	7,015	47	682	19,955
2005	14,722	7,325	1,379	0	23,426
2006	23,336	6,611	275	0	30,222
2007	10,160	2,653	978	0	13,790
Total	88,383	38,598	3,680	2,549	133,209

FY08 Program of Work

The FY08 enacted budget is estimated to be approximately \$25.8 million. This estimate includes a proportionate funding reduction in alignment with the Pacific Southwest Region reduction. The following activities are planned in FY08:

- ✓ Number of Projects: 55
- ✓ Sawlog Vol. (CCF): 262,275
- ✓ Biomass Vol. (CCF): 145,426
- ✓ DFPZ Acres: 19,681
- ✓ GS Acres: 3,529
- ✓ ITS Acres: 6,380
- ✓ Riparian Restoration Acres: 919
- ✓ Total Planned Acres: 30,408

Activities planned for FY08 include:

- ✓ Administering current contracts
- ✓ Implementation of vegetation projects planned in previous years
- ✓ Implementation of riparian management projects
- ✓ Environmental analysis for proposed projects
- ✓ Out-year data collection and planning
- ✓ Initiating collaboration process as required by the latest act extension
- ✓ Implementation of Healthy Forest Restoration Act projects
- ✓ Initiating and continuing to work with the Scientific Review Team



Unit 43 on the Hat Creek Ranger District of the Lassen National Forest before treatment (top) and after treatment (bottom).



Members of the Scientific Review Team with Forest Service employees following a look at part of the Moonlight Fire on the Plumas National Forest during a visit in fall 2007. The Pinchot Institute for Conservation was selected for the independent scientific review in 2007. The Pinchot Institute, a nonprofit organization based in Washington, D.C., is a research and policy analysis organization focusing on public and private forest issues. For more information, please visit www.pinchot.org.

Socioeconomic Monitoring

The socioeconomic monitoring reports the “economic benefits to local communities achieved by the implementation of the pilot project” since the project began in 1999.



Entering Quincy

Pilot Project Area Employment

Total Payroll Jobs: The 2004 closure of Sierra Pacific Industries’ sawmill in Susanville was the major cause of a 3.7 percent drop in payroll jobs in the Pilot Project area in 2005. However, total payroll jobs have increased approximately 2 percent from the Pilot Project’s initiation in 1999 to 2005. Data for 2006 will be released in mid-2008.

Forest Products Industry Job Impacts: The Pilot Project is not offsetting the downturn in the forest products industry within the Pilot Project area.

Since implementation of the Pilot Project in 1999, total forest product industry jobs have decreased 18 percent.



Downtown Sierraville

Tourism Industry Job Impacts: The number of tourism jobs has generally grown throughout the Pilot Project area since 2000. Job growth in the tourism sector has outpaced the growth in the forest products industry sector. Prior to 1999, the ratio of jobs between the two sectors was approximately one-to-one. This means for each job in the forest products sector, there was at least one job in the tourism sector. In 2001, the balance began to tip toward the tourism sector. In 2005, there were 1.7 jobs in the tourism sector for every job in the forest products sector. This indicates diversification in the local economy.

The number of tourism jobs varies significantly among communities. Tourism jobs are highly seasonal and the wages are lower than those in the forest products industry. According to the U.S. Bureau of Labor Statistics, the average annual wage for workers in the tourism industry across the nation is approximately \$21,000. This is significantly lower than the \$31,000 annual wage for workers in the forest products industry.



Downtown Susanville

Transient occupancy tax (TOT) data shows the Pilot Project has not negatively impacted the tourism sector. Accommodation revenue has been stable in most communities in the Pilot Project area, ranging from \$20 to \$23 million regionwide.

Local Business Environment

Establishments by Age: All nine Pilot Project area communities experienced a significant decrease in the number of business establishments of all age classes compared to pre-project implementation statistics. The change between 1998 and 2006 was as follows: firms 0-5

years old (-41 percent); firms 6-15 years old (-21 percent) and firms 16+ years old (-42 percent).

Nonemployer Establishments: The number of nonemployer establishments has surpassed pre-project implementation levels. New data will be available in mid-2008 to gauge effects in 2006.

Retail Business Activity: Growth of taxable sales transactions outperformed the rest of California in 2006 in Plumas County and the cities of Portola and Loyalton. Taxable sales in Lassen and Sierra counties and in Susanville grew more slowly than the rest of the state in 2006. Lingering effects from the 2004 sawmill closure may be the major cause in Susanville and Lassen County.



Sierra Pacific Industries log deck in Quincy

HFQLG Contract & Sales Activity

Service Contracts: The value of service contracts awarded decreased in FY07.

In FY07, the percent share of total contract dollars awarded to local companies was 48 percent (Pilot Project area 11.8 percent plus Remainder of Sierra Cascade Contracting Area 36.6 percent).

Overall (FY00-FY07), approximately 64 percent of contract value has been awarded to local contractors (Pilot Project area 24.1 percent plus Remainder of Sierra Cascade Contracting Area 39.8 percent).

Timber Sales: Following the 2004 Sierra Nevada Forest Plan Amendment Record of Decision, timber sales recovered in FY04 and surged in FY05, reaching new peaks for volume and value for both sawlogs and biomass since implementation of the Pilot Project.

In FY06 and FY07, appeals, litigation and court decisions delayed timber sales of significant volume and acreage. The Forest Service is revising and updating

several environmental impact statements as new information from appeals, litigation and court decisions becomes available.

Timber & Biomass Removal: The value of sawlogs and biomass removed in HFQLG projects was \$1.77 million and \$280,000 respectively in FY07. Sawlog removal expanded dramatically in both FY05 and FY06, but volume declined significantly in FY07 (down 50 percent from FY06). Volume of biomass removed also plummeted in FY07 (down 66 percent from FY06).

Biomass Electricity Generation: Electric power generation from biomass declined in all Pilot Project area communities except Bieber and Loyalton in 2006. The volume of biomass removed under HFQLG contracts declined by 46 percent in FY06 and declined 66 percent in FY07, forcing

facilities to expand their “fuel circles” to obtain biomass from distant locales. High diesel fuel prices increased the



Logging truck near Quincy

costs of harvesting, processing and transporting biomass for the power plants. Plant managers stated excess demand for biomass is a long-term concern. Some biomass plants are seeking permission from regulators to burn agricultural and urban waste. Some facilities are operating at a loss, but continue to produce power because shutdown is prohibitively costly under their long-term contracts with utilities. The Bieber power plant reopened in mid-2005, supplied with fuel mostly from the Modoc National Forest.

Forest Products Industry Roster Survey

In a December 2007 telephone survey of the Forest Product Industry, most survey respondents indicated that the level of economic activity generated by the National Forests in the Pilot Project area decreased in 2007. Continuing a multi-year trend, respondents stated that they continued to shift their activities from public to private lands.

Environmental Monitoring & Effects

A key part of the HFQLG Pilot Project is monitoring the effects of the variety of treatments being implemented. This monitoring effort is looking for benefits to the range of ecosystems in the Pilot Project area, as well as to report on adverse impacts and recommend actions to mitigate these effects. Following are the monitoring results for FY07:

Habitat Concerns

The HFQLG Record of Decision requires that suitable habitat for old forest-dependent and aquatic/riparian-dependent species not be reduced by more than 10 percent of levels originally measured in 1999 within three specific old forest types, totaling 186,394 acres across the Pilot Project. A cumulative total of reductions in habitat is tracked to monitor this. To date, 3,296 acres (1.8 percent) have, or will have, a reduction based on projects with a signed Record of Decision. For comparison, wildfire through 2006 reduced an additional 5,667 acres (3 percent). Data for losses sustained during the 2007 fire season is not yet available. It will be included in the FY08 Report to Congress.



A treated timber stand on the Almanor Ranger District of the Lassen National Forest.



Feather River District Ranger Karen Hayden talks to the public during a monitoring field trip on the district on the Plumas National Forest.

Timber Stand Structure

Overall, post treatment monitoring results in 2007 indicate little change in snags and generally less than a 10 percent reduction in canopy cover. Most of the units monitored in 2007 were near or below 50 percent canopy cover prior to treatment, and results indicate that most trees removed were smaller understory and mid-story trees that didn't appreciably add to over-story canopy cover. Large trees were preserved where they existed.

Antelope Border Treatment Units 5 and 8 burned in the Antelope Complex this summer prior to monitoring. Canopy cover dropped from roughly 50 percent to near 30 percent in these units and surface fuels, including large down logs, were largely reduced. Basal area in Unit 5 increased slightly, whereas in Unit 8 it decreased slightly. The over-story in these treatment units appears to have survived relatively intact and indicates effectiveness of the Defensible Fuel Profile Zone (DFPZ) treatments.

A total of 23 units have been monitored for either one year or five year post-treatment monitoring to date. The results to date indicate the retention of large trees, significant reduction of ladder fuels, reduction of down woody fuels to below maximum acceptable levels, and a loss of large down wood in some cases. Canopy cover is usually reduced by treatments. However, canopy cover varies considerably, both pre- and post-treatment. While a few stands retained over 50 percent canopy cover after treatment, others dropped to well below 40 percent cover. Over one third of the units monitored to date showed no

change to a slight increase in canopy cover one year after the treatment. The ability to answer monitoring questions related to spotted owl habitat is not possible as all of the units monitored to date fall outside of California spotted owl suitable habitat.

Best Management Practices Implementation and Effectiveness

Best Management Practices (BMPs) continue to be an effective method for preventing impacts to water quality. The prescription, application and monitoring of these practices should be continued across the HFQLG Pilot Project area.

For the majority of sites, the target goal of 90 percent or better in both implementation and effectiveness has been met. There are areas where improvement can be realized, including designing, building and maintaining roads to withstand significant precipitation events. Several road fills evaluated this year had slope failures and rills which lead to sediment deposition in drainage channels. The results of this year's monitoring efforts indicate that by following BMPs, risks to water quality were effectively reduced across the Pilot Project area.



Willows next to a pond on a meadow restoration project.

Soil Monitoring

In 2006, the analysis of the soil compaction data indicated that there was a need to increase the precision of the data. Confidence intervals were too wide to make definitive statements about the effect of management in some instances. In 2007, the soil monitoring work focused on analysis of the cumulative pre-post monitoring data set and testing two additional sampling protocols to see if the precision of the data could be improved and make adjustments as needed.

The review of monitoring data indicates that legacy compaction is commonplace. The mean value for all units was 21 percent, which is statistically above the 15 percent threshold. Only the group select treatment showed a statistically significant increase in soil compaction. Almost all (97.5 percent) of the thinning units met the recommended thresholds in the Forest Plan soil quality standards for soil cover of at least 50 percent. Group selection units did not meet soil cover standards in over half of the units. Evidence or observation of increased soil erosion was minimal. Soil displacement was well within acceptable standards. The percent area with soil disturbance increased compared to pre-treatment monitoring, especially in the group selection units, but appears to be acceptable within the normal range of controlled logging activities. Large woody material decreased from levels observed during pre-treatment monitoring. Sierra Nevada Forest Plan Amendment (2004)

standards and guidelines for retention of large woody material, which recommend at least 3-5 large logs per acre as determined on a project-by-project basis, were met in only 62 percent of the thinning units and 18 percent of group selection units.



A unit on the Last Chance DFPZ after mechanical thinning and one year post-fire treatment.

Soil Porosity

Soil compaction (loss of soil porosity) has been viewed as a major factor affecting soil productivity. Compacted soil has lower water infiltration rates, can have higher or lower water holding capacity (depending on soil texture), and increases in soil strength that can restrict root

Monitoring, cont.

growth. Standards and guidelines within the Forest Plans for the Lassen and Tahoe National Forests limit detrimental soil compaction to no more than 15 percent of an activity area, excluding the transportation system. Standards and guidelines within the Plumas National Forest Plan allow no more than 15 percent of an activity area to be dedicated to skid trail and landings. Activity areas are typically defined as harvest units.

Legacy Compaction in Pre-Treatment Unit Data

Set: In 2007 the results for compaction were analyzed to determine if a unit was statistically above or below the threshold.

Out of 163 pre-treatment units, 51 units (31 percent) have their mean compaction over the 15 percent threshold. Because of the wide prediction interval, only 31 units (19 percent) are statistically over threshold (meaning that the lower limit of the confidence interval is above 15 percent threshold). The other 20 units with the mean over threshold have their 95 percent confidence intervals both above and below the 15 percent threshold.

Percent of Plots Determined to Exhibit Soil Compaction

Treatment	Sub-soiled	# of Units	Pre-Treatment Mean	Post-Treatment Mean	Difference Mean
All	All	53	21.8	22.3	0.5
	No	25	21.4	24.9	3.5
	Yes	28	22.1	19.9	-2.2
Group Select	All	11	10.3	18.2	7.9
	No	1	0.0	33.3	33.3
	Yes	10	11.3	16.7	5.3
Masticate	All	2	12.5	17.5	5.0
	No	2	12.5	17.5	5.0
	Yes	0	-	-	-
Mechanical Thinning	All	40	25.4	23.6	-1.7
	No	22	23.2	25.2	2.0
	Yes	18	28.0	21.7	-6.3

Significance of Findings for Soil Porosity

(compaction): Recent findings on compaction effects

on total biomass productivity (soil productivity) indicate that for soils with texture classes grouped into “sandy” (coarse sandy loams or sandier), declines in total biomass productivity are not expected. On soils grouped as “loamy,” compaction did not appear to significantly decrease or increase total biomass productivity. On soils grouped as “clayey” (such as clay loams or more clay), total biomass productivity declined when compacted. Soils monitored have been “sandy” and “loamy” textures, and none were “clayey.”



Forest Service employees discuss resource management decisions with the public during a monitoring field trip on the Plumas National Forest.

Adaptive Management Changes as a Result of Monitoring

Finding: Analysis of the soil compaction data indicates that there is a need to increase the precision of the data. Confidence intervals are too wide to make definitive statements about the effect of management in some instances.

Management Response: Changes in the sampling protocol are being developed and were implemented during 2007 and are planned for the 2008 evaluations.

Finding: Legacy compaction exists above threshold levels in both group selection and thinning units and cumulative increased compaction effects are occurring in group select units. However, negative effects on soil productivity are not expected for soils with “sandy” or “loamy” soil texture classes. Subsoiling, although not appropriate in all situations, may reduce compaction.

Management Response: Subsoiling is continuing to occur where appropriate. A review of subsoiling was conducted by the Regional Soil Scientist in 2006

and recommendations have been provided. Forest Plan standards and guidelines may need to be amended to allow for compaction for particular soil types where negative impacts to soil productivity are not expected. Findings from the 10 year results of the Long Term Soil Productivity Study and other studies will be used to revise the Land and Resource Management Plan (LRMP) standards.

Finding: Increases in detrimental compaction are occurring in group selection units, and possibly in some thinning units. Prevention and/or reduction of detrimental compaction can be improved by using soil moisture objectives relative to equipment operations to determine when equipment operations should be permitted.

Management Response: There have been increases in seasonal operation restrictions to dry soil conditions when soil strength is high for soil textures dominated by loam or clay particle sizes. Slash has been placed on skid trails during harvest operations in some project areas in an effort to reduce compaction.

Finding: Post-treatment soil ground cover in group selection units did not meet LRMP standards in 74 percent of the units.

Management Response: Discussions are being initiated between timber sale administrators, soil scientists and forest leadership to improve ground cover results after project implementation.

Finding: Post-treatment large down woody material standards were only met in 18 percent of group selection units and 62 percent of thinning units.

Management Response: Discussions are being initiated between timber sale administrators, soil scientists and forest leadership to increase the amount of large down woody material after project implementation.

Botany and Noxious Weeds

Most (93 percent) of threatened and endangered species (TES) plant control



Closed-lipped penstemon monitoring transect on the Mount Hough Ranger District of the Plumas National Forest.

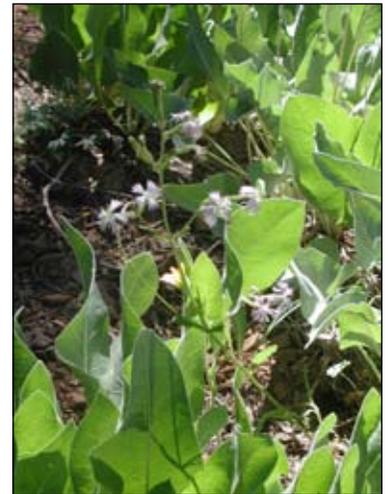
areas were protected in 2007. The target for success is to have 90 percent of control areas protected as planned, so this objective was met. There is continued work improving communication between botanists and sale administrators and tracking the flagging of controlled areas.

Twenty (91 percent of the 22 sites) of the noxious weed occurrences were either treated or avoided during management activities. Overall, flagging and avoiding known infestations appears to be effective for HFQLG projects. However, it is important to monitor these sites and hand-pull any new infestations before they have an opportunity to establish. On the Lassen National Forest, five of six Klamathweed populations seem to have been eliminated with treatment, as well as both field bindweed sites that were monitored. On the Sierraville Ranger District of the Tahoe National Forest two out of 11 musk thistle populations are still present despite treatment.

The HFQLG Pilot Project area has excelled in implementing the contract specifications of equipment cleaning. Equipment cleaning documentation was received for all 14 projects monitored and no new occurrences of California Department of Agriculture A or B rated weeds were found.

No new occurrences of TES plant species were found in 23 monitored units

Cheatgrass, although not state listed as a noxious weed, is considered to be an undesirable, aggressive, non-native species and is monitored by HFQLG Pilot Project area botanists. All three of the group select treated units and five of 17 DFPZ units had new cheatgrass infestations. The site disturbances and altered growing conditions created by HFQLG treatments appear to have allowed this invasive weed to establish new populations or increase from very low levels to larger populations.



Flowering long-stiped campion mixed with leaves of mules ear on the Almanor Ranger District of the Lassen National Forest

Monitoring, cont.

Fire/Fuels and Air Quality

In FY07 there were no reported violations of provisions of Smoke Management Plans, no impacts to Class I Airsheds and no reported violations of air quality standards due to underburns and pile burns implemented in the HFQLG Pilot Project area. There were also no formal smoke complaints. Approximately 9,792 acres of underburning and pile burning in FY07 were implemented across the Pilot Project. In part, the absence of complaints can be explained by coordination and communication of prescribed burn activities between ranger districts, air districts and the public. In addition, several districts



An engine and water adjacent to a home during a prescribed burning operation in the wildland-urban interface near Quincy.

and important factors such as climate will have to be included as covariates. This type of analysis could be completed but would require additional time.

Recent findings indicate that regionwide, fire severity seems to be increasing in low- to mid-elevation vegetation types. Recent large, high severity fires in the Pilot Project area (Stream, Boulder, Antelope Complex and Moonlight) lend support to these findings.

In 2007, two large fires (the Antelope Complex and the Moonlight Fire) occurred on the Mount Hough Ranger District of the Plumas National Forest. The Antelope Complex burned 23,430 acres, with over half of the area burning with high severity. The Moonlight Fire burned over 65,000 acres, including several thousand acres of private timberland, with over 60 percent of the area burning under high severity. During the Antelope Complex, a Rapid Response Fire Team (AMSET) was dispatched to the fire and was able to record extensive data during and after the fire. This information is summarized and available on the HFQLG Web site or upon request. Key findings include:

- ✓ Treated areas had significantly reduced fire behavior and tree and soil impacts compared to untreated areas.
- ✓ Treated areas were utilized during suppression along several flanks of the fire for both direct attack with dozers and handcrews, as well as for indirect attack with burn operations.
- ✓ Treated areas that burned during the first two days – when suppression resources were limited and fire behavior more uniformly intense – had



Forest Service officials discuss a prescribed burning operation with a member of the media on the Plumas National Forest.

reported extensive public contact, including phone calls, door-to-door visits, and setting up public information booths near burn project sites to directly answer questions and address concerns from the public. It is recommended that districts continue and enhance these practices as they lead to more effective fuel treatments and increased public trust of fire as an essential management tool. It is recommended that this work be supported at the Forest and Province levels as needed.

Preliminary analysis indicates that although fire number and the number of acres burned within the HFQLG Project area has not increased significantly since 1900, mean fire size does exhibit a statistically significant linear increase over time. However, to fully evaluate these patterns, additional statistical analysis will be necessary,

reduced fire effects compared to untreated areas.

In some areas, these treated sites had moderate to high severity effects.

- ✓ A DFPZ treated area provided a safe escape route for firefighters when the column collapsed and two other escape routes were cut off by the fire.
- ✓ Observations of fire behavior during the first two days suggest that large, untreated areas allowed the fire to build momentum and contributed to increased fire behavior (rate of spread and intensity). Thus, the influence of these untreated areas made it more likely that suppression resources could be overwhelmed, treated areas could be threatened, and their effectiveness in thwarting fire spread and intensity diminished.
- ✓ Satellite imagery reveals that protected areas (owl and goshawk nest stands) had significantly greater tree mortality compared to untreated or treated areas. A majority of the larger blocks of untreated areas contained these concentrations of owl and goshawk habitat protected areas.



An untreated area in the Antelope Complex (left). A treated area in the Antelope Complex (below).



based on fire severity maps, field observations, and discussions with on-the-ground fire personnel, areas which had been treated under the Wilcox, North Antelope and Hungry Projects with combinations of underburning, mastication and commercial thinning had overall lower flame lengths and reduced fire severity and facilitated safe suppression of this fire. Further documentation of fire effects in these treatments is ongoing.

On June 23, 2007, the day before the 3,100 acre Angora Fire on the Lake Tahoe Basin Management Unit – which ultimately burned more than 250 homes – began, a fire was reported on the Sierraville District near the community of Calpine. Fire crews responded to the fire, which was burning in an area that had previously been thinned and underburned. Based on preliminary reports, it appears that this treatment reduced fire intensity enough to facilitate safe suppression activities. In spite of the high wind and extremely dry conditions, the fire was still safely contained at approximately 50 acres. An evaluation of fuel treatment effectiveness in the Calpine Fire is ongoing and should be available by summer 2008.

Special Aquatic Habitats

Fourteen special aquatic habitats were monitored to determine if they received adequate protection during project implementation. All aquatic habitats were protected during project activities. Wildfires in 2001, 2006 and 2007 affected riparian zones in the Antelope-Border Project, as well as the Hungry DFPZ, Poison DFPZ

Detailed post-fire measurements have not yet been completed on the Moonlight Fire. Preliminary information



Photos of the smoke column and fire from the Antelope Complex on the Plumas National Forest.

Monitoring, cont.

and Stony DFPZ. “No treatment” prescriptions in the Antelope-Border DFPZ riparian zones contributed to stand replacing wildfire events.

Wildlife

Results from forest carnivore studies conducted over a 7-year period by the Forest Service Pacific Southwest



An American marten on a trap in the Lassen National Forest.

Research Station (PSW) contrast historical and contemporary distribution of American marten and other carnivore species in the Southern Cascade and Sierra Nevada ranges (Zielinski, et al. 2005). The findings from that grid-based, systematic summer sampling design suggest a decline and potential gap in distribution on the Lassen and Plumas National Forests, south of Lassen Volcanic National Park.

In contrast, local winter surveys conducted by district biologists for project planning over the last ten years have detected marten in multiple locations on both forests, which were not detected in the grid-based provincial surveys. This discrepancy in results from the two sampling approaches (PSW summer surveys and district project-based winter surveys) has made analysis of HFQLG projects on effects to marten difficult to determine at the landscape scale. Contrary to the 2005 published research, martens do occupy some suitable habitats on the Lassen and Plumas National Forests south of the Park.

To resolve the discrepancy between these two survey efforts, an experiment was initiated to test the effect of seasonal sampling, summer vs. winter, on detectability of martens on the Lassen National Forest. Summer surveys were completed in July 2007. Winter surveys will be conducted in February 2008. Survey detections have been found to be significantly higher during the winter (53 percent) as compared to summer (10 percent). Analysis and interpretation of the survey data will be completed by Redwood Science Laboratory in spring of 2008. This analysis will be coupled with adaptive management recommendations on future forest carnivore survey efforts. Analysis findings will be further used to test and strengthen a geospatial habitat predictive model for marten based on known occurrences.

Both PSW and HFQLG Pilot Project Forests will mutually benefit by adapting future survey and monitoring methods that would 1) discern the current status of marten within the Pilot Project area; 2) provide empirical data would refine existing habitat predictive models; and 3) address the connectivity issues as discussed in the HFQLG Final Environmental Impact Statement (1999) and subsequent monitoring plan.

Watershed Condition

Of the 193 HFQLG watersheds and 2.25 million HFQLG watershed acres represented in the monitoring pool, road density analysis information exists from 103 HFQLG watersheds totaling 942,000 acres (41.9 percent). The data covers only the project-level, subwatershed analyses areas, which totaled 719,000 acres. For these



A Forest Service employee discusses a stream during a monitoring tour on the Plumas National Forest.



Forest Service employees talk with members of the public in a meadow during a monitoring field trip on the Hat Creek Ranger District of the Lassen National Forest.

719,000 acres, the predicted post-project road density (2.90 miles per square mile) is 2 percent lower than the analyzed pre-project condition (2.96 miles per square mile). Of the 199 subwatersheds analyzed, most (130 subwatersheds) indicated that road density would not change as a result of project activities.

The analyses for 35 subwatersheds indicated decreases in road density. Many of the HFQLG project-level decisions include some obliteration of Forest system and nonsystem roads. These obliterations account for the post-project change in road density. The majority of these road obliterations have already occurred. Obliterations are often supplemented with partnership funding, including California State Off-Highway Vehicle (OHV) restoration grant dollars.

While reported near-stream road density information is used from within HFQLG watersheds that cover 982,000 acres, the data covers only the project level, subwatershed analysis areas, which totaled 592,000 acres.

For these 592,000 acres, the predicted post-project near-stream road density (3.41 miles per



Forest Service officials discuss watershed issues with partners near the Last Chance Project on the Beckwourth Ranger District of the Plumas National Forest in May 2007.

square mile) is 5.5 percent lower than the analyzed pre-project condition (3.61 miles per square mile).

Road-stream crossing data was available for 564,000 acres, the predicted number of road-stream crossings (2,985) is 1.8 percent lower than the analyzed pre-project condition (3,039 crossings). As with the road density results, the road obliterations planned in HFQLG project-level decisions account for the post-project change in the number of road-stream crossings. The majority of these near-stream road obliterations have already occurred.



South Fork Bailey Creek on the Lassen National Forest, part of the Stream Condition Inventory. An aspen release project is in the background.

Stream Condition Inventory

Comparisons of reaches monitored before and after implementation of HFQLG projects indicate a lack of adverse impacts. Eight vegetation treatments were monitored. Shade was significantly decreased (as expected) by an aspen treatment adjacent to South Fork Bailey Creek. Implementation of vegetation treatments did not result in greater in-channel sediment at any of the sites.

Reaches downstream of two riparian restoration projects showed no substantial changes in selected attributes following implementation of the projects.

Amphibian Survey

Thirty-two sites were surveyed in 2007, including the 25 sites where Region 5 designated Forest Service Sensitive (FSS) frog species had been identified during previous year surveys. Target species were observed at 14 of these

Monitoring, cont.

sites in 2007. To date, the data gathered during the four years of monitoring reveals that FSS frog species located in off-base areas in the HFQLG Pilot Project area are persisting. The number of sites with FSS frogs in non off-base areas decreased in 2007 as compared to previous years, though two sites without frog sightings were dry, while unidentified egg masses were observed at another.



A mountain yellow-legged frog.

All three of these sites have had mountain yellow-legged frog observations in previous years, and are proposed for resurveys in 2008. Additionally, six of the sites where frogs were not found during surveys in 2007, had positive sightings in only one of the previous three survey efforts. Data collected up to this point is inconclusive relative to persistence of the species in the project area. Additional data collection and analysis is planned.

California Spotted Owl Monitoring

Knowledge regarding the effects of fuels and vegetation management on California spotted owls (CSO) and their habitat is a primary information need in addressing conservation and management objectives in Sierra Nevada forests. Specific research objectives of the CSO module are identified and described in the Plumas-Lassen Study Plan.

Current information on the distribution and density of CSOs across the HFQLG study area is required to provide the data necessary to build predictive habitat models and provide baseline population information against which we will assess post-treatment changes in CSO populations and habitat. Continued monitoring in the Lassen Demographic Study Area is critical for estimating CSO population trends and status. The focus in 2007 was to conduct landscape inventories of CSO distribution and abundance, and continue banding to provide the required data and baseline information to meet the objectives of

research objectives one through four. Efforts were made to monitor the pair and reproductive status of each owl, and to capture, uniquely color-mark and collect blood samples from each individual owl. Capture and color-marking are necessary to estimate survival and population trend, and to assess exposure to West Nile Virus. All barred and hybrid barred-spotted owls encountered in the study area were also recorded and synthesized to all existing barred owl records for the northern Sierra Nevada.

CSO Numbers, Reproductive Success, Density and Population Trends

A total of 71 territorial CSO sites were documented in 2007 across the study area. This total consisted of 62 confirmed pairs, three unconfirmed pairs and six territorial single CSOs. Thirty-six pairs successfully reproduced in 2007 (55 percent of confirmed/unconfirmed pairs). A total of 65 fledged young were documented in 2007 (1.81 young per successful nest). Across the recent four years of the study, CSO reproduction has been highest in 2004 and 2007 in terms of the percent of CSO pairs that successfully reproduced, and to lesser degrees in terms of the number of young fledged per successful nest. Approximately 50 percent of CSO pairs successfully reproduced in 2004 and 2007 while only 14 percent and 18 percent were successful in 2005 and 2006, respectively. CSO reproduction is known to vary with spring weather. Precipitation patterns were more similar in 2004 and 2007, with total precipitation relatively low during March-April of 2004 and 2007 as compared to 2005 and 2006.

California spotted owl reproduction on the Plumas and Lassen National Forests 2004-2007

Year	Percent of confirmed/unconfirmed pairs with successful nests	Young fledged per successful nest
2004	49.4%	1.68
2005	17.7%	1.47
2006	13.8%	1.50
2007	55.4%	1.81

The crude density estimates in this report differ from those reported in the 2006 Annual Report because of updates and corrections to the GIS base survey maps and CSO survey results databases that were conducted in winter

2007-2008 to correct the original survey area boundaries and survey results to make them congruent with the actual watershed boundaries of each survey area. The crude density of CSOs was estimated based on the number of territorial owls detected across nine survey areas during 2007 surveys at the Survey Area spatial scales.

The estimated crude density across the overall study area in 2007 was 0.066 territorial owls/km². Overall study area crude densities are not directly comparable across years because different total areas were surveyed in each year. However, crude density estimates within individual survey areas indicate similar densities and number of territorial sites (pair sites plus territorial single sites) between 2004-2007 for the survey areas on the Plumas National Forest, while numbers appear to have declined on the Lassen survey areas between 2005-2007.

Mean estimated population change (lambda) for California spotted owls on four study areas in the southern cascades and Sierra Nevada, 1990-2005

Study Area	Lambda	Standard Error	95% Confidence Interval
Lassen National Forest	0.973	0.014	0.946-1.001
Sierra National Forest	0.992	0.013	0.966-1.018
Sequoia-King Canyon National Park	1.006	0.031	0.947-1.068
Eldorado National Forest	1.007	0.029	0.952-1.066

In January 2006, a meta-analysis by Jennifer Blakesley and others was conducted to estimate CSO population trends and to assess population status in response to a petition submitted to the U.S. Fish and Wildlife Service to list the CSO under the Endangered Species Act. Data collected between 1990 and 2005 from four CSO demographic studies across the Sierra Nevada and southern Cascades, including the Lassen Demographic Study Area, were analyzed as part of the meta-analysis workshop. Across the four study areas, results indicated that the Lassen Study CSO population exhibited the strongest evidence for a population decline between 1990 and

2005. Mean population change (lambda) for the Lassen Demographic Study was 0.973, with 95 percent confidence limits ranging from 0.946-1.001.

Vegetation Sampling – Nest Plots

Vegetation plot sampling was conducted at a total of 80 CSO territories from 2005 through 2007 for development of CSO habitat models that can be used as adaptive management planning tools. Habitat models are currently being evaluated that can be used to assess projected changes in CSO nesting habitat suitability under varying fuels and vegetation treatment scenarios.



A California spotted owl

Banding, Blood Sampling, West Nile Virus Monitoring

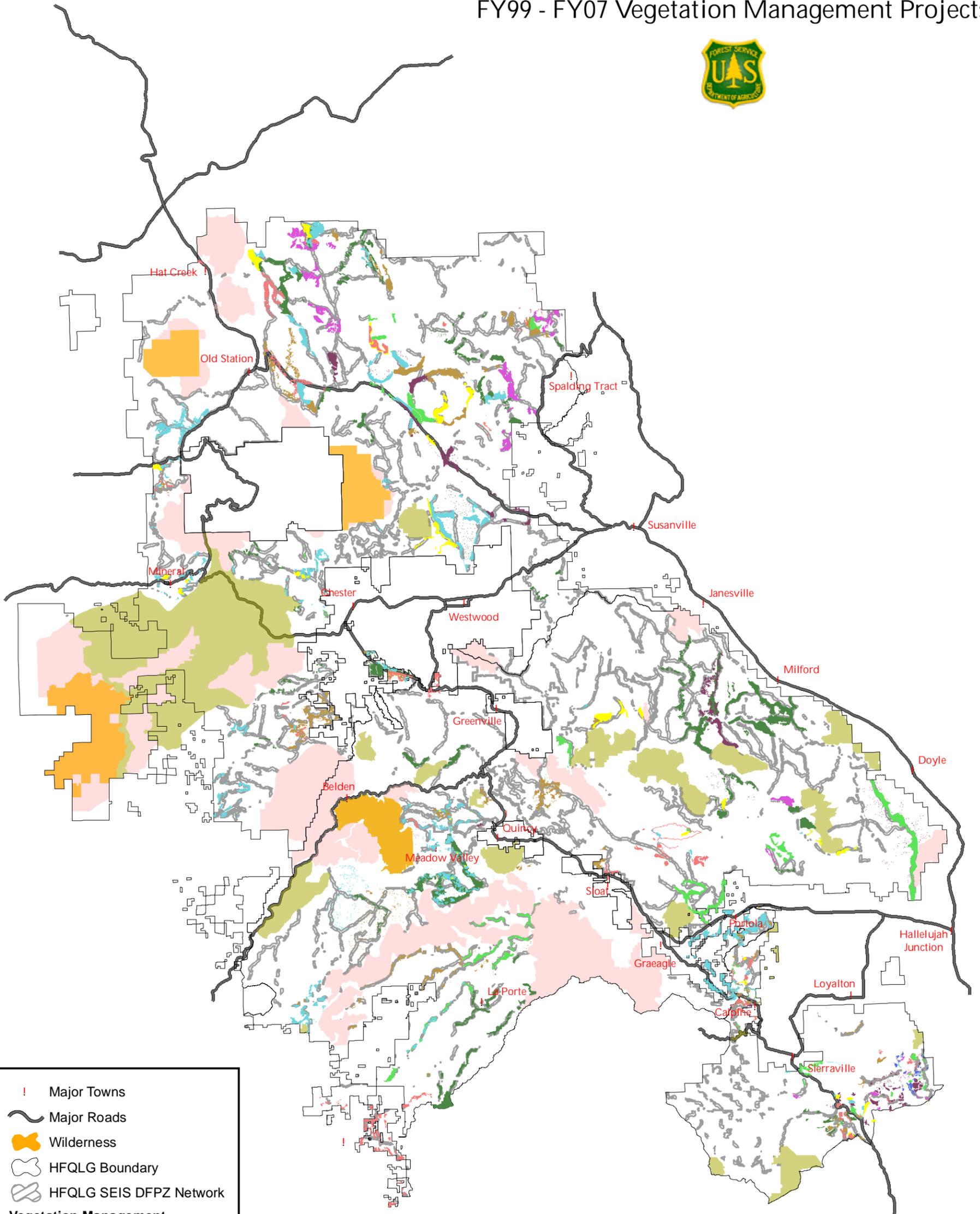
Sixty-six owls were captured and banded in 2007. Blood samples were collected from 38 individuals in 2007 and have not been analyzed to date. None of the 120 individual samples tested at the University of California, Davis for West Nile Virus antibodies tested positive from 2004-2006.

Barred and Sparred (spotted-barred hybrid) Distributional Records:

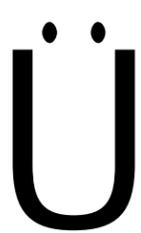
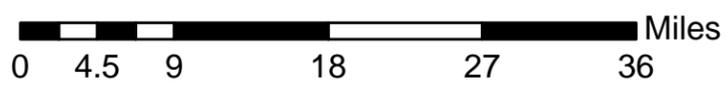
Barred owls have been linked to the continuing decline of the northern spotted owl and are considered a primary threat. They are likely to present a similar threat to the California spotted owl. Barred owls, a recent invader in the region, was first reported in 1989.

Four barred owls and four sparred owls were detected during 2007 surveys within the study area. The synthesis and update of barred-sparred owl records through 2007 based on Forest Service and California Department of Fish and Game databases indicates that there are a minimum of 41 individual site records across the northern Sierra Nevada. This includes 19 records that have been documented within the HFQLG intensively surveyed study area. The pattern of records suggests that barred-sparred owls have been increasing in the northern Sierra Nevada between 1989 and 2007.

Herger - Feinstein Quincy Library Group FY99 - FY07 Vegetation Management Projects

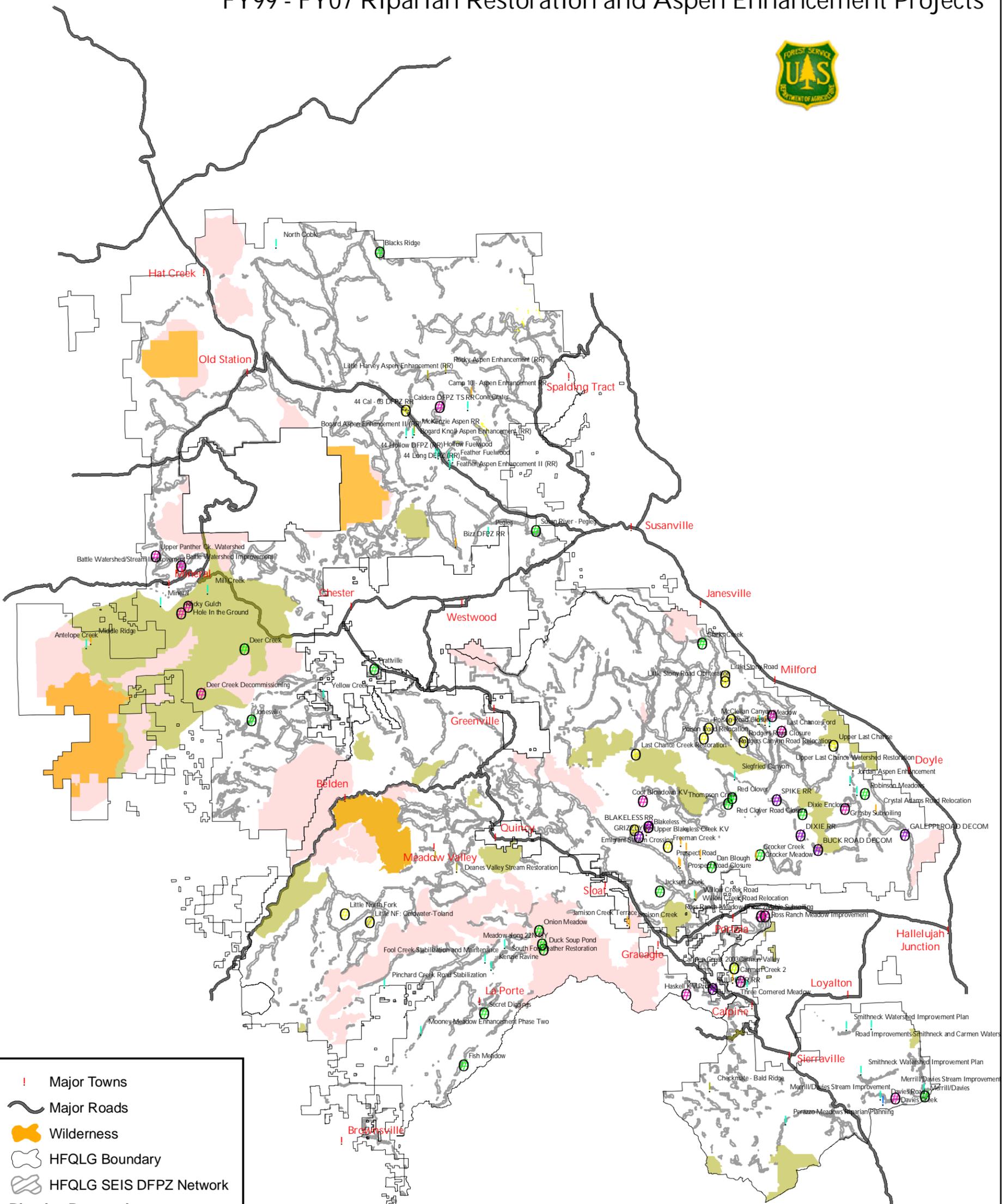


!	Major Towns
—	Major Roads
👉	Wilderness
⬭	HFQLG Boundary
⬭	HFQLG SEIS DFPZ Network
Vegetation Management	
👉	FY 99
👉	FY 00
👉	FY 01
👉	FY 02
👉	FY 03
👉	FY 04
👉	FY 05
👉	FY 06
👉	FY 07
HFQLG Offbase/Deferred	
👉	Deferred
👉	Offbase

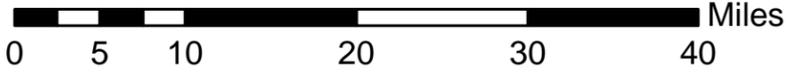


Map by Mark Nebel
Lassen National Forest
February 22, 2008

Herger - Feinstein Quincy Library Group FY99 - FY07 Riparian Restoration and Aspen Enhancement Projects



! Major Towns
 Major Roads
 Wilderness
 HFQLG Boundary
 HFQLG SEIS DFPZ Network
Riparian Restoration
 FY 00
 FY 01
 FY 02
 FY 03
 FY 04
 FY 05
 FY 06
 FY 07
 Aspen Enhancement-FY07
HFQLG Offbase Deferred Areas
 Deferred
 Offbase



Map by Mark Nebel
Lassen National Forest
February 22, 2008

Plumas & Lassen National Forests
Sierraville Ranger District, Tahoe National Forest



USDA Forest Service
Pacific Southwest Region — February 2008