

Appendix 1. Grazing Strategies Identified in “Pine Creek Riparian and Fish Passage Improvement Project” 1995

Strategy	Definition
2 Pasture Deferred Rotation, 3 Pasture Deferred Rotation	This strategy delays pasture grazing until the more important forage plants achieve a desired growth or regrowth stage or produce ripe seed. This allows each portion to rest successively during the growing season to permit seed production, establishment of seedlings, or restoration of plant vigor. The benefit of this strategy is to be able to delay use during any critical period. Allowable use will be 40 percent utilization by dry weight of the identified key species.
3 Pasture Rest-Rotation	With rest-rotation, each pasture receives at least one year of complete rest during each grazing cycle. Grazing is deferred on various parts of the range during succeeding years, allowing the deferred part complete rest for one year. The grazing load is then absorbed by the other pastures for that year. In summary, there are three basic treatments in the applications of rest-rotation grazing management: rest until seed ripe time, graze after seed ripe time, and rest for seedling establishment. Allowable use will be 40 percent utilization by dry weight of the identified key species.
Channel Enclosure - No Grazing	With this technique, the creek channel is fenced and no grazing is allowed. The enclosure is narrow, closely following the stream location.
Exclosure - No Grazing	The exclosure is a pasture that is larger than the channel enclosure and includes all the riparian. It is used to isolate the part of the system needed to meet riparian objectives.
Fall Gathering	When a pasture is used for gathering, the livestock manager gathers the cattle off the range pasture and puts them in the gathering pasture to collect them for shipping or for movement to somewhere else. It is used for a very short time and will be grazed very lightly. Allowable use will be 30 percent utilization by dry weight of the identified key species.
No Grazing by Management	Areas with a "no grazing by management" prescription will not be grazed, although there will be no fences to assure that the cattle can not enter the area. It will be the permittees responsibility to assure that the cattle do not enter the area. If an occasional cow enters the area, the permittee will be notified and will remove the animals but will not be charged with trespassing.
Graze 1 of 3 Years	Under this strategy, the area or pasture receives two consecutive years of rest and one year of grazing. In a three-pasture design, the pasture with the highest stream-riparian values is rested continuously for 2 years and grazed early or late the third year. Thus, it takes 6 years to complete the grazing cycle. Allowable use will be 40 percent utilization by dry weight of the identified key species.
Rest 3 Years, Graze 1 of 3 Years	The rest 3 years, graze 1 of 3 years is the same as graze 1 of 3 years except there will be a 3 year period of no grazing in the beginning. Allowable use will be 40 percent utilization by dry weight of the identified key species.
Occasional Graze	The occasional graze strategy includes a pasture that is larger than a corridor but not usually as large as a riparian pasture. The pasture is of sufficient size to function as a grazing pasture, but will only be grazed on occasion by discretion of a FS officer when needed to meet objective standards. Allowable use will be 35 percent utilization by dry weight of the identified key species.
Private	Areas titled "private" are privately owned land. Private land grazing permits have been issued to graze the areas along with Forest Service System lands. The Lassen National Forest Land Management Plan (LMP) does not apply to these lands.
Riparian Pasture Prescription & Late Graze	This technique is used to maintain or improve the riparian health. Utilization allowed is light if used late in the growing season (after July 1). Allowable use will be 30 percent utilization by dry weight of the identified key species leaving 6-7 inches of stubble height. Early season use can be utilized up to 45 percent by dry weight of the identified key species leaving 4-6 inches of stubble height. Utilization on woody riparian vegetation is set at no more than 30 percent of the current years growth.
Season Long Graze	Season-long continuous grazing is stocking a pasture, allotment or area annually throughout the complete vegetation growing season. Season-long grazing allows livestock to exhibit maximum forage selectivity and can minimize livestock disturbance due to gathering, moving, and quick changes in forage quality. Allowable use will be 40 percent utilization by dry weight of the identified key species.
Short Duration Grazing	This strategy calls for rotating use over short periods. This strategy uses forced utilization of vegetation via high stocking rates coupled with long nonuse periods. The "short duration" term stipulates high utilization of the available forage crop in one to several weeks. This requires numerous pastures and frequent rotation of animals from one pasture to another. Allowable use will be 40 percent utilization by dry weight of the identified key species.
Short Duration - Light Grazing	Light grazing means the amount of grazing that will cause no damage to the riverine-riparian system, and will allow riverine-riparian management objectives to be met. It refers to using the available forage in a very short period of time. Allowable use will be 30 percent utilization by dry weight of the identified key species.

Appendix 2. Pine Creek Studies: Objectives, Recommendations, and Status

USFS – Young 1989	Recommendations	Status
<p>Objectives: A summary of known facts and conditions about the Pine Creek watershed, including results of field work to inventory channel types riparian conditions, and watershed improvement opportunities.</p> <p>Key Findings:</p> <ul style="list-style-type: none"> • Potential for channel problems in Stephens Meadows. • Aspens declining in vigor downstream of Highway 44. • Channel conditions at lower end of Harvey are problematic. • Rest-rotation grazing in Harvey Valley not following original design. • Overgrazing in Champs and McCoy at end of the season result in continued erosion of channel. 	<ul style="list-style-type: none"> • Correct fish passage problems at outlet of Leaky Louie's pond • 200 feet upstream of Rd 32N22, 100 yards of stream affected by felling of aspens, debris left behind • Culvert issues at 32N22, correct flows to send 100% of low flows through one side of culvert • Correct downcutting in meadow near McKenzie Cow Camp, implement shorter utilization periods • Obliterate Crater RR grades in PC Valley • Obliterate 105 road crossing to improve stream spreading if obliteration of RR grades (previous project) proves beneficial • Obliterate water pit at Logan Spring (west of stream) • Obliterate RR grades or improve stream channel conditions downstream of Logan Springs, upstream of Harvey Valley sub-basins • In-channel stockpond on Little Antelope well causing headcuts, stabilize with loose rock structure and leave more grass stubble at end of season • 2 Railroad grades eroding into Pine Creek, move boulders to keep flood flow from diverting into RR grade • Repair or replace culvert on Bogard Spring Creek at Rd. 32N22 • Assess and repair dam at Antelope Valley where RR grade was used as dam to create wetland • UPRR (formerly Western Pacific, now Burlington Northern) RR grades at PC Valley – obliterate grade if and when RR abandons line (if ever). Or, dam up borrow ditches to send flows into main channel • Install enclosure fence around aspen stand at Stanford Camp (Headquarters), and/or use cuttings to re-establish hardwood component there 	<p>Accomplished: fish ladder built 1994</p> <p>No. Problem not seen in leaving as is</p> <p>Accomplished 1998</p> <p>Grazing ceased 1993</p> <p>Not accomplished</p> <p>No. Culverts appear to pass sufficient flows</p> <p>Not accomplished</p> <p>Partially accomplished on mainstem Pine Creek</p> <p>Worked on in 1989</p> <p>Unknown where</p> <p>No. Culvert stable and passes flows from limited upstream watershed</p> <p>Worked on in 1989</p> <p>Partially accomplished 2000, 2005</p> <p>Not accomplished</p>

Platts & Jensen 1991	Recommendations	Status
<p>Objectives:</p> <ul style="list-style-type: none"> Identify areas of stream and riparian habitat of distinctive ecological potential Evaluate the condition in areas of distinctive potential Recommend alternatives to enhance stream/riparian habitat 	<p>Baseline inventory:</p> <ol style="list-style-type: none"> Compile accurate map of allotments and boundaries Compile accurate map/inventory of range improvements Compile vegetative and soil descriptions Map riparian vegetation types Conduct a range type inventory <p>Fisheries:</p> <ol style="list-style-type: none"> Eliminate brook trout in upper Pine Creek (PC), stock purest Eagle Lake trout (ELT) Modify culverts at road crossings along Pine Creek to enhance passage Allow migration of ELT into PC Address sources contributing to eutrophication of Eagle Lake <p>Livestock Management:</p> <ol style="list-style-type: none"> Eliminate grazing in Silver Lake Allotment Evaluate alternative water supply for Bogard WC and rest area Purchase Stephen's Meadow and place under FS management Eliminate grazing west of Highway 44 in Upper Pine Creek Allotment Construct fence (CallTrans) on west of Hwy 44, east of RR??? Split Upper Pine Creek Allotment east of Hwy 44 into 2 pastures Revise management of north unit of Lower PC Allotment Continue Harvey Valley Allotment under more rigid rest-rotation prescription Divide unit 3 of HVA into 2 pastures Test alternative livestock management in Champs Allotment Purchase private property in central unit of Champs, place under FS mgmt Create set-back pasture of PC in Champs Create set-back pasture of PC in McCoy area Fence FS campground near Dow Flat Manage livestock use along PC in Lake Unit of North EL allotment under riparian prescription Enclose livestock along shorelines of EL Construct riparian fences for stream habitat in set-back pastures Prioritize allotment planning order 	<p>Accomplished</p> <p>Accomplished</p> <p>Accomplished</p> <p>Accomplished</p> <p>Not done</p> <p>Accomplished numerous years</p> <p>Minimal</p> <p>Ongoing</p> <p>Modified to a minimum amount of use</p> <p>Evaluated (see discussion)</p> <p>Placed in "trust"</p> <p>Fall Gathering Pasture</p> <p>Accomplished</p> <p>Accomplished</p> <p>Not done</p> <p>Not done</p> <p>Not done</p> <p>Partially accomplished</p> <p>Accomplished</p> <p>Accomplished 1999</p> <p>Evaluated 2005 in Crater EA</p> <p>Accomplished</p>
<p>Key Findings:</p> <ul style="list-style-type: none"> Categorized stream channels into functional types, and into condition ratings of Natural, Over-broadened, Eroded Banks, Blown-out, Pondered, and Channelized. Riparian fences needed, not only allotment fencing. Highlighted the need for allotment management changes, offered suggestions. Water drafting from Pine Creek insignificant for dust abatement and domestic use at Bogard Rest Area. 	<p>Structural Recommendations:</p> <ol style="list-style-type: none"> Evaluate returning PC to natural channel immediately above Hwy 44 Conduct a fiscal evaluation for removing abandoned RR grades in PC valley Evaluate creation of wetlands/structures in PC Valley 	<p>Accomplished</p> <p>Accomplished</p> <p>Accomplished</p> <p>Accomplished</p> <p>Not done</p> <p>Accomplished numerous years</p> <p>Minimal</p> <p>Ongoing</p> <p>Modified to a minimum amount of use</p> <p>Evaluated (see discussion)</p> <p>Placed in "trust"</p> <p>Fall Gathering Pasture</p> <p>Accomplished</p> <p>Accomplished</p> <p>Not done</p> <p>Not done</p> <p>Not done</p> <p>Partially accomplished</p> <p>Accomplished</p> <p>Accomplished 1999</p> <p>Evaluated 2005 in Crater EA</p> <p>Accomplished</p>

National Riparian Service Team 1998	Recommendations	Status
<p>Objectives:</p> <ul style="list-style-type: none"> • Provide training on use of “Proper Functioning Condition” assessments • Provide a progress report on where CRMP strategies and projects have led, give feedback on CRMP goals, are Management strategies appropriate? 	<ul style="list-style-type: none"> • Conduct study for several years (5 if possible), and radiotelemeter from early, mid and late portions of spawning run • Eggs at trap should also be taken from early, mid and late portions of run • Allow adult ELT upstream as soon as possible • Egg boxes could accelerate recolonization of abandoned habitats, ensure genetic diversity though • Pine Creek – Stephen’s Meadow – watch headcuts on side channel • Pine Creek superditch – unlikely a velocity barrier • Assess function of channels that will receive redirected flow (superditch area) • North channel will change from perennial (1998) to intermittent with change in channel configuration 	<p>Mostly accomplished. Timing difficult</p> <p>Eggs mainly taken during early part of run</p> <p>Partially accomplished with telemetry</p> <p>Not done</p> <p>On private, watched</p> <p>Changed course of stream with other objectives</p> <p>Done</p> <p>Agreed</p>
<p>Key Findings:</p> <ul style="list-style-type: none"> • Rankings of various locations as to PFC, PFC – at-risk, or Not PFC. • Analyze management of Harvey Valley Allotment (rest-rotation). 		

Jones & Stokes 1992	Recommendations	Status
<p>Objectives: Assess interaction between constructed features, watershed hydrology, and stream channel hydraulics. Specific analyses to meet objectives include:</p> <ul style="list-style-type: none"> • Providing fish passage to restore natural spawning runs in Pine Creek • Stabilizing unstable streambanks • Restoring riparian communities • Increasing water storage capacity of watershed • Producing longer duration seasonal flows 	<p>Hydrological and Fisheries Restoration:</p> <ol style="list-style-type: none"> 1. Remove splitter structure, allow North and South channels to flow, install grade structure to allow N and S channels equal flow, North channel to serve again as fish passage channel, south channel enhanced 2. Ditch #2 (Superditch??) restoration: Place boulders in stream channel to allow scour holes to be created OR Fill in superditch and reopen natural south channel (has culvert inadequacies at Hwy44). Do not recommend rerouting of flows into south channel. 3. Existing abandoned RR grades should be left in place, but opening holes in them to reconnect old, natural channels is acceptable 4. Fill in ditch near McKenzie Cow camp to send flows into natural channels 5. Replacements of culverts at State Hwy 44, Camp 10, 105 Road, and USFS Rd. 32N22 (not necessary for fish passage) <p>Riparian Restoration:</p> <ol style="list-style-type: none"> 1. Eliminate livestock grazing west of Highway 44, fence. 2. Plant willows on banks and at grade control structures 3. Identify haul roads for construction projects west of Hwy 44 4. Grade control structures upstream of splitter could be placed so as not to jeopardize gravels or riffles, but would increase the water table 5. Do not install sill at UPRR Grade 1 	<p>Accomplished 1994. South channel has main flow</p> <p>Flows routed into south channel 2000. (See discussion)</p> <p>No change</p> <p>Accomplished 1998</p> <p>All replaced</p> <p>Grazing mostly eliminated, fall gathering pasture adjacent to Hwy 44</p> <p>Not done along UPRR or McKenzie ditch, recolonization of willows and graminoids is naturally occurring</p> <p>Done per project plans</p> <p>No</p>

Appendix 3. Projects Occurring Along Pine Creek, by Category

PROJECT: FENCING/GRAZING/WATER DEVELOPMENTS					
	Project Name	Reference	Objective	Funding	Date Completed
Pastures	Champs	Pine Ck EA	Part of three pasture/reach rotation	Prop 99	1995
	Upper Pine Creek	Pine Ck EA	Fall gathering pasture to reduce impacts to stream		1995
Water Developments	Bogard	Pine Ck EA	Provide off-channel water for timber haul roads, water for livestock grazing	USFS	1995
Exclosures	Upper Pine Creek	Platts	Reduce impacts to stream from cattle grazing		1991
	Logan Springs	CRMP	Reduce impacts to stream from cattle grazing	Prop 99	1994
	Lower Logan at Bradford	CRMP	Reduce impacts to stream from cattle grazing	Prop 99	1994
	Below BNSF RR Line	CalTrans	Mitigation for Highway 44, exclosure to provide "new" channel of Pine Creek to establish vegetation without grazing pressure	CalTrans	2002

PROJECT: FISH						
	Project Name	Reference	Objective	Funding	Date Completed	
Passage	Fish Trap near Bogard and Highway 44	CDFG	Capture returning spawners to Pine Creek for hatchery production		Completed 1953	
	Fish Trap at mouth of Pine Creek	CDFG	Capture returning spawners to Pine Creek for hatchery production	WCB	Completed 1958	
	Leaky Louie's Fish Ladder	CRMP	Allow for fish passage over road 31N25	Prop 99, USFS	Completed 1994	
Movement	Radiotelemetry	CRMP	Monitor results of upstream fish migration	USFS, CDFG, UC Davis	1999-2006 (not done in 2003)	
Planting	ELT plants in Eagle Lake	CDFG	Provide a trophy trout fishery	CDFG	1960 – present	
	ELT plants in Pine Creek	CDFG	Establish ELT in Pine Creek, displace introduced BKT	CDFG	1944-1976, 2000 to present	
	Tahoe Sucker	CDFG	Pass Tahoe sucker that return to trap to Pine Creek	CDFG	1959 to present	
Interpretive	Display at Fish Trap at mouth of Pine Creek	USFS	Explain what is known and needed concerning ELT and watershed	USFS	Completed 1998	

PROJECT: CHANNEL						
	Project Name	Reference	Objective	Funding	Date	
Realignment	Vicinity of Highway 44	P & J, J & S, CRMP	Restore stream channel to natural channel, increase ability of stream to meander to hydrate valley, another outlet to pass flood water from Hwy 44	RR, EEM Grant	1999 - present	
Bank Rehabilitation						
Blocking/Unblocking						
	Bradford 3 Rock Structure	SCS, CRMP	Back water up through valley to increase water storage on site		1995	
	Splitter Removal	CRMP, J & S	Restore natural channel and grade		1993	
	Bogard Barn Ditch	CRMP, J & S	Restore natural channel	USFS	1999	

PROJECT: ROAD						
	Project Name	Reference	Objective	Funding	Date Completed	
Obliteration						
	31N08 Rd. Xing Harvey Valley	CRMP, USFS USFS	Remove fish passage barrier Obliterate redundant roads in watershed	USFS USFS	1998 1987	
	Harvey Camp	USFS	Allow channel to flow unrestricted	USFS	1999	
Realignment/Drainage Improvements						
	Bogard Campground	USFS	Remove campground sites from active floodplain/ channel	USFS	1997	
Culverts						
	Highway 44	P & J, J & S, CRMP, CalTrans	Along with channel realignment, replaced culverts to allow for fish passage and sized for 100 (500) year flood event	CalTrans	1999	
	105 Road			Lassen County, BBN	1994	
	Camp 10			Lassen County, BBN	1994	
	32N22/ Westwood Logging Rd.	CRMP, USFS	Replace culverts with natural bottom concrete structure, providing fish passage	USFS KV	1998	

PROJECT: VEGETATION

	Project Name	Reference	Objective	Funding	Date Completed
Aspen Restoration/Conifer Thinning	Varied	USFS	Restore natural vegetative condition	USFS, HFQLG	1997 to present
Willow/ Graminoid Planting	Million \$ Bridge Champs Flat	USFS, CRMP USFS	Restore natural vegetative condition Restore natural vegetative condition	USFS USFS	1993 1997

Appendix 4. Assessment of Harvey Valley Study (Interpreted by D. Lile)

The Harvey Valley grazing allotment was a chosen site to field test the rest-rotation grazing system developed by Gus Hormay in the 1950's. Rest-rotation grazing sought to control the timing, frequency, duration and intensity of grazing and incorporate time periods of rest in to the grazing scheme. While many concepts and derivations of rest-rotation grazing are today in widespread use, it is not commonly practiced in its pure form as originally implemented in Harvey Valley.

Approximately 80 transects were established and extensive plant cover data was taken on the allotment in 1956 and 1957 when rest-rotation grazing was first put in place. For comparison purposes, these transects were established in both grazed areas and enclosure protected from grazing. They were re-read in 1963 and '68. As part of the CRMP effort, the Honey Lake Valley RCD contracted with retired PSW Range Scientist Ray Ratliff to read the Harvey valley transects once again in 1996 and 1997. Ratliff compiled a report titled "40 Years of Rest- Rotation Grazing on the Harvey Valley Allotment". Some of his findings are summarized below;

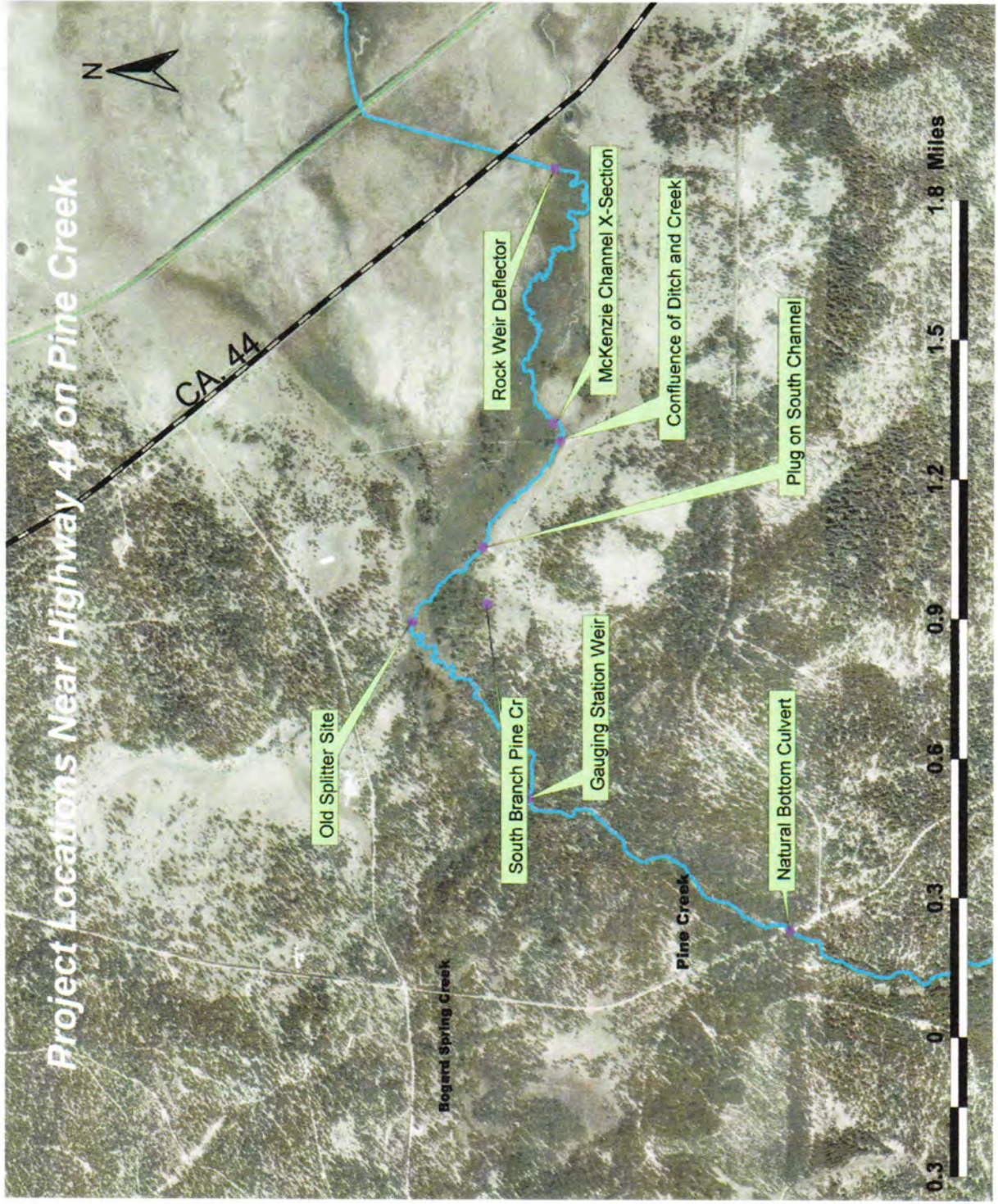
- Exposed land "surface" which includes bare ground, rock, and wood litter, has either been reduced or stayed the same in 77% of the transects exposed to grazing and 90% of the transects protected from grazing. This is important in terms of soil stability and hydrologic function, demonstrating that in most areas of the Harvey Valley allotment there has been an upward or stable trend in terms of overall plant cover.
- The trend in individual species is quite variable with some increasing while others have decreased. For example:
 - ⇒ Some common perennial grasses such as Idaho fescue and Nevada bluegrass have increased in grazed areas, while remaining stable in transects in ungrazed.
 - ⇒ The introduced perennial grass smooth brome (seeded by the USFS in the 1950's) has decreased on all plots, but more so where it has been grazed. It has apparently been replaced to some extent by the native Nevada bluegrass.
 - ⇒ Some perennial grasses such as squirrel tail and western stipa have decreased on all transects but somewhat more so in ungrazed areas.
 - ⇒ Upland sedges such as Ross' and Hairy sedge have decreased significantly on grazed plots. Following an initial decrease in ungrazed areas Ross' sedge has rebounded to 1957 levels. Hairy sedge does not exist on any of ungrazed areas.
 - ⇒ There have been substantial increases in sagebrush species in both grazed and ungrazed plots. This due in large part to re-colonization of sites following sagebrush spraying in the 1950's.

One should be careful in interpreting cause and effect of increase or decrease of individual species. Many interactions and confounding factors contribute to changes in species composition, which will rarely remain static over time. To make a determination about individual species requires closer scrutiny of the sites where it exists and the competition being exerted from the associated plant community and grazing use.

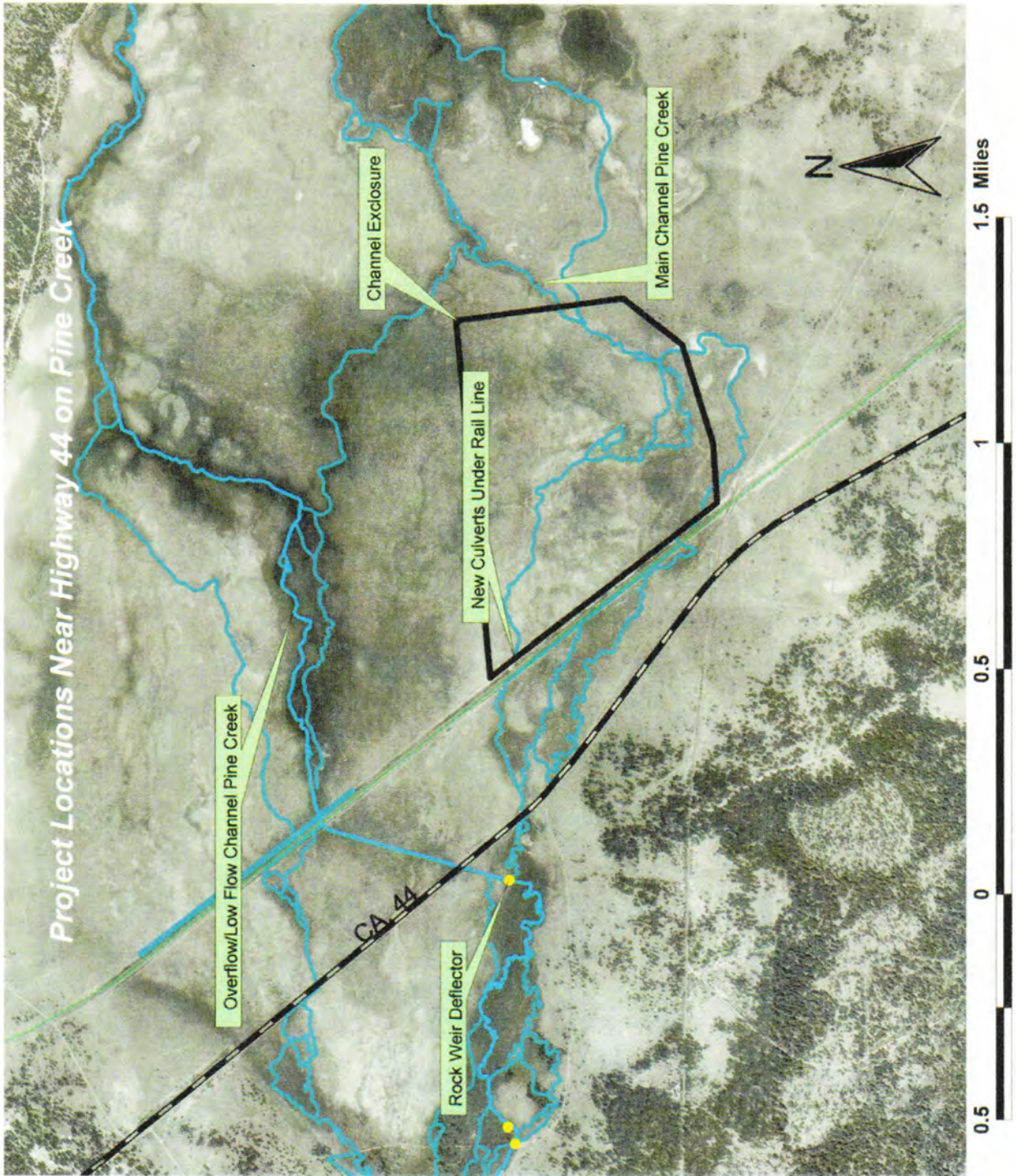
Ratliff notes that what originally started out has a 5 pasture system with 2 years complete rest and 2 years partial rest for each pasture every five years, was changed to 3 pastures in the 1970's and finally to a deferred rotation in the 90's to where each pasture is grazed each year.

To more clearly assess grazing impacts, Ratliff suggests mapping grazing use across the allotment to determine which areas are most utilized vs. those that are used less.

Appendix 5a. Project Locations Upstream of Highway 44



Appendix 5b. Project Locations Downstream of Highway 44



A	B	C	D	E
Appendix 6. Summary of Information Collected for Pine Creek				
Date	Subject	Author	Notes	File Location
1				
2	1/1/1918 The Fishes of the Laurentian System...	JO Snyder	Earliest scientific reference to EL Trout, description	LNF SO
3	1/1/1940 The Trout of California	JO Snyder	Referencing EL Trout, sizes	LNF SO
4	11/10/1949 FS Evaluation of Proposed Dams on Pine Creek	USFS, Philip Lord	Discussion of feasibility of constructing dams to increase water storage	ELRD
5	8/7/1953 Channelizing Pine Ck near Bogard	CDFG, E.R. German	Discussion to channelize Pine Ck. Downstream of railroad tracks	CDFG
6	9/15/1953 Memorandum concerning various water and power matters	USFS, Niel Meadowcroft	Suggests to LNF to look at conflicting land uses (water diversions); reports that present emphasis is to keep flows continuous to Eagle Lake	ELRD
7	11/15/1954 Rotenone investigation at Pine Creek	CDFG, Richard Halcy	11/12/54 - Rotenone use near Bogard CG, downstream	CDFG
8	6/7/1956 Spawning Operations at Pine Creek, Lassen County	CDFG, Lloyd Hume	New egg collecting station opened near Bogard RS, spawned 10 fish 5/4 thru 5/18	CDFG
9	6/18/1957 Pine Creek spawning operations	CDFG, Darrah Springs Hatchery	6 fish spawned from 4/12 thru 4/29	CDFG
10	8/1/1958 Eagle Lake trout proposal	CDFG	Requested \$38,740 for egg collecting facilities at Pine Creek	CDFG
11	8/2/1960 Pine Creek spawning operations	CDFG	134 fish trapped 3/23 thru 5/20. Concerns over late arrivals at trap --- may need to develop a strain of early spawners	CDFG
12	7/15/1962 Pine Creek spawning operations	CDFG	Unusually good snowpack, unusually heavy sucker run (1-3 lbs each), CDFG dace and reddsides not as numerous as preceding years	CDFG
13	6/1/1963 Pine Creek spawning operations	CDFG	Heavy sucker run; dace, reddsides low	CDFG
14	6/8/1964 Pine Creek spawning operations	CDFG	ELT run very low, heavy sucker run, reddsides light. Seined for ELT at Circus Grounds, Bly inlet, and Pikes Pt.	CDFG
15	7/2/1965 Pine Creek spawning operations	CDFG	Heavy sucker run, reddsides small. More seining for ELT at Circus Grounds, Rocky Pt., EL at highest elevation since 1935, ELT caught near Camp 10 bridge.	CDFG
16	8/4/1965 Pine Creek Egg Collection Station	CDFG	Inspection of facility at EL, ELT observed previous 4 years above dam and up to Bogard, value of sucker to fishery	CDFG
17	5/22/1971 News Release - CDFG	CDFG	Spawning information, est. 14,000 ELT caught in lake in 1970	ELRD
18	1/1/1976 Pine Creek stocking record	CDFG	Stocking record 1940 - 1975	CDFG
19	1/1/1976 Eagle Lake Trout Fishery	CDFG, King/Weidlein	History and stocking info for EL trout 61-75	ELRD
20	3/4/1986 Spawning Tributary surveys	Vern King	ELT clearing weir at barrier, many tributaries held large concentrations of fish	CDFG
21				

A	B	C	D	E
Date	Subject	Author	Notes	File Location
2	12/17/1986 Pine Creek Waterfowl Developments	USFS, Tom Mower	IDT selection and brainstorming of proposed waterfowl developments in Pine Creek Valley	ELRD
22	1/7/1987 Pine Creek Waterfowl Developments, meeting minutes	USFS	Alternatives and tasks discussed for Antelope impoundment, two project areas, one at Antelope, others at Logan, Mecoy, Little Harvey	ELRD
23	2/10/1987 Pine Creek Waterfowl Developments, meeting minutes	USFS	Discussion with F&G, RWQCB, concerning water developments. CDFG concerned over Antelope project.	ELRD
24	3/23/1987 Impacts of Proposed Antelope Valley Wetland Project	USFS, Steve Young	Analysis of water temperature impacts to Pine Creek from proposed Antelope dam	ELRD
25	5/27/1987 Review of Proposed Fish and Watershed Projects	USFS, Steve Young	Initial "CRMP" type meeting to discuss problems and curcs in Pine Creek watershed, includes a 13 point list and maps of proposals and was attended by various agencies and one consultant	ELRD
26	7/13/1987 Road obliteration	USFS, Eddy Calvert	Road obliteration through Harvey Valley	ELRD
27	8/18/1987 Pine Ck Demonstration Riparian Area meeting minutes	USFS	Initial "CRMP" type meeting to discuss problems and curcs in Pine Creek watershed. Discussion of changes forthcoming from Platts recommendations.	ELRD
28	9/1/1987 Walkover of Pine & Yellow Creeks	Bill Platts	Initial recommendations for stream rehab	ELRD
29	9/14/1987 FS Letter to interested persons	USFS, Thomas Mower	Pine Creek nominated as Demonstration Riparian Improvement Project	ELRD
30	9/22/1987 CRMP Pine Creek Riparian Tour	USFS	Stops at McCoy Flat, East Champs Flat, West Champs Flat, Logan Springs, and Pine Creek Valley. Discussed objectives that later became CRMP agreement, 6 cattlemen, 7 agency personnel, 10 USFS personnel.	ELRD
31	10/15/1987 Pine Creek Rehabilitation Project	USFS, Tom Troxel	Committee formation, discussion of Platts recommendations, community allotments, other projects	ELRD
32	11/12/1987 Pine Creek CRMP meeting minutes	USFS	Discussion of purpose of group, id of problems and opportunities in creek, migt objectives. Listed project types and areas	ELRD
33	1/1/1988 Fishery Grant Proposal	USFS, Tom Troxel	Obliterate 1 mile of road, culvert at Logan Springs, trim vertical ditch banks, seed with grass and willows, construct 3 in-channel check dams	ELRD
34	3/16/1988 Pine Creek CRMP meeting	USFS, Tom Troxel	Meeting minutes, 1988 Program of Work, draft CRMP agreement distributed, scheduled 1st annual CRMP field trip for 8/9-10	CDFG
35	5/1/1988 Pine Creek Coordinated Resource Management Plan	? USFS?	Draft copy with goals, objectives, direction	ELRD
36				

	A	B	C	D	E
	Date	Subject	Author	Notes	File Location
2	5/2/1988	Fishery project grant proposal summary sheet	USFS, Tom Troxel	Logan Springs rd oblit	ELRD
37	6/23/1988	Hydrological Evaluation of Pine Creek Phase 1 Watershed Improvements	USFS, Steve Young	In-channel structures Harvey Valley, dragline ditch, culverts. Schedule of planning	ELRD
38	4/5/1989	Minutes Pine Creek CRMP	USFS, Tom Troxel	Group opinion on breaching rr grade (upper), may recommend obliterating more road in Champs	ELRD
39	8/25/1989	Letter to CalTrans, UPRR on culvert situation	USFS, Bob Andrews	Letter to initiate fix of culvert inadequacy	ELRD
40	2/21/1990	Package for EPA 314 Grant	CDFG, FS	Grant Application, timelines, supplemental info from Steve Young	ELRD
41	3/2/1990	Minutes from Pine Creek CRMP meeting	USFS, Shawne Mohoric	Reviewed original Goals and Objectives, not specific enough. Looking for new CRMP coordinator	NRCS
42	3/7/1990	EPA Clean Lake Program Phase I Funds	CDFG, Banky Curtis	Application for funds to assist CRMP process	ELRD
43	4/9/1990	CRMP Meeting Notes	CRMP Coord	Selection of Nader as coordinator, goals and objectives	ELRD
44	4/11/1990	CRMP Mtg agenda for 5/9	CRMP Coord	Verbal approval for CDFG/EPA grant funding \$100k	ELRD
45	5/10/1990	Wildlife Conservation Board Meeting	WCB	Prop 70 \$\$ for Merrill/Papoose fish barriers	ELRD
46	7/1/1990	"Fish Habitat, Distribution, and Population Analysis of Pine Creek, Lassen County, California"	Grant & Kuda	Fish populations (ELT, SD, LRS, TS)	ELRD
47	7/7/1990	Letter from Moyle to Chappell	Peter Moyle	No ELT in Pine Ck, Bly tunnel, EL sampling	LNFSO
48	3/4/1991	Ltr to Mohoric on Pine Creek trip	Gregg Reigel	Assistance in reconstructing riparian ecosystem history	ELRD
49	4/1/1991	Fishery project grant proposal summary sheet	Cal Trout?	Fence 14 miles of Pine Ck FY92	ELRD
50	4/7/1991	CRMP Meeting Notes	CRMP Coord	Review CRMP functions, review Platts & Jensen report, develop TRT'sDiscuss lakeshore amendment, Summit Camp rd., and timber	ELRD
51	5/6/1991	Splitter TRT Notes	USFS, Bev Clark	Splitter TRT recommendations, spread water through more trestles, Hwy 44 culvert problems	ELRD
52	7/10/1991	Silver Lake Allotment TRT	CRMP Coord	Allotment management discussion	ELRD
53	8/8/1991	Upper Pine Ck TRT	CRMP Coord	Lower McKenzie field fall gathering, upper pasture -- occasional use, FS remove horses and fences	ELRD
54	9/7/1991	Pine Creek Splitter TRT	Tom Hesseldeinz	Discussions to provide fish passage at Hwy 44 and rr, re-install gauging station by Bogard CG, let more Bogard Spring flows into Pine Ck by providing domestic water well...	NRCS
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	A	B	C	D	E
	Date	Subject	Author	Notes	File Location
2	9/10/1991	Pine Creek CRMP meeting minutes	CRMP Coord	Summaries of TRT meetings	ELRD
56	10/1/1991	Pine Creek CRMP Areas of Needed Action	CRMP Coord	ID watering sites, cattle guards, fences	ELRD
57	1/27/1992	Comments on Jones & Stokes study proposal	CRMP Coord	Summary of Jones & Stokes suggestions and recommended actions	NRCS
58	4/29/1992	Harvey Valley TRT	CRMP Coord	HLVRCD suggests re-reading Gus Hormay's transects, correcting drag-line ditch at Harvey, construct low rock dam at Bradford	NRCS
59	4/29/1992	Pine Creek CRMP meeting minutes	CRMP Coord	Cal-Trout/CDFG grant for \$44K for fencing, tentative approval for Clean Water Grant for \$100K thru HLVRCD for water development and fencing along EL shore, LLTT now has a conservation easement at Stephens Meadow	NRCS
60	8/1/1992	Pine Creek CRMP newsletter	CRMP Coord	Jones & Stokes hired as consultant for hydro study for \$80K, Honey Lake RCD awarded \$100K EPA grant	NRCS
61	9/3/1992	Pine Creek Impoundments TRT Meeting notes	CRMP Coord	Design for structures at Bradford, potential for structure at McCoy, impoundment on Gordon Ck in Champs Flat	NRCS
62	1/25/1993	Cumulative Watershed Effects Estimate for Pine Creek	USFS, Steve Young	Estimating thresholds of concerns, discussions on sources of sediments to stream, general notes on conditions.	ELRD
63	2/5/1993	Review of Jones & Stokes Upper Pine Ck Restoration Plan	Don Blickenstaff Soil Conservation Service	Recommendations on specific work items highlighted by J&S report	NRCS
64	3/11/1993	Pine Creek IDT meeting notes	USFS, Randy Cousineau	Lists of issues, projects, alternatives, assignments for length of Pine Ck	ELRD
65	3/30/1993	Splitter TRT Notes	CRMP Coord	Discussion of J&S report, discussion of alternatives for Pine Ck project work in vicinity of Hwy 44.	NRCS
66	4/13/1993	CRMP Meeting Notes	unknown	List of goals for Pine Ck watershed, list of projects from upstream to downstream end of Pine Ck, redesign Leaky Louie's pond so drafting won't add sediments to mainstem	NRCS
67	4/13/1993	Minutes from Pine Creek CRMP meeting	CRMP Coord	Discussion of EL trout potential for listing, reports on EPA grant, BBN funds, Inland fisheries grant (prop 90) for fencing	NRCS
68	4/29/1993	Pine Creek IDT meeting notes	USFS, Randy Cousineau	Field observations in the vicinity of Hwy 44 to discuss projects	ELRD
69	5/26/1993	Harvey Valley TRT	CRMP Coord	Fence maintenance near Logan, road closure, water development	NRCS
70	6/1/1993	Pine Creek CRMP newsletter	CRMP Coord	Replacement of 105 Rd culverts, re-read Troxel's cross sections, photo transect monitoring	NRCS
71	6/22/1993	LCT news article	LCTimes	Culvert modification on 105 Rd, county paid half	CDFG

A	B	C	D	E
Date	Subject	Author	Notes	File Location
2	7/6/1993 Pine Ck IDT mtg notes	USFS, Randy Cousineau	Analysis of alternatives for Pine Ck EA, grazing recommendations, structural discussions on Bradford, 105 Rd. culverts, fish passage	LNF SO
73	7/26/1993 Pine Creek CRMP meeting agenda	CRMP Coord	Agenda for funding disbursements, including radiotelemetry equipment	NRCS
74	8/3/1993 Culvert Alternatives	unknown	Alternatives for the removal or replacement of 105 Rd. culverts	LNF SO
75	9/21/1993 Pine Creek CRMP tour minutes	CRMP Coord	Keep 105 Rd because road cut dams water to increase storage behind, ELRD	ELRD
76			Fish released in Superditch would not migrate upstream, forest health an issue, ELT on candidate list as species of concern with USFWS	
77	9/21/1993 Letter from LC to NFWF	John Mitchell, LC	LC offers matching funds for BBN for 105 Rd culvert rehab	CDFG
78	10/15/1993 Letter from USDA/USDI	USDA/USDI	Authorizing \$18,150 from NFWF to pay USFS, LNF for culvert rehab on 105 Rd	CDFG
79	11/2/1993 Letter from Caltrans to CRMP	Caltrans	Response to request from CRMP for involvement in replacing culverts for improved fish passage on Hwy 44.	LNF SO
80	11/12/1993 Letter from USFWS to CRMP	USFWS	Response to field tour, discussion of potential or proposed listing of ELT	LNF SO
81	11/16/1993 Letter from UPRR	UPRR	Response to request for info on bridges/trestles spanning Pine Ck, one trestle was replaced with 2 48" corrugated metal pipes	NRCS
	1/1/1994 Pine Creek CRMP newsletter	CRMP Coord	Prop 90 Cal-trout grant closed, \$44K used for fencing in Champs, Desert Research Institute will look at sediments and chronology of Pine Ck events	NRCS
82	1/20/1994 Splitter TRT Notes	CRMP Coord	Splitter removed 12/93, ELT did not move upstream in Superditch, lifespan for ELT, chubs, culverts insufficient to prevent Hwy 44 flooding	NRCS
83	1/31/1994 Letter to Lassen County	CRMP Coord	Concern over mixing Summit Road paving with matching funds for 105 Rd/Camp 10 culvert replacement	LNF SO
84	2/22/1994 Letter to CRMP Coordinator	Caltrans	Information on how to apply for Environmental Enhancement	LNF SO
85	4/25/1994 Letter to USFWS	John Bosta	Mitigation (EEM) funding	LNF SO
86	4/28/1994 Letter to USDI and USFWS	Donald Schulz	Petition to list ELT as threatened or endangered and to designate critical habitat	LNF SO
87	5/20/2094 Letter from LC to LNF	LC Board of Supervisors	Petition to list ELT as threatened or endangered and to designate critical habitat	LNF SO
88			Resolutions from ELIB and LC Board of Supervisors supporting reintroduction of ELRT and riparian work on Pine Creek through CRMP process.	LNF SO

	A	B	C	D	E
	Date	Subject	Author	Notes	File Location
2	6/1/1994	Cooperative Approach to ELT Enhancement (draft)	CRMP Coord	Background, goals and objectives of CRMP, list of action items and dates to accomplish by	LNF SO
89	6/30/1994	Pine Creek CRMP tour minutes	CRMP Coord	Discussion of rotenone, 2 petitions to list ELT, Draft EA for Pine Creek due out, BBN changed matching funds, use extra for telemetry, 319 Grant tentatively approved thru HLYRCD, don't lose sight of #1 priority ELT natural spawning	ELRD
90	6/30/1994	Status of ELT/ handwritten notes	Melanie McFarland	CDFG released 150 ELT into Pine Ck, none seen above Hwy 44, electroshocking in fall 93 yielded 0 ELT, USFWS hasn't seen commitment yet from CalTrans, RR, listing boils down to restoring natural habitat and riparian function	LNF SO
91	7/5/1994	LCT news article	LCTimes	Discussion of potential listing	CDFG
92	8/8/1994	Letter to Assemblyman Bernie Richter	USFWS	Response to Richter's letter supporting LC Board of Sup's concern for petitions to list ELT. Encouraged by CRMP efforts to restore habitat for ELT.	LNF SO
93	8/23/1994	Fish TRT meeting minutes	CRMP Coord	\$19K left in Prop 99 funds after MCA fencing done, use for ladder, culverts or removing log jams. Gary Scopetone (USFWS Reno) interested in funding life history of ELT in stream environment, Leaky Louie's signing, rotenone discussion, grazing use above Leaky Louie's and lodgepole invasion in meadow.	LNF SO
94	9/19/1994	Letter to LNF concerning Ladder at Leaky Louie's	Meadowbrook Conservation Associates	Fish ladder designs/alternatives, and costs. Alternative 2 preferred.	LNF SO
95	10/12/1994	Letter to LNF concerning Pine Creek draft EA	USFWS	Comments on draft EA for Pine Ck projects	CDFG
96	12/1/1994	Handwritten notes	USFS, Melanie McFarland	Analysis of options for Pine Ck in vicinity of Hwy 44, comparisons of LNF SO objectives from previous studies	LNF SO
97	2/2/1995	Pine Creek emergency deflector due to high water	USFS, Mary Huggins	Discussion of emergency repairs to fish weir, needed to prevent fish from migrating upstream. Chappell to coordinate inmate crews to repair rock wings above the structure.	LNF SO
98	4/28/1995	Splitter TRT Notes	CRMP Coord	Hwy 44 widening discussion, splitter repair, Tahoe sucker aged at 28 years, USFWS funding for \$25K for invertebrate studies, UPRR culvert info	ELRD
99	8/7/1995	News Release - USFWS	USFWS	Discussion of reason to decline listing of ELT	LNF SO
100	8/29/1995	CRMP Meeting Notes	CRMP Coord	RR/hwy culverts, TRT reviews	ELRD

A	B	C	D	E
Date	Subject	Author	Notes	File Location
2	9/15/1995 Silver Lake Allotment TRT	CRMP Coord	Discussed closure of Leaky Louie's pond and removal of road and pond, fish ladder accomplished, discussion of eg closure at lower end of Stephen's Meadow	ELRD
102	10/1/1995 Routing Alternatives for Pine Ck	USFS, Steve Young	Alternatives to reroute flows in vicinity of Hwy 44 and UPRR grade	ELRD
103	10/27/1995 Meadowbrook Cons Assoc conceptual plan	MCA	Reactivation of south channel of Pine Ck with discussions of alternatives	ELRD
104	11/13/1995 Splitter TRT Notes	CRMP Coord	Review and action on south channel activation with UPRR	ELRD
105	3/11/1996 Pine Creek channel realignment	USFS, Teresa Pustejovsky	Review of proposals for channel re-route, added a "middle" route option	ELRD
106	3/11/1996 Pine Creek and Eagle Lake CRMP notes	CRMP Coord	EEM grant, Lassen County Road 112 closure, splitter ditch not plugged due to permit concerns, Troxel cross sections read, Summit Camp road reroute discussed, Glenn Nader leaves CRMP coord position	ELRD
107	9/3/1996 Meadowbrook Cons Assoc middle channel alternative	MCA	Discussions and diagrams for middle channel alternative	ELRD
108	9/26/1996 Pine Creek CRMP meeting minutes	CRMP Coord	Middle channel option, aspen thinning, Bradford structures completed	NRCS
109	12/19/1996 UCCE letter for EPA grant	UCCE, Jerry Schmierer	96 year-end report, read Harvey Valley plots	NRCS
110	5/9/1997 Pine Creek CRMP meeting minutes	CRMP Coord	EEM grant funded \$125K for channel realignment, UPRR sold to BNRR, \$20K available for radiotelemetry equipment, CRMP goals reviewed, Ratliff re-reading Hormay's transects in Harvey Valley	ELRD
111	1/15/1999 Proposal for Restoring Intermountain Native Trout in the Western US	CDFG	Request for funds to plan for brook trout removal including invertebrate studies, chemical treatment, and telemetry	LNF SO
112	2/12/1999 NRST visit to Pine Creek	W. Elmore	Report to ELRD on 9/98 visit	ELRD
113	6/1/1999 Letter from NRCS to BNRR	NRCS, Ken Weaver	MOU with CDFG, BNRR and HLVRCD for culvert work on Pine Creek in vicinity of Hwy44	ELRD
114	2/28/2000 Pine Creek Grazing TRT	CRMP Coord	Develop grazing strategy for reach 0 (above Leaky Louie's pond)	ELRD
115	4/16/2001 Pine Creek CRMP tour minutes	CRMP Coord	Water diversion structure upstream of Hwy 44, water flowing into middle channel since flows in late 2000/ early 2001, \$25K may be available thru Cal-trans mitigation fund to fence off new channel downstream of BNRR, fish imprinting not occurring for ELT, rotenone discussion, Logan springs fence, repair of Leaky Louie's ladder	ELRD
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	A	B	C	D	E
	Date	Subject	Author	Notes	File Location
2	2/20/2004	Pine Ck, EL Trout CRMP Mtg	CRMP Coord	Discussion of telemetry proposal using smaller tags, pull together list of projects along Pine Creek, ID habitat monitoring data, decide upon monitoring needs and equipment, develop cons strategy/agreement for agencies	CRMP Coordinator
117	6/7/2004	CRMP Meeting Notes	CRMP Coord	Report of fish migration/telemetry, discussion of ELRD aspen enhancements along with water quality monitoring study, gauging station as a barrier at certain flows, need for watershed coordinator to bring more focused energy to CRMP group, needs for work on borrow ditches at railroad culverts.	CRMP Coordinator
118	2-9/2005	Fish TRT meeting minutes	CRMP Coord	RAC proposals for watershed coord, repair work on berms at BNSF RR culvert, radiotelemetry discussion of PIT tags, upcoming telemetry, stream temperatures.	LNF SO
119	10/15/2005	Eagle Lake water elevations	LC roads	Surface elevations from 1983 - present (1916+)	LC Roads

Appendix 7, Grazing Utilization Information															
Allotment Name	Reach #	Location	Grazing Strategy	1994	1995	1996	Utilization data percentages using Landscape Analysis Method (end of season data) ng = not grazed, data displayed as inches ("), percentage utilization (no symbol)					2005 Allowable Use %			
							1997	1998	1999	2000	2001		2003	2004	
Silver Lake	0	Headwater Springs	Exclosure, no graze			4.7*, 40-	11	8	33-47		18, 20			0	
Silver Lake	1	Stephens Mdw	Private	4.4*	5.4*	5.9*, 44	9.9*, 16	22	24	7	40	40		0	
Silver Lake	2	Bottom of Stephens	No grazing by mgmt	4.4*		6.9*, 39	0	2.5	0	0	23, 8	0		0	
Upper Pine Creek	3		No grazing by mgmt			6.9*, 39	0	2.5	0	0	0	0		0	
Upper Pine Creek	4	Campground	No grazing by mgmt			6.9*, 39	0	2.5	0	0	0	0		0	
Upper Pine Creek	5	McKenzie Cow Camp	Occasional graze	11.1*	5.6*	ng	0	2.5	0	0	0	0		35	
Upper Pine Creek	6	Fall Gathering Field	Fall gathering	14.9*		8.7*, 42	4	2.5	0	21	10	10		35	
Upper Pine Creek	7	Highway super ditch	Riparian past.	4.6-5.5*	3.9*	9.8*, 16	8.8*, 14	2.5	10		0			45 early, 30 late	
Upper Pine Creek	8	Upper Pine Ck Valley	Riparian past. prescription	5.6*		12.8*, 12*	11-12%	40	13	15	12	35	15		45 early, 30 late
Lower Pine Creek	9	Lower Pine Ck Valley	Short duration late graze	6.3*		7.9*, 28	10.2*, 23	23-40	45	27	26	17	32		30
Lower Pine Creek	10	Camp 10	Short duration late graze	2.4-6.8*	12.9*	4.2*, 61	4.8*, 32	10-Apr	48	34	39, 76	34-48	59		30
Harvey Valley	11	Logan Sp	3 past. Rest-rotation	6.5-7.5*	12.8*	3.9*, 63	4.4	69	34	13	na	20		40	
Harvey Valley	12	Logan Sp Excl	Channel excl, no graze	12.1*	22.5*	ng	9.2*, 29	22	17	22	20	16		0	
Harvey Valley	13	Harvey Excl gap	3 past. Rest-rotation	9.1*		4.4*, 52	7.7*, 7		22	8	na	22	17		40
Harvey Valley	14	Lit Harvey Val Excl	Channel excl, no graze	10.7*	15.2*	ng	0	23-30	0	16	na	0			0
Champs	15	Bradford Xing	Exclosure, no graze	7.4-11.3*	20.9*	ng	0	18	14	13	3				0
Champs	16	Burgess Flat	Rest 3 yrs, graze 1 of 3	8.6-8.8*		18.4*, 4	6.7*, 10		8	7	11				40
Champs	17	Stanford HQ	Rest 3 yrs, graze 1 of 3	5.9*		2.9*, 79	0		16	3	0-71		64		0
Champs	18	Stones HQ	Rest 3 yrs, graze 1 of 3	5.7-6.1*		12.8*, 9	0		22	4	9		31		40
Champs	19	Champs Flat Excl	Exclosure, no graze	12.1-13.5*		12.2*, 14	0		13	10	0				0
Champs	20	Million \$ Bridge	Fall gathering	7.2-7.9*		ng	5*, 9	56, 52, 72	11	27	43		21		30
Champs	21	Champs/McCoy gap	Fall gathering, short duration grazing, occasional graze	2.6*		ng	5*, 9		6	20	8, 3		25		30, 40, 35
North Eagle Lake	22	McCoy Flat	Occasional graze	10.2-11.8*	4.8*	ng	5.4*, 15	40	12	21					35
North Eagle Lake	23	Corbin Xing	Short duration graze	9.6-10.7*		light use	7.3*, 15		19	17	10				35
North Eagle Lake	24	Fish Trap	Exclosure, no graze				0								0
North Eagle Lake	25	Lake Unit	?	3.4-8.8*	4.6*	4.9*, 47	5.1*, 26		36	32	23		34-88		40