Lower Klamath Sub-Basin Coordination & Planning
FY 2007

Prepared by:

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Abstract

This project provided planning and coordination to the Lower Klamath River Sub-basin. This included continued participation in the Lower Klamath Restoration Partnership (LKRP), as well as continued coordination and implementation of watershed restoration activities identified in the Lower Klamath Sub-basin Watershed Restoration Plan (Gale and Randolph 2000).

The Yurok Tribal Fisheries Program (YTFP) conducted several assessments during the project period (October 1, 2006 through June 1, 2008). In particular, YTFP conducted geomorphic assessments in several high priority tributaries, as well as continuing the collection of the historic information and baseline hydrologic and geomorphic data necessary to characterize conditions limiting salmonid populations in critical off-estuary habitats of the Klamath River. In addition YTFP developed a watershed restoration plan for the Waukell Creek watershed (Gale 2007) and is actively developing restoration prescriptions for priority tasks identified in the plan.

YTWRD spent the summer 2007 implementation season decommissioning high priority road segments in the Terwer and McGarvey Creek watersheds. This included the treatment of 27 potential failure sites on high and medium priority roads, with a total of 52,668 yds^3 excavated and 2.3 miles of road decommissioned.

YTFP continued streambank stabilization and riparian restoration efforts in Lower Terwer Creek the project period. YTFP also placed 60 pieces of large woody debris (LWD) in lower West Fork McGarvey Creek and planted 5,000 conifer and deciduous trees throughout riparian areas in the McGarvey and Terwer Creek drainages. YTFP also worked with YTWRD to transport LWD from road decommissioning projects and stockpile it in McGarvey and Terwer Creeks for future instream habitat improvement work. In addition, YTFP has staged 200 pieces of LWD for placement via helicopter in Tectah Creek this coming summer.

YTWRD and YTFP submitted 30 proposals during the project period restoration-related funding from the Environmental Protection Agency (EPA), the Bureau of Indian Affairs (BIA), the California Department of Fish and Game (CDFG), the US Fish and Wildlife Service (USFWS), and the US Bureau of Reclamation (BOR). YTWRP received an additional $1,241,452 and YTFP secured $1,399,068 in grant funds during the project period for implementing watershed restoration, assessment and monitoring projects throughout the Lower Klamath sub-basin.

Both YTWRP and YTFP participated in approximately 50 meetings throughout the project period related to watershed restoration planning, assessment, implementation, and monitoring in the Lower Klamath sub-basin.

Future upslope restoration activities will include continuing road decommissioning in the Terwer Creek watershed and revisiting these activities in Blue, Ah Pah, and Tectah Creeks. In addition, future activities will be focused on finalizing instream and riparian restoration work in McGarvey and lower Terwer Creeks. In addition, YTFP will continue planning and begin implementation on restoration projects in off-estuary and wetland habitat to benefit non-natal rearing juvenile coho salmon.

Introduction

Historically the Klamath River Basin contained bountiful anadromous fish runs, supporting indigenous peoples throughout the region. Anthropogenic activities over the last 150 years, coupled with natural events, have resulted in substantial declines in these fish populations and widespread reduction and degradation of associated habitat. Concern over diminishing runs resulted in the 1997 listing of Klamath Basin coho salmon (*Oncorhynchus kisutch*) as threatened under the Endangered Species Act (ESA), Klamath River chinook salmon (*O. tshawytscha*), steelhead (*O. mykiss*) and coastal cutthroat trout (*O. clarki clarki*) populations were also petitioned for ESA listing, and despite the listings being determined "Not Warranted", concern continues to exist over their status and long-term trends.

The declining health and productivity of the Klamath River's anadromous fisheries is of great economic and cultural concern to the Yurok Tribe. To proactively address this decline, the Tribe has initiated a large-scale, coordinated watershed restoration effort in the Lower Klamath sub-basin. This sub-basin, as defined in the Klamath Restoration Program's Long Range Plan (Kier and Associates 1991), includes all Klamath tributaries downstream of the confluence of the Trinity River, encompassing a drainage area of approximately 450 square miles. These tributaries have been subjected to substantial timber harvest and related road construction over the last 60 years. These activities, occurring in a region with steep, naturally erodible terrain and high annual rainfall, have contributed to widespread streambed sedimentation and associated habitat degradation and native fish run declines throughout the Sub-basin (Gale and Randolph 2000). The Long Range Plan states that "the low number of anadromous salmonids in the Lower Klamath tributaries is directly related to sediment problems. Only changes in land use management and large scale watershed stabilization efforts can effectively address these problems and begin the process of recovery of the Lower Klamath tributaries" (Kier and Associates 1991).

The Lower Klamath Restoration Partnership (LKRP), composed of representatives of the Yurok Tribe Natural Resources Department, Green Diamond Resource Company (GDRC) (formerly Simpson Resource Company), and the California State Coastal Conservancy was formed in 1995. This Project Advisory Committee was formed in order to facilitate a coordinated approach to watershed restoration planning and to find innovative solutions to resource management issues between private landowners, Tribal interests, and public agencies. The Yurok Tribal Fisheries Program (YTFP) has undertaken extensive watershed assessment efforts throughout all Lower Klamath tributaries to provide necessary physical and biological baseline data for restoration prioritization and planning, as well as preparing a long-term Watershed Restoration Plan for the Lower Klamath sub-basin (Gale and Randolph 2000).

This project provided planning and coordination to the Lower Klamath River Sub-basin for the period 01-Oct-2006 through 01-Jun-2008 (hereafter referred to as the project period), including continued participation in the Lower Klamath Restoration Partnership (LKRP). YTFP continued coordinating the implementation of watershed restoration

activities identified in the Lower Klamath Sub-basin Watershed Restoration Plan (Gale and Randolph 2000).

Accomplishments

Note: items marked with a "*" were conducted all or in part using this project's funding.

- **Assessments**

During the project period, the Yurok Tribal Fisheries Program (YTFP) conducted several geomorphic assessments and restoration planning efforts throughout the Lower Klamath Sub-Basin. The results of this effort are being used to plan and prioritize restoration throughout the sub-basin, as well as provide baseline data to assess ongoing and future restoration effectiveness.

Restoration Planning in Waukell Creek

YTFP has been working with several resource agencies and stakeholders to develop restoration strategies for Waukell Creek based on the non-natal salmonid use of this watershed that YTFP has documented over the last few years. As part of these efforts YTFP developed a restoration plan for the watershed (Gale 2007). Priority restoration objectives for the watershed include 1) improving hydrologic and geomorphic function to ensure protection of critical downstream habitats (i.e. Klamath River Estuary); 2) increasing juvenile salmonid rearing capacity and productivity; and 3) enhancing adult salmonid staging and spawning habitats. Restoration activities will include adding large and small wood to channel and floodplain habitats; enhancing existing wetlands and creating new, complex off-channel habitats; removing invasive plants and reestablishing native riparian species; and replacing poorly functioning culverts. Crews will continue conducting baseline topographic surveys of the channel and floodplain habitats. We have provided the Resighini Rancheria and Laco and Associates some of this data to assist their efforts to design a road system for their facility that would include installation of improved (i.e. oversized) culverts for Waukell Creek and Junior Creek. Crews have also started identifying the wood sources required to conduct the first phases of stream and floodplain restoration of Waukell Creek. Large wood placement projects are scheduled to begin over the next few years.

Restoration Effectiveness Monitoring in McGarvey Creek

Crews continued topographic surveys in mainstem McGarvey Creek to document baseline conditions in the stream prior to restoration implementation during summer 2008. YTFP will be placing large wood in channel and floodplain habitats of McGarvey Creek to increase salmonid spawning and rearing capacity and promote the geomorphic processes that result in improved watershed integrity. The baseline topographic data will allow YTFP to quantitatively assess changes associated with implemented restoration activities. In addition, crews repeated surveys in West Fork McGarvey Creek to document stream channel changes in response to our placement of 60 pieces of large wood in the channel during summer 2007.

Geomorphic Assessment and Restoration Planning in Blue Creek

YTFP is in the process of completing a report that will 1) document historic and current channel and floodplain conditions of lower Blue Creek; 2) identify the primary factors currently limiting fish and riparian production in this reach; and 3) present site-specific restoration strategies that address identified limiting factors. Based on the data and information collected during this project, the loss of large wood in the fluvial corridor of Blue Creek resulting from land management activities in combination with large flood events occurring over the last 150 years has resulted in substantial channel and riparian dysfunction in the watershed, especially lower Blue Creek.

Field evidence collected in Blue Creek and other priority watersheds (i.e. Salt Creek, Hunter Creek, Terwer Creek, and Tectah Creek) indicate that the lower reaches of these tributaries were historically comprised of anastamosed channels with complex, interconnected wetlands and floodplains composed of fine-grained sediments that supported productive riparian forests dominated by native, old-growth conifers and cottonwood. Currently, most of the remnant fine-grained floodplain soils in these watersheds have been eroded and replaced with coarse alluvium; anastamosed channel networks have been replaced with less productive single thread or braided channel networks; and riparian forests have been severely compromised.

Estuary and Off-Estuary Habitat Study

YTFP completed a geomorphic assessment and restoration planning project in Salt Creek, the lower-most anadromous tributary to the Klamath River (Beesley and Fiori 2007). The document contained restoration alternatives for the High Prairie Creek and Salt Creek confluence reach that were aimed at 1) optimizing juvenile salmonid rearing capacity while improving fish passage conditions in the watershed; and 2) improving hydrologic and geomorphic function in this critically important off-estuary watershed. Since the report was completed, we have been working with the pertinent stakeholders, permitting authorities, and funding agencies to develop a final restoration design and regulatory compliance strategy for this area.

During May 2008, YTEP worked with the local Community Service District to obtain permission to collect soil and water samples from the defunct Waste Water Treatment Facility located in Salt Creek. YTFP and YTEP also met with some experts from the California Regional Water Quality Control Board regarding the history of the facility to determine the likelihood of detecting contaminants at this site. The conclusion based on this meeting was that finding contaminants at this facility was extremely low given when the facility was operational and the time that has passed since operation. We also met with a CalTrans Mitigation Specialist to discuss our proposed restoration alternatives for Salt Creek and other potential wetland enhancement/creation projects to mitigate for the US Highway 101 grade raise scheduled for Klamath in the next few years.

Over the past few years, YTFP has been compiling historic images and information on the Klamath River Estuary to document historic conditions and assess how changes to the

estuary over time have affected Tribal Trust fish and wildlife habitats and estuary productivity. YTFP contracted a local company to research and compile historic maps for the Klamath River Estuary (1800s – 1940s) and develop a corresponding report (Laird 2008). The historic maps indicated the estuary was comprised of several large sloughs that received flow from the primary off-estuary watersheds (Figures 1-2). YTFP is currently developing restoration strategies that will result in more extensive and complex off-estuary wetland, slough, and stream habitats to improve hydrologic and geomorphic function in the estuary and to provide highly productive rearing and staging habitats for Klamath Basin fish populations.

YTFP has been coordinating with the Yurok Tribe Environmental Program (YTEP) to continue monitoring seasonal water quality conditions in the South Slough of the estuary and in off-estuary tributaries. YTEP has been deploying datasonde probes in specific locations to document diurnal water quality conditions present during critical salmonid migration periods (March – October). This year the monitoring efforts are being concentrated in the South Slough and Waukell Creek. In addition to the datasonde work, YTFP has deployed several water temperature recording devices in priority off-estuary tributaries to continuously document temperatures in critical habitats.

YTFP has continued conducting detailed topographic surveys in off-estuary tributaries to document baseline elevation conditions and to develop an accurate topographic model of the estuary and its associated off-estuary habitats. To improve our topographic model, YTFP contracted with Green Diamond Resource Company to obtain LiDAR for the Yurok Indian Reservation (YIR). The estuary and lower river were flown this spring and the rest of the YIR will be flown in fall or winter 2008. These flights will result in high resolution digital elevation models of the ground surface and riparian canopy. To further these efforts, YTFP and YTEP will conduct a bathymetric assessment of the estuary this summer to characterize topographic conditions of the river bottom. YTFP has also been operating stream gages in lower Hunter Creek and Salt Creek and plans to install more of these gages in the South Slough and lower Waukell Creek. These gages and the YTEP estuary gage will allow us to model hydrologic conditions in the estuary 1) to allow us to develop site-specific, geomorphically sound restoration designs in the area; and 2) improve our ability to manage the estuary over the long-term and account for large-scale restoration (i.e. Klamath River dam removal) and global climate change.

Figure 1. U.S. Survey General's California Office 1889 Plat of Township 13 North, Range 1 East, with meander lines surveyed during 1886, and swamp and overflowed lands surveyed in 1878.

Figure 2. A 1915 U.S. Coast and Geodetic Survey, Nautical Chart 5702 1st edition, U.S. Coast California-Oregon Trinidad Head to Cape Blanco (Scale 1:200,000).

- **Restoration Implementation**.

YTWRD spent the summer 2007 implementation season decommissioning high priority road segments in the Terwer and McGarvey Creek watersheds. Terwer Creek road decommissioning during summer 2007 occurred on the K-5 road (20 stream crossings and one mass movement site). Decommissioning on this road segment totaled 1.8 miles and a total of 37,668 yds^3 excavated.

McGarvey Creek roads decommissioned during summer 2007 included the M1300 (5 stream crossings and 1 mass movement site, 0.5 miles, and 15,000 yds^3 excavated).

Using the Lower Klamath Watershed Restoration Plan as a guide, YTFP has undertaken extensive instream and riparian restoration throughout several Lower Klamath tributaries. Crews have been conducting extensive riparian planting throughout the highest priority drainages, including revegetating roads recently decommissioned by the Watershed Restoration Department.

YTFP continued stream bank stabilization and riparian restoration efforts in Lower Terwer Creek during the project period. These efforts utilized funds secured through the California Department of Fish and Game, the Bureau of Indian Affairs, the NOAA Restoration Center, and the Environmental Protection Agency. Restoration techniques included construction of willow siltation baffles and similar willow revetment techniques, as well as planting of native conifer and deciduous tree saplings and removal of invasive/exotic plant species.

YTFP initiated large woody debris (log and rootwad) placement in McGarvey Creek during 2007. Large woody debris (LWD) is essential for habitat formation, fish cover, and instream sediment storage and was extensively removed from Lower Klamath stream channels during logging operations over the past 50 years. YTFP is re-introducing logs and rootwads at key locations to facilitate improved habitat conditions and encourage entrainment of LWD naturally floating down the stream. During 2007, YTFP place 60 pieces of large wood throughout lower West Fork McGarvey Creek and similar efforts will be undertaken in mainstem McGarvey Creek during summer 2008. Funds have been secured to undertake similar wood placement in Waukell Creek, with this work planned for late summer 2008 and/or summer 2009.

Crews planted a total of 2,100 bareroot coastal redwood and 1,900 bareoot Sitka spruce in winter 2007-2008 throughout lower West Fork McGarvey Creek following placement of LWD. In addition, 249 five-gallon potted coastal redwood trees, 133 five-gallon potted western red cedar trees, and 23 five-gallon big-leaf maple trees were planted throughout the project area.

We have been coordinating with the Yurok Tribe Forestry, California Department of Fish and Game, Green Diamond Resource Company (GDRC), and Columbia Helicopters, Inc. (Col. Heli.) to plan for the upcoming stream and floodplain enhancement project in Tectah Creek. This summer, YTFP will use Col. Heli. services to place over 100 pieces of large wood in the channel and floodplains of Tectah Creek to increase sediment

storage capacity in this critically important tributary and reduce sediment delivery to Klamath River habitats. Adding large wood to the channel will also immediately improve salmonid spawning and rearing potential by facilitating the formation of critical instream habitats, enhancing habitat complexity in existing pools, and improving spawning gravel quality. Crews identified the large wood sources required for use in this project and we are now preparing to transport that wood to central landings located in the vicinity of the project. We have been also working with GDRC to coordinate our baseline topographic surveys of the project reach. GDRC has nearly ten years of topographic data for the project reach. YTFP is working with GDRC and Yurok Land Management to ensure all previous and future surveys are tied together. Crews will begin surveying in June 2008.

YTFP has continued operation of the our native tree nursery at the Fisheries office in Klamath. Staff is trained in seed collection and germination, cutting collection and propagation, and tree transplanting and growing skills as we grow several thousand native deciduous and conifer trees for use in our stream restoration projects. Species cultivated and grown to date include coastal redwood, Douglas fir, Sitka spruce, western red cedar, Port Orford cedar, big-leaf maple, red alder, black cottonwood, tanoak, white oak, and bay laurel.

YTFP planted 5,000 bareroot Douglas fir trees throughout riparian areas in the Terwer Creek watershed.

*Note: Oversight of all above implementation projects occurred in part using this project's funding.

Figure 3. YTFP staff transplanting Sitka spruce seedlings at the Native Tree Nursery.

Figure 4. YTFP native tree nursery at Klamath Fisheries Office.

Figure 5. Construction of willow siltation mattress in Lower Terwer Creek.

Figure 6. Watershed Restoration Specialist providing excavator training to YTFP crew member, West Fork McGarvey Creek, summer 2007.

Figure 7. YTFP staff placing large log and rootwad in West Fork McGarvey Creek.

- **Proposals Submitted**

*YTWRD submitted the following proposals during the project period for upslope implementation and assessment funding:

Environmental Protection Agency (EPA):
- Non-Point Source Sedimentation Prevention in the Terwer Creek Watershed - $150,000 (FY08 funds)
- Non-Point Source Sedimentation Prevention in the Upper Blue Creek - $150,000 (FY07 funds)

Bureau of Indian Affairs (Watershed Restoration funding):
- Terwer Creek K-5 Road Decommissioning - $150,000 (FY07 funds)

California Department of Fish and Game (Fisheries Restoration Grant Program):
- Terwer Creek K-6 Road Decommissioning - $600,000 (FY07 funds)
- Terwer Creek T1.6 Training & Road Decommissioning - $350,000 (FY07 funds)
- Terwer Creek K-5 Road Decommissioning - $590,000 (FY08 funds)

U.S. Fish and Wildlife Service (Partners for Fish & Wildlife Program):
- Terwer Creek U-1100 Road Decommissioning - $367, 452 (FY07 funds)

U.S. Bureau of Reclamation (Klamath River Watershed Restoration Program):
- Terwer Creek K-5 Road Decommissioning - $102,000 (FY08 funds)

*YTFP submitted the following proposals during the project period:

California Department of Fish and Game (Fisheries Restoration Grant Program):
- Monitoring juvenile salmonid emigration through the Klamath River estuary - $33,696 (FY07 funds)
- Juvenile Salmonid Population Monitoring in McGarvey Creek, Lower Klamath River - $48,289 (FY07 funds)
- Life History monitoring of salmonids in McGarvey Creek, Lower Klamath River - $122,963 (FY08 funds)
- Monitoring juvenile salmonids emigration through the Klamath River Estuary - $96,010 (FY08 funds)
- Stream and floodplain enhancement of East Fork Hunter Creek: Phase I - $147,255 (FY08 funds)

California Department of Fish and Game (Klamath River Funding):
- Instream Habitat Enhancement of Tectah Creek - $275,363 (FY07 funds)

Bureau of Indian Affairs (BIA):

- A Complete Life History Monitoring of Salmonids in McGarvey Creek, Lower Klamath River - $99,503 (FY07 funds)
- Instream Habitat Restoration in Tectah Creek: Phase I - $119,938 (FY07 funds)
- Instream and Riparian Restoration of Waukell Creek - $89,170 (FY08 funds)

U.S. Bureau of Reclamation (Klamath River Watershed Restoration Program):

- Stream and floodplain enhancement of East Fork Hunter Creek: Phase I - $147,255 (FY08 funds)
- Monitoring juvenile salmonid emigration through the Klamath River estuary - $96,010 (FY08 funds)
- Installation of Stream-width PIT tag Interrogation Systems (SPI's) to Track Habitat Use and Non-Natal Rearing Patterns of Juvenile Coho in Tributaries to the Lower Klamath River - $151,169 (FY08 funds)

U.S. Bureau of Reclamation Native American Affairs Funding (NAAP):

- Evaluation of habitat conditions and water quality in the south slough and two tributaries of the Klamath River estuary - $78,678 (FY07 funds)
- Hydrologic and Geomorphic Assessment of the Klamath River Estuary and Associated Habitats - $82,170 (FY08 funds)
- Placement of Large Wood in Tectah Creek to Reduce Sedimentation of the Lower Klamath River - $59,563 (FY08 funds)
- Hydrologic and Geomorphic Assessment of Blue Creek, Lower Klamath River Sub-basin - $53,779 (FY08 funds)

Environmental Protection Agency (EPA):

- Restoration of Off-Estuary Wetland and Stream Habitats of Waukell Creek, Klamath River - $493,002 (FY08 funds)

USFWS Partners for Fish and Wildlife Funding:

- Mainstem McGarvey Creek Instream & Riparian Restoration Project - $140,000 (FY07 funds)
- Waukell Creek Instream & Riparian Restoration Project - $60,000 (FY07 funds)
- Terwer Creek Riparian Restoration Project – Middle Reach - $36,964 (FY08 funds)
- Lower Terwer Creek Arrow Mills Property Cattle Exclusion Fencing Project - $27,705 (FY08 funds)
- Lower Terwer Creek Farley Property Cattle Exclusion Fencing Project - $22,816 (FY08 funds)

- **Funding Secured**

YTWRD received $157,000 in funding from CDFG FY06 Fisheries Restoration Grant Program (FRGP) funds to conduct road decommissioning in Terwer Creek. YTWRD also received $417,000 in funding from CDFG-FRGP FY07 funds to conduct road

decommissioning on the T1.6 road in Terwer Creek in conjunction with the implementation of a heavy equipment operation and road decommissioning training program.

In addition, YTWRD received $150,000 from the EPA Partnership Program FY08 funds to augment Terwer Creek road decommissioning activities. YTWRD also received $150,000 from the EPA Partnership Program FY08 funds to fund road decommissioning activities in Upper Blue Creek.

YTWRD received $367,452 in funding from the USFWS Partners for Fish and Wildlife Program FY07 funds to conduct road decommissioning on the U-1100 road in East Fork Terwer Creek.

YTFP received $70,292 during FY 2007 from the NMFS Tribal Pacific Salmon Funds for Lower Klamath tributary outmigrant trapping and juvenile salmonid monitoring in the Klamath River estuary.

YTFP received $78,678 from the Bureau of Reclamation's Native American Affairs Program (NAAP) to continue our evaluation of current and historic habitat condition and water quality in off-estuary habitats of the Klamath River by expanding the project to the south side of the estuary. In addition, YTFP received NAAP funds to conduct a hydrologic and geomorphic assessment throughout the Klamath estuary ($82,170), and also received NAAP funds to augment our helicopter LWD placement project for Tectah Creek ($59,563).

YTFP received $275,363 in funding from CDFG (Klamath River funding) to conduct helicopter LWD placement in Tectah Creek.

YTFP received $170,000 in FY07 funds from the Bureau of Reclamation to conduct juvenile coho salmon habitat utilization and ecology assessment and monitoring throughout the Lower Klamath Sub-Basin. An additional $170,000 in FY08 funds has been allocated by BOR to continue this work through spring 2009.

YTFP is finalizing work plans and contracting to secure $493,002 from the EPA to plan, design, and implement off-estuary wetland and riparian habitat restoration in Waukell Creek (tributary to the upper Klamath estuary).

- **Meetings Attended**

*YTFP and YTWRD held monthly meetings throughout the project period to coordinate ongoing and future watershed restoration, assessment and monitoring activities throughout the Lower Klamath Sub-basin.

*YTFP and YTWRD held ongoing meetings with Green Diamond Resource Company (GDRC - formerly Simpson Resource Company) throughout the project period. These meetings were held to discuss ongoing and proposed watershed restoration, assessment and monitoring projects within the Lower Klamath sub-basin.

YTFP and YTWRD met on a regular basis with the Yurok Tribal Council during the project period to hold fisheries and watershed restoration-relation planning sessions, as well as discuss with and seek approval from the Council for proposed watershed restoration, assessment and monitoring projects within the Lower Klamath sub-basin.

*YTFP and YTWRD staff met with representatives of the CDFG on a quarterly basis throughout the project period to discuss and coordinate ongoing and future watershed restoration plans.

YTWRD participated in GDRC Habitat Conservation Plan (HCP) training during spring 2007 and spring 2008. This training is mandatory for all individuals conducting road decommissioning activities on GDRC property in order to bring restoration practitioners up to speed on the terms and conditions of GDRC's HCP.

*YTWRD met on several occasions throughout the project period with representatives of Redwood National Park (RNP) to discuss plans for future road decommissioning on RNP property in Requa.

*Dan Gale met with Rocco Fiore of Fiori GeoSciences on several occasions to coordinate 2007 & 2008 restoration work plans for the Lower Klamath.

YTFP staff attended and participated in the California Department of Fish and Game's (CDFG) Citizen's Advisory Peer Review Committee (PRC) on Salmon and Steelhead Restoration meeting in Little River, CA during November, 2006. This meeting is held annually for the PRC to rank project proposals submitted to CDFG's Fisheries Restoration Grants Program (FRGP).

*Dan Gale met with Ken Farley (Terwer Creek landowner) on several occasions during the project period to discuss proposed bank stabilization and riparian restoration work on Mr. Farley's property in lower Terwer Creek.

Dan Gale met with representatives of CalTrans, USFWS, NMFS, and CDFG on January 9, 2007 in Eureka CA. The meeting was held to discuss mitigation plans for the Klamath River Highway 101 bridge emergency repair work completed the previous year.

Dan Gale and Walt Lara III attended a meeting on March 22, 2007 with the California Department of Water Resources (DWR) to discuss DWR's Integrated Regional Water Management (IRWM) Grant Program and its potential application to our restoration efforts in the Lower Klamath Sub-Basin.

Dan Gale met with representatives of CDFG on March 28, 2007 to conduct a field review and planning session of upcoming restoration projects in McGarvey Creek.

Dan Gale met with representatives of CDFG on April 18, 2007 to conduct a field review and planning session of upcoming restoration projects in Terwer Creek.

Dan Gale conducted a field tour of the Waukell Creek watershed to representatives of CDFG and the National Marine Fisheries Service (NMFS) on March 26, 2007. This field visit was held to familiarize these agencies with the drainage as TYFP developed a

restoration plan for Waukell Creek in response to mitigation funds from CalTrans related to the Highway 101 bridge repair.

Dan Gale and Rocco Fiori participated in a field review of West Fork McGarvey Creek on May 3, 2007 with representatives of CDFG. This field trip was help to review terms of the 1600 permit being issued by CDFG for upcoming LWD placement work.

Dan Gale and Sarah Beesley conducted a field tour of Lower Tectah Creek on May 23, 2007 with representatives of CDFG to discuss the upcoming helicopter LWD placement project.

YTFP and YTWRD staff held field tours and restoration training sessions throughout the Lower Klamath Sub-basin on July 17, 2007 for Americorps members who were having their annual training program.

Dan Gale met with CDFG staff on July 15, 2007 in Fortuna to discuss proposals YTFP had submitted to CDFG's FRGP for FY07 funds.

Dan Gale met with Greg Gray of USFWS on October 3, 2007 to discuss projects funded through USFWS' Partners for Fish and Wildlife Program and conduct a field review of recently completed LWD placement work in West Fork McGarvey Creek.

Dan Gale conducted a field review on October 10, 2007 with CDFG staff of ongoing Terwer Creek bioengineering work near Arrow Mills.

YTFP staff attended and participated in the California Department of Fish and Game's (CDFG) Citizen's Advisory Peer Review Committee (PRC) on Salmon and Steelhead Restoration meeting in Atascadero, CA during November, 2007. This meeting is held annually for the PRC to rank project proposals submitted to CDFG's Fisheries Restoration Grants Program (FRGP).

YTFP and YTWRD staff participated in HEC-RAS training on November 28-30, 2007 in Weitchpec. This 3-day course provided training in the use of the Army Corps of Engineers (ACOE) HEC-RAS water surface profile modeling software.

Dan Gale and Dave Weskamp conducted a field review with CDFG staff on December 5, 2007 in lower Terwer Creek. This field visit was held to review bioengineering work conducted by YTFP in fall 2007 and discuss plans for the upcoming year.

Dan Gale attended a meeting of the Californian State Coho Recovery Team (CRT) in Sacramento CA on Dec 13, 2007. This meeting was held to update CRT members on the current status of the State's Recovery Strategy for Coho Salmon.

Dan Gale met with Greg Gray of USFWS on January 31, 2008 to discuss projects funded through USFWS' Partners for Fish and Wildlife Program and conduct a field review of recently completed LWD placement work in West Fork McGarvey Creek.

YTFP and YTWRD staff participated in HAZWOPER training during February, 2008 in Klamath. This 5-day course provided training in first responder skills and management of hazardous waste spills.

Dan Gale met with Greg Gray and Paula Golightly of USFWS on February 11, 2008 to discuss projects funded through USFWS' Partners for Fish and Wildlife Program and conduct a field review of recently completed tree planting work in West Fork McGarvey Creek.

Sarah Beesley attended a one week fluvial geomorphology training class provided by Wildland Hydrology (Dave Rosgen) in Santa Cruz, CA from Aug 11-15, 2008. This training was on Applied Fluvial Geomorphology and is the first of four classes in Wildland Hydrology's Applied Fluvial Geomorphology course series.

Dan Gale and Hans Voight met with representatives of BOR and the Karuk Tribe on April 4, 2008 in Klamath Falls OR to provide a presentation and project update for our ongoing coho ecology project, as well as discuss work plans for the upcoming year.

Dan Gale and Sarah Beesley held a field review and planning session on May 27, 2008 with representatives of CDFG to discuss YTFP restoration planning efforts on CDFG property in Waukell Creek.

Dan Gale met with Greg Gray and Paula Golightly of USFWS and CDFG representatives on June 11, 2008 to conduct a field review of upcoming LWD placement work in mainstem McGarvey Creek.

Discussion

The project period proved to be productive for watershed restoration-related activities in the sub-basin. YTFP conducted several assessments and restoration planning efforts throughout the sub-basin, including a large-scale assessment of habitat conditions and restoration needs in and around the Klamath Estuary. In addition, YTFP and YTWRD decommissioned several high priority road segments in the Terwer and McGarvey Creek watersheds, continued streambank stabilization and riparian restoration efforts in Lower Terwer Creek, implemented West Fork McGarvey Creek instream restoration activities, and planted several thousand bareroot conifer trees throughout riparian areas and decommissioned roads in the sub-basin. In addition, the two departments brought in a combined total of $2,640,520 in outside funding during the project period for implementing watershed restoration, assessment and monitoring projects throughout the Lower Klamath sub-basin. Green Diamond Resource Company also donated $100,000 to implement restoration projects on their property in the sub-basin.

Funding continues to be the primary limiting factor to implementing the Lower Klamath Sub-basin Watershed Restoration Plan. In particular, the uncertainty of available funds on an annual basis makes planning projects difficult, as well as funding fluctuations resulting in a high rate of attrition among trained employees and restoration practitioners in the sub-basin. Both Departments operate almost exclusively on grant funding and secured funds are in turn limited in use to specific project tasks. Funding to allow for planning and coordination and project development are increasingly difficult to secure, resulting in a bottleneck in the efficiency and magnitude of restoration projects were can implement.

Road decommissioning is the primary restoration activity required throughout the sub-basin. While the Tribe has had fairly good success in securing funds to implement these activities, this work is extremely expensive due to heavy equipment requirements, and the incoming funds are still only a small fraction of the annual funds necessary to treat sub-basin sediment sources on the necessary timeframe for fish habitat recovery. Additionally, funds to implement monitoring projects have become increasingly scarce due to a priority emphasis being placed on available funds for implementing restoration projects. A sound, long-term monitoring program is essential to properly measure restoration effectiveness and fish population status and response. We have been forced to abandon several key and/or long-term monitoring projects in the sub-basin at a time when we need to be increasing the number and diversity of such projects.

Future YTWRD restoration efforts will focus on continuing road decommissioning throughout the Terwer Creek watershed and revisiting Blue, Ah Pah and Tectah Creeks where past upslope treatment has occurred with the goal of finalizing treatment of all high and medium priority sites in these drainages. All of these drainages are ranked as top priority in the Lower Klamath Sub-basin Watershed Restoration Plan. YTFP restoration efforts in the near future will be focused on finalizing stream bank stabilization and riparian restoration efforts in the alluvial reach of lower Terwer Creek. In addition, YTFP will focus on finalizing instream habitat improvement in McGarvey Creek and initiate similar LWD placement work in Waukell and Hunter Creeks. In addition, YTFP will be focusing on planning and implementing off-estuary and wetland habitat restoration projects throughout the Klamath estuary and surrounding tributaries. YTFP assessment and monitoring efforts over the past few years have demonstrated that these habitats are invaluable to juvenile coho salmon from throughout the Klamath basin that have migrated or been displaced to the Klamath estuary and are seeking out quality non-natal habitat.

Literature Cited

Beesley, S. and R.A. Fiori. 2007. Habitat assessment and restoration planning in the Salt Creek watershed, Lower Klamath River Sub-Basin, California. Yurok Tribal Fisheries Program, Klamath, California.

Gale, D.B. 2007. Waukell Creek watershed restoration plan. Yurok Tribal Fisheries Program, Klamath, California.

Gale, D.B., and D.B. Randolph. 2000. Lower Klamath River sub-basin watershed restoration plan. Yurok Tribal Fisheries Program, Klamath California.

Kier, W.M. and Associates. 1991. Long range plan for the Klamath River Basin Conservation Area Restoration Program. Report prepared for the Klamath River Basin Fisheries Task Force, Yreka, California.

Budget

Project Funding:

Personnel Costs	
Salaries	$14,302
Staff Benefits @33%:	$4,720
Total Personnel Costs:	$19,022
Project Subtotal:	$19,022
Administrative Overhead @31.43%:	$5,978
Total Funds Expended:	**$25,000**