

**Regional Water Quality Control Board
North Coast Region
Second Pre-harvest Inspection Report**

**To: Christine Wright-Shacklett, SEG
CDF Review Team Chairman**

August 10, 2001

From:	Art Haschak, RPF
From:	Dave Hope, RPF, CPESC
Subject:	Pre-Harvest Inspection Report for Timber Harvest Plan 1-00-101 MEN, Gualala Redwoods Inc. (landowner); North Fork Gualala River, Gualala River (watershed)

On May 31 and July 11, 2001, I participated in two additional preharvest inspections (PHI) for Timber Harvest Plan (THP) 1-00-101 MEN. Also present on the inspection were Jerry Ahlstrom, Charlie Martin, Bruce Strickler, Bill Snyder, Pete Cafferatta, Jim Purcell and Pam Lindstedt from the California Department of Forestry (CDF); Art Haschak, Registered Professional Forester (RPF); Charlotte Ambrose and Brian Cluer from the National Marine Fisheries Service; Scott Kelly, Henry Alden and John Bennett from Gualala Redwoods Inc. (GRI); Steve Mader CH2M Hill, and Doug Simmons public (Gualala River Watershed Council). The weather was clear and warm.

Land History

This land was logged at the turn of the century and has had been entered several times (80, 35, 25, 12 and 8 years ago). Some units under this plan have been entered numerous times and others appear to have had less activity. Most stumps show good stump sprouting regeneration, the stand shows mostly an uneven age class. This THP overlaps with several past THPs: 1-92-039 MEN, 1-92-015 Men, 1-90-545 MEN, 1-90-652 MEN, and 1-88-675 MEN.

General Summary

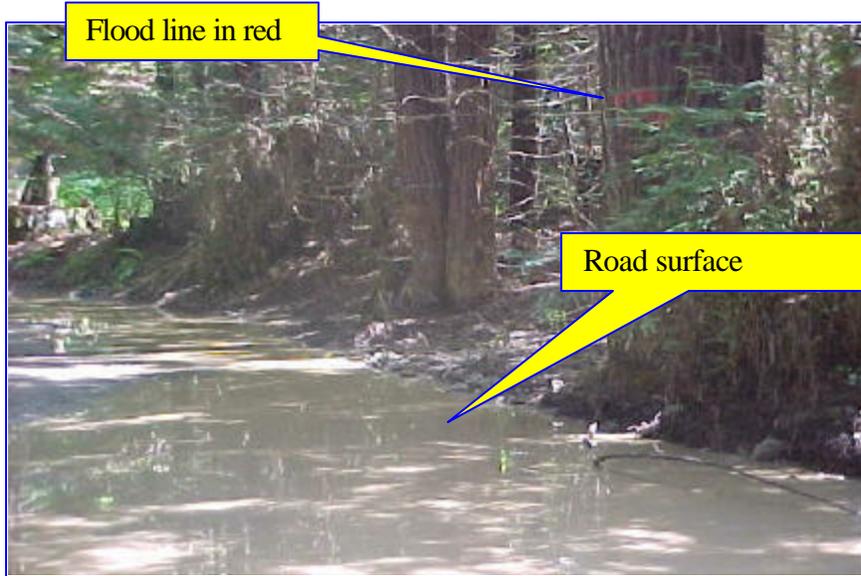


The project is separated into small units on wide inside meandering flats alternating along the river edge. All the units and the vast majority of the road system are in the 1.5 to 5 year floodplain of the Gualala River. From appearances this area is flooded in most average winters. Most of the soils are high site class for redwood, consisting of Big River Sandy Loam. The topography is mostly flat, 35 to 120 feet above sea, and borders the North Fork and Little North Fork of the Gualala River. The stands are stocked with

between 125 to 300 square feet of basal area per acre of mostly redwood with alder along the stream and California Bay Laurel intermixed with a minor component hardwood in the riparian corridor.

Timber Harvest Plan (THP)

This THP is located in far southwestern Mendocino County, approximately 5 miles east of the town of Gualala. The THP contains Class I, II, and III watercourses, tributaries to the Gualala River. The main Class I tributaries are the Little North Fork Gualala and North Fork Gualala. The THP proposes to selectively log 148 acres. The plan is divided into 14 units and all logs will be removed with ground based equipment (tractor and rubber tired skidder).



The Erosion Hazard Rating (EHR) is Moderate. This rating does not reflect the erosion hazards on this THP. Due to the harvesting along the watercourse and clear signs that winter flood flows move through the harvest area, extra precautions must be taken to control soil erosion. Winter operations are not

proposed, but winter use (by GRI) of the “floodway” truck road does occur throughout the winter period and has a cumulative negative effect of silt production that impacts spawning gravels.

Main WLPZ haul road



Flood flow road relief ditch



The THP contains mapped existing crossings, and proposed temporary crossings of classified watercourses. Exceptions to the standard Forest Practice Rules (FPR) for Watercourse and Lake Protection Zone (WLPZ) measures are proposed in the THP. WLPZ truck roads will be used as a main haul road. This road is shown in photos on page 2. The existing truck road in the WLPZ is mentioned in the justification and a recent proposal is to block off flood flows is to create a gravel barrier to restrict where the river enters the roadway. This will reduce fast moving waters from entering the road during storms, but floodwaters will still back into this area and large floods will still enter this area with fast flowing waters.

Gualala Redwoods Inc. has supplied the NCRWQCB with information requested for road surveys and road rehabilitation information asked for in the previous PHI report in July 2000. This information is helpful in assessing the extent of road maintenance work being undertaken. This data will be analyzed to determine if the program adequately addresses the cumulative effects of the road systems on this property. From the inspections conducted to date by NCRWQCB staff it appears that the roadwork completed to date is not prioritized to deal with the worst sediment inputs first. Work conducted to date appears to lack proper erosion control and disturbance created by the operation is excessive. NCRWQCB has repeatedly conveyed its willingness to work with GRI in determining a prioritization for road and chronic sediment reduction. It does not appear that the work completed to date will offset the sediment overloads that are generated each year and clearly will not reverse the trends of input over the last 10 to 20 years.

Although assessment and restoration data was submitted it does not however include the other requested information on which roads are permanent, seasonal, and temporary roads and which roads that will be blocked off for access during the winter period. This information is necessary insure that violations of the Basin Plan are not occurring during winter use of roads that are not suitable for winter travel. Roads must be blocked for use during rains if the road is not capable of carrying vehicle traffic without visible turbidity being transported to inside ditch. Because the problem of winter use of many miles of unfit roads was noted last winter, the NCRWQCB request that the required information be supplied for all roads within the ownership as to their seasonal status for use. All roads not meeting the above criteria for year round use must be properly treated for the winter erosion control maintenance period (**Recommendation 1**).

Harvesting Within the Watercourse and Lake Transition Line

In a letter dated May 22, 2001 Dr. Bill Trush stated that "CDF's interpretation of the Watercourse and Lake Transition Line (letter by L.A. Markum, CDF Division Chief, Forest Practice, Coast-Cascade Region, February 23, 2001) is not consistent with the intent of the current FPR rules. The Watercourse and Lake Transition Line (WLTL) is located on the backside of the floodplain (including side-channels), not the leading edge as CDF contends. An alluvial surface that just contains the bankfull discharge but is inundated by the 20-yr flood is a floodplain that should be included within the WLTL.

Field criteria are offered in the FPR only to provide a convenient and rapid methodology for identifying the 20-yr floodplain, one that avoids costly hydraulic analyses necessary to determine the water surface elevation of the 20-yr annual maximum flood. When interpretation of the 20-yr floodplain using subjective field criteria of soil development and stand composition is controversial, as it clearly seems to be argued among the regulatory agencies, members of the Science Review Panel (including myself) recommended inserting the hydraulic analysis (estimating the 20-yr flood stage) into the FPR as the final arbitrator for just such a case. If field observation of recent floods inundating the site confirms these floods had annual maximum flood recurrences less than 20-yr, as Dave Hope of the Regional Board contends, a hydraulic analysis would be unnecessary. It also clearly would place the WLTL on the backside of this floodplain.”

This interpretation of the Watercourse and Lake Transition Line is consistent with the interpretation the NCRWQCB has for the (WLTL) and this definition will best protect the values inherent in the floodplains that exist within areas that are frequently flooded and provide the values referred to in 14 CCR 916.9 (a) (2),(5),(6), and (7). The floodplains along the sections of the Gualala River proposed for harvest within this THP are undergoing a transition from infrequently flooded 20 to 50 year floodplains to 1.5 to 2 year floodplains. All evidence onsite indicates that the North Fork and Little North Fork of the Gualala River are aggraded and that these floodplains were created under a past sediment regime that consistently kept the streambed at a level many feet below its present level. . If these existing floodplains were developed under the same instream bedload regimes as are present today, then the establishment of redwoods would have been precluded by the constant flooding and battering of flood debris. Homogeneous bedload, gravel bars established at the outside bends of the river and a clear lack of streambanks adequate to hold 1.5 to 2 year bankfull storms are all indicators of extreme aggradation and a stream system that has a present sediment regime that is clearly above the ability of this stream to transport.

Specific THP Operations



Wet area within skid trail



Algae in dry pool in skid path

The logging proposed for units 11,14,15 and 17 and is located in Class II wetlands that also qualify as floodways. Skidroads planned for units 15 and 17 are not acceptable. Heavy equipment will compact the ground and can significantly alter flow in this floodway, which may change the river channel and disrupt the function of this area for salmonids during flood periods. These areas include obligate and facultative wetland plants and seasonal habitat for western pond turtle and other aquatic vertebrates and invertebrates. The proposed skid roads are placed within areas that have standing water for over 60 days after the last rainfall (Photo taken July 11, 2001) of the season and contain moving water during flood and even normal winter rains.



This entire THP is not feasible as all of the units proposed for harvest are best classified as a floodways and part of the active channel. The units in the Little North Fork (LNF) are even more suspect and qualify as wetlands and are part of the floodway. The harvesting of trees alone can not be condoned under 14 CCR 916. 9 (a) (5), because the removal of trees in this area does not protect, maintain, and restore snags, or large woody debris that may in the foreseeable future provide LWD for instream habitat needs and fluvial geomorphic functions. The harvest units within the (LNF) have planned skid roads that will often use low laying areas in this wetland for skidding of logs. This harvest activity may allow for the migration of flood flows and create new stream channels within this frequently flooded area. The annual flooding of these low streamside benches combined with logging activity creates a serious impact on this area and leads to possibility of forming cutoff channels that will drastically alter the stream morphology. This is also a cumulative watershed effect that can not combine with removal of trees that are within the 1 to 2 year floodway. These conditions make units 11,14,15,and 17 and therefor not suitable for harvesting timber (**Recommendation 2**).



Watercourse Conditions and WLPZ Operations

The Gualala River has been listed by the U.S. Environmental Protection Agency as an impaired waterbody under Section 303 (d) of the Clean Water Act. High sediment loads in the Gualala River necessitated the impairment listing. Both coho salmon and steelhead

are listed as “Threatened” under the Endangered Species Act and are present in the Gualala River and have their last refuge in the streams covered by this THP. Coho salmon in particular are sensitive to temperature increases, and require large woody debris (LWD), deep pools and abundant shade to moderate this water quality issue.

Stream Maximum Weekly Average Temperatures (MWAT) listed for 8 streams in this area show most streams have water temperatures that range above the preferred range for coho salmon. Given this data the NCRWQCB must consider temperatures as a limiting factor for salmonid survival and other beneficial uses in the Gualala River watershed.

These documented elevated temperatures are due to removal of tree canopy that in turn increases solar exposure, increases air mixing and lowers humidity by reducing evapotranspiration. Increased overall basin canopy has been shown to moderate local ambient air temperatures, which directly effects stream temperatures. Consequently, if



North Fork Gualala River showing “Clearcuts” narrow WLPZ and bedload issues.

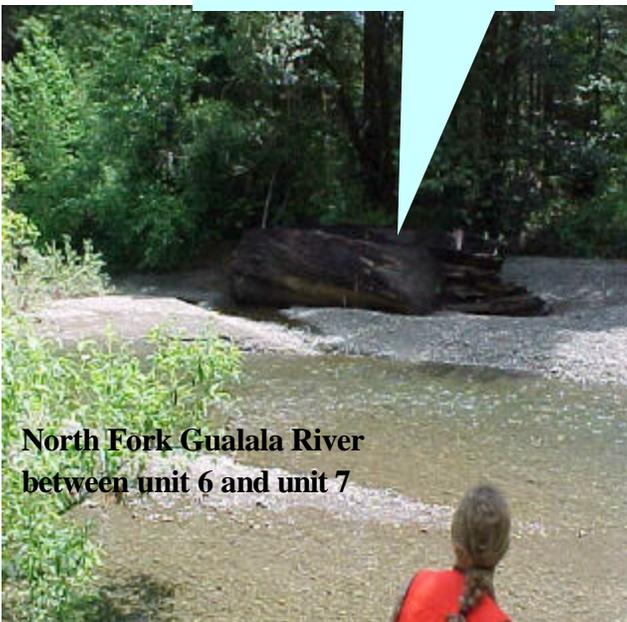
only WLPZ canopy is expected to ameliorate elevated stream temperatures, it needs to have very tall trees to shade the watercourse and a wide densely vegetated riparian corridor to reduce airflow and raise humidity. In this case the WLPZ canopy must be maximized to effectively moderate the impacts of nearby tracts of clearcuts and other timber harvest activity, additional WLPZ widths have been shown to increase protection

that is measurable out to 300 feet (Ledwith, 1996). The THP proposes to log an area within the floodplain of the Little North Fork Gualala, which has some of the best water temperatures that can be found in the planning watershed. This cold water refuge is not far below MWAT for coho salmon. Harvesting in this area could compromise this refugia habitat and further degrade the receiving waters downstream. Harvesting these areas is not appropriate due to the sensitivity of the area as a refuge for coho salmon, and the fact that the floodplains along this part of the Little North Fork are best classified as wetlands and are flooded by 1.5 to 2 years storm intervals.

Additionally large redwood trees that may be harvested by this THP are critical for LWD input to the stream. Large tall trees will be necessary to bridge the wide banks and remain stable and persist for long periods of time to improve stability of pool and bedload routing. The California Salmonid Stream Habitat Restoration Manual (Flosi and Reynolds, 1991) suggests LWD trees be at least as long 150% of the channel width to be effectively stable LWD in the channel. Long-lasting stable LWD is exactly the component that is missing to route the excessive bedload, create pools, and provide cover and habitat for juvenile and adult salmonids. Tall large diameter redwoods are the most competent and desirable LWD for this system.

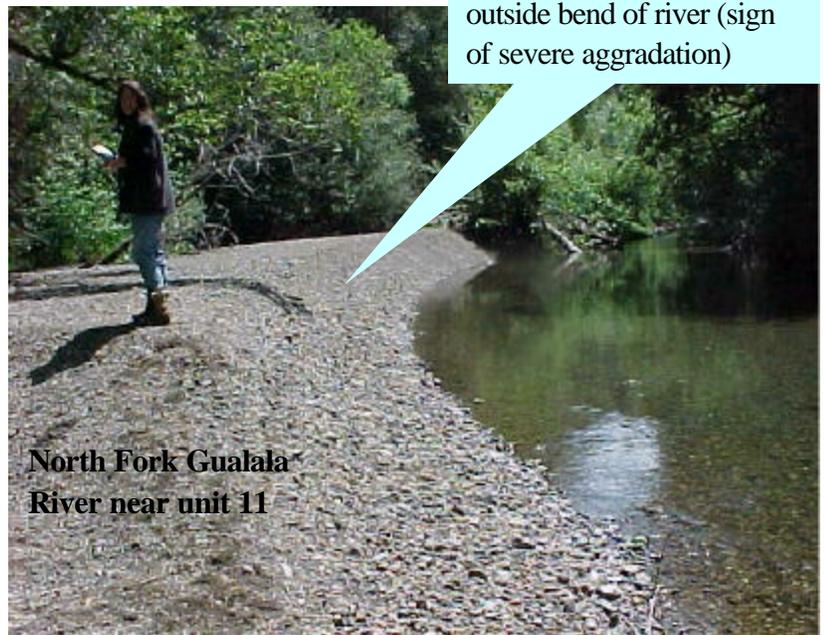
The North Fork of the Gualala River is heavily aggraded. The bedload in areas observed

LWD with a lot of work to do



**North Fork Gualala River
between unit 6 and unit 7**

Gravel bar at aggraded outside bend of river (sign of severe aggradation)



**North Fork Gualala
River near unit 11**

in the North Fork Gualala River exceeds the transport capability of this river. This is evidenced by infilling of pools on the outside bend of the river.



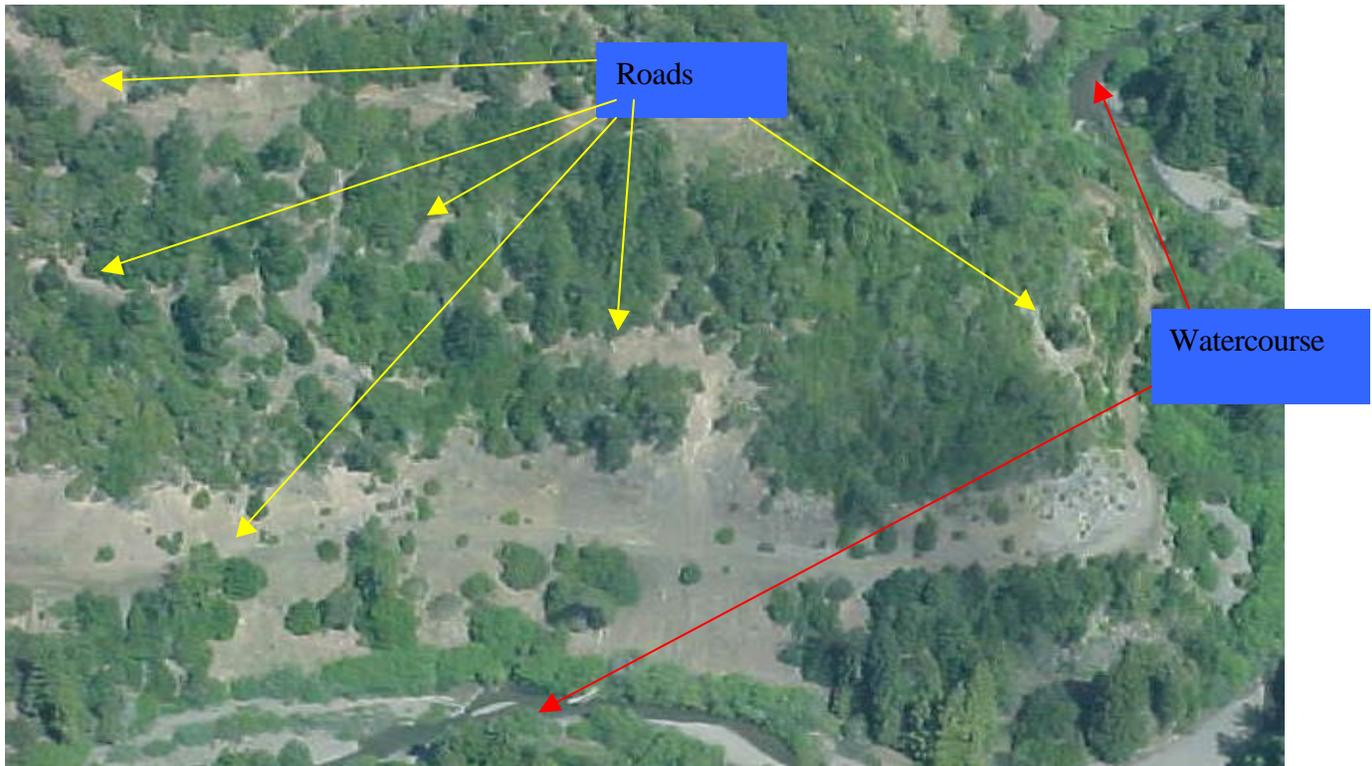
Trees that were established and grew by the edge of the river for 20 to 30 years have recently died due to burying if the root systems by recent agradation. One of the most important issues facing this watershed is to reduce sediment delivery. In consort with this effort, the best short-term recovery element would be to significantly increase the instream and recruitable LWD and enlarge the WLPZ. An expanded WLPZ will increase sediment filtering

and storage capacity and provide refuge during floods for salmonids. Furthermore; with populations of coho salmon facing extinction, removal of any trees from an expanded WLPZ that can moderate the water temperatures, or provide much needed LWD habitat benefits, can not be justified **Recommendation 2.**

Considering the present condition of the watershed and instream evidence of habitat loss, future harvest in the WLPZ of the Gualala River can not be justified until the habitats for coho has fully recovered and are secure. Especially critical are assurances through monitoring that instream water temperatures are optimal for salmonid rearing, canopy levels have recovered and sediment inputs and routing have reached a point that: 1. Optimum shade levels have been achieved; 2. Adequate LWD is present instream and future recruitment is assured; 3. Instream bedload has been reduced enough to allow for proper stream function. These goals will help insure that the highest level of instream structure and habitat have been achieved and future harvesting will not degrade these desired conditions for coho salmon and other beneficial uses as required by the North Coast Regional Water Quality Control Plan (Basin Plan).



Roads on the property show a significant need for improvement of surfacing; and with many roads located within the WLPZ of the Gualala River, the high sediment delivery rate makes their repair critically important. These roads are an ongoing source of sediment in violation of the Basin Plan. The Gualala Redwood Inc. road system must have an immediate inventory. Permanent roads must have at least a layer of rock or other permanent surfacing sufficient to create a non-erodible cap. To function properly permanent roads shall not allow any visibly turbid waters to enter the inside ditch when used by traffic under saturated conditions. Temporary and seasonal roads must be drained properly and blocked off to prohibit winter, or wet weather traffic access.



Other roads in the GRI ownership show signs of more serious direct effects on the Gualala River. The effects are wide ranging from road and landing drainage impacts to slope stability, and road density effects. Additionally the siting of roads on unstable geology has lead to fill and bank failures, landslides, debris flows, and accelerated erosion rates that are severely impacting the Gualala River. The majority of this sediment input could have been avoided and is controllable.



Cumulative Effects

The mitigations proposed by THP 1-00-101 MEN, do not adequately address the cumulative effects of past harvests, present conditions, or future effects of this THP. Over 60% of the planning watershed have been logged in the last 10 years totaling 12,000 acres (1479 acres by clearcut and 5654 acres by clearcut step silviculture), while less than 7% was logged with selection silviculture. In addition, unstable areas in the watershed continue to add volumes of sediment into watercourses and represent an ongoing cumulative impact in this watershed that has not been adequately addressed. The watershed assessment area for this THP shows Maximum Daily Water Temperatures exceed the preferred range set for coho salmon. The canopy closure over the stream in the North Fork Gualala is severely lacking in shade from tall trees. Existing LWD and further recruitment has been set back by continued removal of large trees within falling distance of the river. This includes the removal of all large trees in a floodplain THP completed in 2000 by GRI (1-99-445 SON) indicating that GRI is continuing to harvest trees within the flood plain of the Gualala River even though issues have been raised about this problem. In much of the river sediment and bedload accumulations are so extreme that pools and side channels are either completely filled or greatly reduced in depth and capacity. Accelerated bedload levels have compromised habitat complexity. Deep pool cold water refuges required for survival under these conditions is rare and therefore creates a limiting factor for coho salmon survival. The THP Cumulative Effects Analysis needs to include language that clearly explains how efforts taken by the

company are mitigating and reversing the past, present and future impacts to water quality. **Recommendation 3.**



Response to letter from Steven Mader .

The document submitted on July 6, 2001 by Steven Mader contends there is no evidence to substantiate that the watershed is more aggraded now than in the past. When clear evidence is available by all field indicators onsite and they were pointed out during the field visit by NCRWQCB staff and Dr. Brian Cluer in the field. Mr. Mader also states that the aggradation or sediment build up is due to naturally high sediment levels and a

lack of flushing flow in the last 25 years. Mr. Mader states that the last flushing flow was in 1975 and sediment has built up since then and this accounts for the unusually high rate of bedload and aggradation is not due to management related activities. The reference used to bolster this claim lists “all” the 15 to 50 year storms in the past as 1953,1955,1964 1972 and 1975. This theory falls apart when you look at the years subsequent to 1975 when comparable large storms occurred in 1982,1983,1986, 1996,1997-98. All of these flows would have been large enough to flush sediment if it were not for the continued input of sediment that exceeded the transport capability of the river.

Evidence from the floodplains along the river clearly show that many of these flood plains have existed and grown trees in their present state for long enough to produce a 500 to 1,000 year old trees that have been replaced with 80 to 120 year second growth redwoods. These well developed 1,000 year old floodplains are now undergoing a rapid change in flood return patterns due to recent aggradation in channel and all of the evidence on the floodplain points to only the fact that this is a recent occurrence. If these existing floodplains were developed under the same instream bedload regimes as are present today, then the



establishment of redwoods would have been precluded by the constant flooding and battering of flood debris. Homogeneous bedload, gravel bars established at the outside bends of the river and a clear lack of streambanks adequate to hold 1.5 to 2 year bankfull storms are all indicators of extreme aggradation and a stream system that has a present sediment regime that is clearly above the ability of this stream to transport.

Mr. Mader states that the 2000 GRI report found that the LWD in the planning watershed is within the range of naturally functioning streams in northern California. This statement is difficult to support as there are no large stream systems in California that are naturally functioning that could be compared to this area. One small watercourse Godwood Creek is a 100% intact Late Seral forest stream and has a LWD component that exceeds the North Fork Gualala (LWD survey provided by GRI) per mile by over 10 times. Additionally Godwood Creek demonstrates the true extent of benefit of LWD as stream banks and bends of the creek are often made up of downed redwood many hundreds of

years old, and is a great example of a low gradient “Natural” stream in the redwood region. This watercourse itself has more wood per 100 feet than even the newly created “Strategically placed LWD” section completed by GRI (LWD surveys conducted by Dave Hope and Tom Weseloh 1999-2000).

Mr. Mader states that there is no evidence to suggest past, present and future forest practices would cause biologically significant project-level or cumulative impacts to riparian microclimate functions. This could not be farther from the truth, the evidence is clear in old pictures of the stream at the old turn of the century, when train logging and clearcut / burns denuded miles of stream. If that is not evidence of past impacts to riparian microclimate than there is no possible way to effect this streamside zone. This photo evidence shows complete removal of all vegetation and highest possible impact to streams by roads built on the streambed. Additionally recent evidence of microclimate changes can be seen in the photo on page 9, this photo shows clear damage to streamside vegetation and a severe reduction in microclimate protection. The Forest Practice Act and Rules considered the available evidence and included microclimate effects as one of the key protections provided by the Watercourse and Lake Protection Zone.

The Steven Mader report misconstrued the PHI report from NCRWQCB by stating that the Tyler Ledwith paper was used say that the WLPZ must be maximized to moderate the effects of timber harvesting. This reference was used to show additional effects can be gained even out to 300 feet by intact riparian corridors. That additional WLPZ width is required to mitigate for the effects of the nearby clearcuts and reduced canopy created by recent harvests within the WLPZ and increased ground and ambient air temperatures created by removal of forest cover.

Recommendations

1. All roads that are proposed for use during the winter period shall have rock surfacing adequate to protect against any visible turbidity being transported to the inside ditch. If a road is not adequately surfaced it shall be blocked off to winter traffic. All roads shall be properly designated as to what type of use is allowed and mapped. Any winter road use that violates this winter use prohibition shall be considered a violation of the Basin Plan
2. This THP as proposed can not be conducted without serious impacts to the water quality of the Gualala River. Timber Harvesting activity within the floodplain of the Gualala River within the units proposed by this THP does not comply with 14 CCR 916.9. Therefore this THP is not feasible as planned and if conducted would be a violation of the (North Coast Regional Water Quality Board) Basin Plan.
3. The proposed THP does not adequately mitigate for past Cumulative Effects, the present degraded conditions, or for the THP as proposed. Considering these deficiencies and the other issues raised in the report and the THP as submitted violates the (North Coast Regional Water Quality Control Board) Basin Plan, the **North Coast Regional Water Quality Control Board staff recommends denial of this plan.**

References:

Flosi, Gary and Reynolds, Forrest L., 1991. California Salmonid Stream Restoration Manual State of California. Resources Agency. Department of Fish and Game. August 1991.

Ledwith, Tyler, 1996. The Effects of Buffer Width on Air Temperature and Relative Humidity in a Riparian Zone. Six Rivers National Forest, Eureka Ca. WMC Networker 1996.