

Last Chance Fuels Reduction Project RIPARIAN CONSERVATION OBJECTIVES ANALYSIS Eldorado National Forest

February 27, 2003

Cheryl Mulder, Hydrologist

Cynthia Podsiadlo, Hydrologic technician

Introduction

In order to assure consistency with the Aquatic Management Strategy for the Sierran Forests, the Sierra Nevada Forest Plan Amendment Record of Decision (ROD) requires that a site-specific project-level analysis be conducted to determine the type, level, and extent of activities that can occur within Riparian Conservation Areas (RCAs). This analysis assesses the proposed activities of the Last Chance Fuels Reduction Project to determine if it meets the Riparian Conservation Objectives (RCOs) and contributes to meeting the Aquatic Management Strategy Goals.

The Last Chance Project is located within the wildland-urban interface, which includes the community of Grizzly Flat and adjacent residential and recreational (Leoni Meadows) development. The majority of the project borders the Steely Fork Cosumnes River and Clear Creek drainages. The Steely Fork flows generally westerly into the North Fork Cosumnes River. A smaller portion of the project borders Dogtown Creek and the Middle Fork Cosumnes River.

The main objective of the Last Chance Project is to conduct fuels reduction activities within the wildland-urban interface for structure protection, reduction of wildfire potential, and watershed protection. Activities include understory thinning by mechanical methods, masticating brush, and burning piles, hand-pruning trees adjacent to private land, and low intensity prescribed burning. There are specific fuel treatment activities that are allowed within the RCAs or a portion of the RCA.

Riparian Conservation Areas

As defined in the ROD, RCAs “are land allocations that are managed to maintain or restore the structure and function of aquatic, riparian, and meadow ecosystems. The intent of management direction for RCAs is to (1) preserve, enhance, and restore habitat for riparian- and aquatic-dependent species, (2) ensure that water quality is maintained or restored, (3) enhance habitat conservation for species associated with the transition zone between upslope and riparian areas, and (4) provide greater connectivity within the watershed.”

Widths of RCAs vary according to the water body and associated landform or aquatic feature. The types are designated as follows: 1) perennial streams; 2) seasonally flowing streams (includes ephemerals with defined stream channel or evidence of scour); 3) streams in inner gorge; 4) special aquatic features (lakes, meadows, bogs, fens, wetlands, vernal pools, and springs); and 5) other hydrologic or topographic depressions without a

defined channel. Perennial streams have permanent water or flow all year. Seasonally flowing streams have intermittent flow (dry up at the end of summer) or will have standing water and pools. This type includes ephemerals that only flow in response to precipitation events. Streams in the inner gorge have incised channels and steep slopes. The slopes in the inner gorge area are steeper than 65% and include areas with active mass wasting. These areas are subject to landslides, debris flows, and soil erosion. Within the Last Chance Project, there are only two RCA types present that would be affected by project activities. These include perennial streams such as the mainstems of Steely Fork Cosumnes River, Clear Creek, and smaller unnamed perennial streams, and seasonally flowing streams. The associated widths are displayed in the table.

Stream Type	Width of the Riparian Conservation Area
Perennial streams	300 feet
Seasonal streams	150 feet

Riparian Conservation Objectives

The RCOs provide a checklist for evaluating whether a proposed activity is consistent with the desired conditions described in the Aquatic Management Strategy. The ROD defines the standard and guidelines that address the types of management activities that are allowed in RCAs. Those objectives and a discussion of how they are met by the proposed project follow.

RIPARIAN CONSERVATION OBJECTIVE #1:

Ensure that identified beneficial uses for the water body are adequately protected.

The Last Chance Project proposes treatments in portions of five watersheds: Lower Steely Fork Cosumnes River, Upper Steely Fork Cosumnes River, Clear Creek, Dogtown Creek, and Lower Lower Middle Fork Cosumnes River. These watersheds are located within the Cosumnes River Basin. State designated beneficial uses for the Cosumnes River Basin include municipal and domestic water supplies, irrigation, contact and non water-contact recreation, cold freshwater habitat, cold-water spawning habitat, and wildlife habitat (California Regional Water Quality Control Board [CRWQCB] 1998). Water quality standards and objectives for these watersheds have been set by California Regional Water Quality Control Board for the Central Valley Region. The narrative objectives applicable to this project are as follows:

Sediment

- The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Turbidity

- Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in turbidity attributable to controllable water quality factors shall not exceed 20 percent where the natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTUs).

Temperature

- At no time or place shall the temperature of COLD waters be increased more than 5°F above

natural receiving water temperature. The natural receiving water temperature shall not be altered unless it can be demonstrated to the satisfaction of the water board that such alteration does not adversely affect beneficial uses.

Oil and Grease

- Waters shall not contain oils, greases or waxes or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface, or on objects in the water, or otherwise adversely affect beneficial uses.
- Compliance with the Clean Water Act is demonstrated through implementation of the Best Management Practices (BMPs) certified by the state, and subsequent monitoring to determine if the appropriate Central Valley Regional Water Quality Control Board standards are met. These BMPs are designed to prevent degradation of downstream water quality.

There would be very low potential for impacts to soil productivity from the Last Chance Fuels Reduction Project. Soil quality standards for soil loss, detrimental soil compaction, and organic matter retention would be met and measured using the procedures outlined in Appendix F of the FEIS. The Forest Implementation Team has concluded that the use of mastication equipment would not cause detrimental soil compaction, and the use of this equipment would not be adding to the soil compaction in the RCAs. Mastication equipment would have low impact on the ground and leave a layer of organic materials that would provide soil cover. Mechanical equipment is allowed within the outer 100 feet of seasonal streams and the arm may be extended to reach within the inner 50 feet to remove trees. Where slopes within or adjacent to the RCA exceeds 30 percent, equipment would be excluded. No tractor pile and burning will the inner 50 feet of the RCA.

Project activities would not adversely increase water temperatures downstream to the detriment of aquatic and riparian-dependent assemblages. No mechanical ground disturbance or pile burning will occur within the RCAs of perennial streams. Prescribed fire may occur within the RCAs as long as fire is allowed to back down toward the stream under a prescription for a cool burning fire and no ignition occurs within the RCA except to maintain control of the underburn. Canopy cover for intermittent and ephemeral streams would not be reduced more than 20% from the present canopy after treatment. This would maintain adequate shade.

Cumulative watershed effects are the combined effects of past, present, and future land management activities within a watershed that may affect the watershed's structure or process. The CWE analysis assesses the potential for adverse CWE by comparing the current level of watershed disturbance to an estimate of "the upper limit of watershed tolerance to externally applied factors such as climate and land use" called the Threshold of Concern (TOC). The Equivalent Roded Acre (ERA) is used as the standardized unit of measure for land disturbance and the current level of watershed disturbance is expressed as "percent ERA". The current percent ERA of a watershed is compared to the TOC to provide an assessment of CWE potential.

The effects from the Last Chance Fuels Reduction Project have been evaluated in a CWE analysis for each watershed. Detailed information is included the CWE analysis for past disturbance and future projects and the supplements per watershed. Due to the majority of the activities on the upper slopes, little ground disturbance, and buffer areas designed to limit the type and extent of mechanical activities within the RCAs, there are no adverse

cumulative watershed effects anticipated from the project. In addition, the measures to close roads, stabilize and revegetate landings, and implement the watershed improvement projects identified within the project area will reduce sediment into the system, and improve water quality and watershed conditions.

To further reduce the potential for adverse cumulative watershed effects, state certified Best Management Practices (BMPs) (USDA 2000) would be implemented. It is assumed that if local beneficial uses are protected, then beneficial uses further downstream will also be protected. The validity of these assumptions is subject to verification through the Best Management Practices Evaluation Program. This program is designed for evaluating the implementation and effectiveness of BMPs in management activities.

RIPARIAN CONSERVATION OBJECTIVE #2:

Maintain or restore: (1) the geomorphic and biological characteristics of special aquatic features, including lakes, meadows, bogs, fens, wetlands, vernal pools, springs; (2) streams, including in stream flows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species.

Special aquatic features in the project units are seasonal and perennial streams. Although there are inner gorge areas, meadows, and small ponds within the watersheds, all these features are located outside of the project units. The effect on water yield from the reduction of tree stocking and competing vegetation would be negligible in the watersheds. Stream flows would remain within their natural range of variation with no increase in runoff rates or peak floods. Sufficient ground cover from mastication will be maintained on the sites to protect the soil. This measure would maintain soil productivity, porosity and resiliency and reduce the potential for soil erosion and displacement within these zones. This would be effective in preventing any sediment delivery to stream channel systems. In addition, prescribed burning would not reduce the cover below the Regional Soil Quality Standards. Hydrologic and biologic connectivity would be maintained along stream channels and riparian corridors. Due to the reduction of tree density and brush, this project may result in increased soil moisture and improved riparian habitats in some localized areas.

Understory burning would not adversely affect the Steely Fork Cosumnes River due to the prescription for a cool burn that would back down to stream and no ignition occurring within the RCA.

Water holes used for dust abatement would be inspected by a biologist for frogs and tadpoles before water withdrawal. Water drafting guidelines described within the proposed action would protect the stream flows for fish and amphibians. A Forest Service approved screen covered drafting box, or other device to create a low entry velocity would be used while drafting to minimize removal of aquatic species, including any juvenile fish, amphibian egg masses, and tadpoles. Drafting would be from the deepest water source and near the bottom.

In addition, the watershed improvement projects described in the proposed action would contribute to restoring the hydrologic connectivity in two areas. By removing the cement

barrier (former drafting site) on the Steely Fork Cosumnes River, it will restore the channel to more characteristic channel dimensions by allowing more natural routing of flow and sediment through the system. At this site, there is a fairly large amount of compaction associated with use of this reach of the river for water drafting, and from dispersed recreational use. The compacted area will be reduced, with parking and driving areas designated. This will improve the function of the flood plane at this site. Across the river from the dispersed recreation site, there is a non-system road that is deeply rutted, runs water down the middle, and ends at a head cut just above the river. The stabilization measures and restoration of the hydrology of the site will greatly reduce a major source of sediment to the river channel. At the second area, stabilizing the waterhole, rehabilitating the spring adjacent to it, and restoring the stream channel will prevent the area from further degradation and erosion.

RIPARIAN CONSERVATION OBJECTIVE #3

Ensure a renewable supply of large down logs that: (1) can reach the stream channel and (2) provide suitable habitat within and adjacent to the RCA.

The present levels of coarse large woody debris are assumed to be within the range of natural conditions on Steely Fork Cosumnes River. Along the perennial streams the 300-foot buffer from mechanical treatment would retain the down logs that are present and retain existing trees that would provide a renewable supply of large down logs. Intermittent and ephemeral streams would have adequate canopy cover remaining after treatment, which would provide a future supply of snags and down logs. In intermittent and ephemeral RCAs a 50-foot buffer adjacent to the stream channel would limit the extent of mechanical treatment.

The availability of large down logs and a future supply may be limited within certain areas. These include brush fields, the tops of ridges where fuel breaks are located, adjacent to major roads and within vegetation types such as canyon live oak woodlands that occur on rocky, shallow soils and steep areas of south facing slopes. Class 1 and 2 logs would be recruited from snags where they are available. Where possible, these large down logs would be protected from disturbance during mechanical treatment activities, and underburning. Backburning into the RCAs would create cooler burning conditions, that would preserve the majority of the larger down logs.

Hazard trees or existing down large woody debris next stream channels would not be removed and would be left next to stream courses, except as approved on a case-by-case basis with coordination between IDT members including a fuels specialist, fish biologist and/or hydrologist.

RIPARIAN CONSERVATION OBJECTIVE #4

Ensure that management activities, including fuels reduction actions, within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species.

The fuel reduction activities would reduce the potential flame lengths during wildfire and modify fire behavior if a wildfire did start. The project would allow for a quicker response and containment time, thus reducing the extent of a potential wildfire. The fire

may tend to move through the site more quickly, with less time spent in one site on the ground. A shorter time on the ground, with fewer fuels to burn, would result in a lower capability of the fire to have soil property modifying effects. In the long-term the treatment of fuels would also protect or mitigate the fire intensity within the RCAs from possible loss of vegetative cover in a wildfire situation. The reduction in the density of shade tolerant smaller diameter trees would promote a healthier stand of trees and in the long-term favor the more fire tolerant trees such as ponderosa pine, sugar pine, and Douglas-fir. Masticating the brush would in the long-term result in a change in the vegetative structure and composition. A mosaic of more diverse vegetation in age class, species composition, and structure would enhance the biological and physical attributes of the area adjacent and within the RCAs.

Within the RCAs of Steely Fork Cosumnes River ignition would not occur (except under unusual circumstances to control the fire) and the prescribed fire would be allowed to back down towards the stream. Low intensity burning conditions would be assured and riparian vegetation would be protected and enhanced.

With the restrictions and limitations of tractor piling within the RCA of perennial and seasonal creeks, the potential of amphibians for being burned up after taking cover in a pile would be reduced. Ground disturbing activities would not occur in the RCAs of suitable habitat for threatened or sensitive amphibians. The perennial streams of Steely Fork Cosumnes River and Clear Creek have 300 foot RCAs and all activities except prescribed burning are excluded within this area.

RIPARIAN CONSERVATION OBJECTIVE #5

Preserve, restore, or enhance special aquatic features, such as meadows, lakes, ponds, bogs, fens, and wetlands, to provide the ecological conditions and processes needed to recover or enhance the viability of species that rely on these areas.

There are no special aquatic features within the project unit boundaries. However, as mentioned above, there is a watershed improvement proposal to reduce compaction in a flood plane along the Steely Fork River associated with this project.

RIPARIAN CONSERVATION OBJECTIVE #6

Identify and implement restoration actions to maintain, restore or enhance water quality and maintain, restore, or enhance habitat for riparian and aquatic species.

The primary purpose of the Last Chance Project is to restore the vegetative community to a more diverse and fire resilient one. These characteristics would favorably affect the biologic community and would maintain water quality over the long run.

The measures to close roads, stabilize and revegetate landings, and implement the two watershed improvement projects identified within the project area will improve water quality and watershed conditions. These measures would also provide some reduction of sediment into the stream channels and further downstream in the watershed in the long term. Specific watershed improvement projects include stabilization of a waterhole and the rehabilitation of the spring adjacent to it, and restoration of the stream channel. The other project includes eliminating a water-drafting site with cement crossing on the Steely

Fork along with the portion of a road and parking area. Vehicle access to the drafting site and parking area would be restricted. This would reduce the compaction within the area, allow riparian species to establish within the openings, and enhance the riparian habitat for aquatic species. A non-system road which is experiencing runoff associated effects will be obliterated, with restoration associated hydrologic features.

Conclusion

The proposed Last Chance Fuels Reduction Project follows the Riparian Conservation Objectives (RCOs) and associated standards and guidelines applicable to the project. It is consistent with the Aquatic Management Strategy for the Sierran Forests, as required by the Sierra Nevada Forest Plan Amendment ROD.