
RIPARIAN CONSERVATION OBJECTIVE ANALYSIS^{1,2}

BACKGROUND INFORMATION

The Sierra Nevada Forest Plan Amendment (SNFPA), Final Supplemental Environmental Impact Statement Record of Decision (USDA Forest Service 2004a) describes management goals and strategies for aquatic, riparian, and meadow ecosystems.

The following elements are part of the goals of the Aquatic Management Strategy of the SNFPA:

- Water quality.
- Species viability.
- Plant and animal community diversity.
- Special habitats.
- Watershed connectivity.
- Floodplains and water tables.
- Watershed condition.
- Stream banks and shorelines.

The aquatic, riparian, and meadow ecosystem strategy has the following key elements:

- A description of desired conditions for aquatic, riparian, and meadow habitats developed from the AMS goals;
- A set of land allocations, specifically riparian conservation areas and critical aquatic refuges, that delineate aquatic, riparian, and meadow habitats, which are to be managed consistent with the following Riparian Conservation Objectives (RCOs) and associated Standards and Guidelines;
- An adaptive management program that includes monitoring and research activities specifically aimed at assessing effects of management activities on the willow flycatcher and Yosemite toad; and
- The use of landscape analysis as a tool for assessing existing uses and identifying restoration and enhancement projects.

In order to achieve the goals and elements described above, the SNFPA Record of Decision (ROD) requires that a site-specific analysis be conducted in order to determine the type and extent of activities that can occur within Riparian Conservation Areas (RCAs) adjacent to aquatic features (Table 1). Specifically, the ROD contains six Riparian Conservation Objectives (RCOs) and one or more associated Standards and Guidelines that must be met for activities within RCAs.

The assumptions that are described in the sections *Hydrology and Aquatic Resources* and *Aquatic Wildlife* of the Environmental Impact Statement also apply to this analysis of Riparian Conservation Objectives (RCOs).

¹ Completed by Erik Holst, Fisheries Biologist and Steve Markman, Hydrologist, Eldorado National Forest. Guidance was provided the Regional Office of the Forest Service (USFS Region 5) in February 2008.

² Riparian Conservation Areas (RCAs) are designated on page 42 of the SNFPROD (2004); Riparian Conservation Objectives (RCOs) are described on pages 33 and 34.

DETERMINATIONS SPECIFIC TO THIS RCO ANALYSIS

- Existing **ML-2** roads (maintenance level 2 roads) that will remain as **ML-2** roads under the action alternatives (Alternatives B, Modified B, C, D, and E) were not included in the RCO analysis. This is because existing **ML-2** roads that remain as **ML-2** roads will not be subjected to new management activities or a new type of use (i.e. the management and type of use will not change as a result of the action alternatives).
- Existing **ML-1** roads (maintenance level 1 roads) that will be upgraded to a higher maintenance level (ML-2, ML-3, etc.) under the action alternatives (Alternatives B, Modified B, C, D, and E) were included in the RCO analysis. This is because existing **ML-1** roads that are upgraded to a higher maintenance level will be subjected to new management activities and possibly a greater amount of use.

The above determinations are based on Standard and Guideline #92, which states “Evaluate new proposed management activities within CARs and RCAs during environmental analysis to determine consistency with the riparian conservation objectives at the project level and the AMS goals for the landscape.” Guidance for this determination was provided by the Regional Office of the Forest Service (USFS, Region 5) in February 2008.

Table 1. Riparian Conservation Areas (RCAs) adjacent to aquatic features as designated by the Sierra Nevada Forest Plan Amendment Record of Decision (SNFPROD) of 2004.

Aquatic feature	Riparian Conservation Area
Perennial stream.	300 feet on each side of the stream, measured from the bank full edge of the stream.
Seasonally flowing streams.	150 feet on each side of the stream, measured from the bank full edge of the stream.
Special aquatic features (includes lakes, wet meadows, bogs, fens, wetlands, vernal pools, and springs).	300 feet from the edge of the features or riparian vegetation, whichever width is greater.
Perennial streams with riparian conditions extending more than 150 feet from the edge of the streambank or seasonally flow streams extending more than 50 feet from the edge of the streambank.	300 feet from the edge of the features or riparian vegetation, whichever width is greater.
Streams in inner gorge.	Top of inner gorge. (The inner gorge is defined by stream adjacent slopes greater than 70 percent gradient.)

MEASURES TO DETERMINE CONSISTENCY WITH RIPARIAN CONSERVATION OBJECTIVES³

Objective #1: Ensure that identified beneficial uses for the water body are adequately protected. Identify the specific beneficial uses for the project area, water quality goals from the Regional Basin Plan, and the manner in which the standards and guidelines will protect the beneficial uses. (RCO #1 is linked to the following AMS goals: #1: Water Quality; #2: Species Viability; #7: Watershed Condition).

Criteria for establishing consistency:

Beneficial uses within the major rivers on the Eldorado National Forest (ENF), designated by the State (CVRWQCB 2006), have been identified in Table 3.

Areas that are known to exceed State standards are identified in Table 4.

Water quality standards that have the potential to be affected by this project are identified in Table 5.

Rationale: It is assumed that standards are met for all waterbodies with the following exceptions⁴:

- After storms for short periods of time, it is common to see elevated levels of floatable materials that are transported in surface water. Such floatable material changes the color, turbidity, and suspended sediment concentration of surface water. However, aquatic species can seek refuge in overflow channels, eddies, and pool bottoms. Additionally hydroelectric facilities trap floatable materials and those that affect operations are removed. Similarly, the effects to domestic water supplies may be offset by treatments of holding water to reduce turbidity by allowing suspended material to settle. Thus, there is no long-term impact to these beneficial uses of water.
- Chemicals that are applied to roads or roadways, or accidental spills on roadways, lead to occasional issues with other identified standards. However, no-treatment buffers surrounding aquatic features and Best Management Practices (e.g., Practice 5-8 Pesticide Application According to Label Directions and Applicable Legal Requirements) reduce the likelihood of contamination of waterbodies. As a result, beneficial uses of water are protected.
- Bacteria are a concern in areas where designated routes access dispersed campsites within RCAs. The potential for exceeding this standard is increased following holiday weekends and is generally of short duration (3-5 days) in specific localized areas.

Reference: Standard and Guidelines: 95, 96, 97, and 99.

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. (RCO #2 is linked to the following AMS Goals: #2: Species Viability; #3: Plant and Animal Community Diversity; #4: Special Habitats; #5: Watershed Connectivity; #6: Floodplains and Water Tables; #8: Streamflow Patterns and Sediment Regimes; #9: Streambanks and Shorelines).

³ Conclusions reached in this Riparian Conservation Objective analysis were based on data obtained from a number of sources; however, the majority of data sets were derived from GIS queries. Although the USDA Forest Service uses the most current and complete data available, data and product accuracy may vary based on differences in source accuracy, modeling or interpretation, and/or errors incurred while data sets are being created or revised.

⁴ Implementation and monitoring of BMPs are designed to control non-point source pollution. Random BMP evaluations from 1992 through 2005 show that BMP measures were effective 93 percent of the time and implemented 90 percent of the time (USDA Forest Service 2006).

Criteria for establishing consistency: Routes do not bisect or go through meadows.

Rationale: Motorized routes that bisect or go through sensitive aquatic features (such as meadows) have the potential to alter geomorphic and biological characteristics by:

- Disrupting the movement of surface water and groundwater through the aquatic feature.
- Increasing the amount of sediment delivered to the aquatic feature.
- Increasing the potential for erosional features (such as headcuts) within the aquatic feature. This in turn disrupts the movement of surface water and groundwater through the aquatic feature.
- Creating physical barriers to movement of herpetofauna and fish.

Reference: Standard and Guidelines: 100 and 102⁵.

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. (RCO #3 is linked to the following AMS goals: #2: Species Viability; #3: Plant and Animal Community Diversity).

Criteria for establishing consistency: No measure has been established.

Rationale: No measure is necessary. Under Eldorado National Forest Policy, the removal of hazard trees is subject to project level site-specific Riparian Conservation Objective analysis. This policy ensures that Objective #3 is met.

Reference: Standard and Guideline: 108

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. (RCO #4 is linked to the following AMS Goals: #2: Species Viability, #7: Watershed Condition).

Criteria for establishing consistency:

- Routes within CARS have been evaluated to insure consistency with standards and guidelines.
- Routes within CARS have been evaluated to determine consistency with riparian conservation objectives and the AMS goals for the landscape.
- Ensure that appropriate mitigation measures are enacted to (1) minimize the risk of activity-related sediment entering aquatic systems and (2) minimize impacts to habitat for aquatic- or riparian-dependent plant and animal species (Table A-10).

Rationale: Motorized routes within CARS have the potential to:

- Increase the amount of sediment delivered to aquatic systems.
- Alter channel morphology and substrate composition.

Reference: Standard and Guideline: 92

⁵ Riparian Conservation Objective analyses conducted on 32 stream reaches on the Eldorado National Forest in 2006 indicated that approximately 66 percent of the streambanks were unstable. Sediment delivery to aquatic features was noted in approximately 60 percent of the surveyed reaches. Similarly, 11 sites were evaluated using the Proper Functioning Condition (PFC) method of riparian-wetland condition rating between 2004 and 2006. One site was rated as properly functioning, five sites were rated as functioning at risk, and five sites were rated as non-functional.

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. (RCO #5 is linked to the following AMS goals: #1: Water Quality, #2 Species Viability, #3 Plant and Animal Community Diversity, #4 Special Habitats; #7: Watershed Condition; #9: Stream Banks and Shorelines).

Criteria, rationale, and reference are the same as for Objective #2.

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. (RCO # 6 is linked to all AMS goals).

Criteria for establishing consistency:

- Streams at high risk for adverse effects to aquatic habitat have been identified (Hydrology section of the OHV EIS).
- A consistency strategy for the Riparian Conservation Objectives has been developed to assure identification and implementation of restoration actions (Table 3).

Rationale: Roads in close proximity to streams have the potential to:

- Change stream characteristics such as pool depth, pool/riffle ratio, etc.
- Increase in the amount of sediment delivered to the channel, which in turn can degrade aquatic habitats and disrupt biological processes.
- Fragment habitats.

Reference: Standard and Guideline: 122

Table 2. Analysis of Riparian Conservation Objectives (RCOs) with respect each alternative.¹

Riparian Conservation Objective (RCO)	Background information and criteria	Alternative A (no action)	All action alternatives (Alternatives B, Modified B, C, D, and E)	Alternatives E and Modified B
<p>1 Ensure that identified beneficial uses for the water body are adequately protected. Identify the specific beneficial uses for the project area, water quality goals from the Regional Basin Plan, and the manner in which the standards and guidelines will protect the beneficial uses.</p>	<p>The primary pollutant of concern from vehicle use on unpaved roads and trails is sediment. Excessive amounts of sediment delivered to streams and other aquatic features can adversely affect all beneficial uses of water (Table 3) and several water quality standards (Table 5).</p>	<p><u>Not</u> likely to meet this RCO. There will be <u>no</u> reduction in the amount of sediment delivered to streams as a result of vehicle use on unpaved roads and trails. This is because Alternative A will not reduce the number and miles of perennial and seasonal streams that will be at high risk of adverse effects to aquatic habitat from unpaved roads. <i>(A more detailed discussion can be found in the Hydrology and Aquatic Wildlife Sections of the EIS.)</i></p>	<p>Likely to meet this RCO. All of the action alternatives should <u>reduce</u> the amount of sediment delivered to a number of streams to some degree. This is because all of the action alternatives reduce the number and miles of perennial and seasonal streams that that will be at high risk of adverse effects to aquatic habitat from unpaved roads and trails (Table 6). This helps to protect all of the beneficial uses of water in the ENF.</p>	<p>Likely to meet this RCO. Greater reduction in the amount of sediment delivered to streams than the other action alternatives because the number and miles of streams at high risk of adverse effects to aquatic habitat are less. Part of reason for this is the closure of ML-1 roads associated with streams at high risk under Alternatives E and Modified B (Table 9).</p>

Riparian Conservation Objective (RCO)	Background information and criteria	Alternative A (no action)	Alternatives B, C and D	Alternatives E and Modified B
<p>2</p> <p>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 streamflows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species.</p>	<p>Routes that go through special aquatic features disrupt the flow of surface water and ground water through the feature. Complete re-vegetation of the road is necessary in order to result in an aquatic feature that functions properly.</p>	<p><u>Not</u> likely meet this RCO.</p> <p>No change to the existing condition of special aquatic features. Routes through meadows will <u>not</u> be closed. Roads and trails that are elevating sediment delivery to aquatic features would remain open to public use.</p>	<p><u>Not</u> likely to meet this RCO.</p> <p>A number of ML-1 routes through meadows will <u>not</u> be closed. As a result, there will be no reduction in the amount sediment contributed to these meadows from unpaved roads and trails. An evaluation of each route that goes through one or more meadows is in the Project File.</p>	<p>Likely to meet this RCO.</p> <p>Under Alternative E, <u>all</u> routes through meadows will be closed. In the long-term, these routes will re-vegetate and the natural function of the meadow should return.</p> <p>Under Modified B, all ML-1 routes through meadows would be closed.</p>
Riparian Conservation Objective (RCO)	Background information and criteria	All action alternatives (Alternatives B, Modified B, C, D, and E)		
<p>3</p> <p>Ensure a renewable supply of large down logs that (1) can reach the stream channel and (2) provide suitable habitat within and adjacent to riparian conservation areas (RCAs).</p>	<p>Various laws, rules, and regulations specify that hazard tree felling is an appropriate activity to provide for public safety. However, large woody debris in channels and RCAs contributes to ecosystem vitality.</p>	<p>Likely to meet this RCO.</p> <p>Under Forest policy, the removal of hazardous trees in RCAs is subject to a site-specific RCO analysis. Although hazard trees will be felled for public safety and natural fall patterns will be altered to some degree, the RCO analysis prior to removal would ensure a renewable supply of large down logs to streams while providing suitable habitat in RCAs for wildlife, both aquatic and terrestrial.</p>		

Riparian Conservation Objective (RCO)	Background information and criteria	Alternative A (no action) and B	All action alternatives (Alternatives Modified B, C, D, and E)	Alternatives E and Modified B
<p>4 Ensure that management activities, including fuels reduction actions, within RCAs and critical aquatic refuges (CARs) enhance or maintain physical and biological characteristics associated with aquatic-and riparian-dependent species.</p>	<p>The primary pollutant of concern from vehicle use on unpaved roads is sediment. Excessive amounts of sediment delivered to streams and other aquatic features can adversely affect all beneficial uses of water (Table 5) and several water quality standards (Table 6).</p>	<p><u>Not</u> likely to meet this RCO.</p> <p>There will be <u>no</u> reduction in the amount of sediment delivered to streams as a result of vehicle use on unpaved roads and trails. This is because Alternative A will <u>not</u> reduce the number and miles of perennial and seasonal streams that that will be at high risk of adverse effects to aquatic habitat from unpaved roads and trails. <i>A more detailed discussion of this can be found in the Hydrology and Aquatic Wildlife Sections of the OHV EIS.</i></p>	<p>Likely to meet this RCO.</p> <p>All of the action alternatives should <u>reduce</u> the amount of sediment delivered to a number of streams. This is because all of the action alternatives reduce the number and miles of perennial and seasonal streams that that will be at high risk of adverse effects to aquatic habitat from unpaved roads and trails. This helps to protect all of the beneficial uses of water in the ENF. There will be no designation of routes in CARs.</p>	<p>Greater reduction in the amount of sediment delivered to streams than the other action alternatives because the number and miles of streams at high risk of adverse effects to aquatic habitat are less. There are two main reasons for this:</p> <p>The closure of routes that did not meet RCOs (Tables 7 & 8).</p> <p>The closure of ML-1 roads associated with streams at high risk under Alternatives E and Mod. B (Table 9).</p>

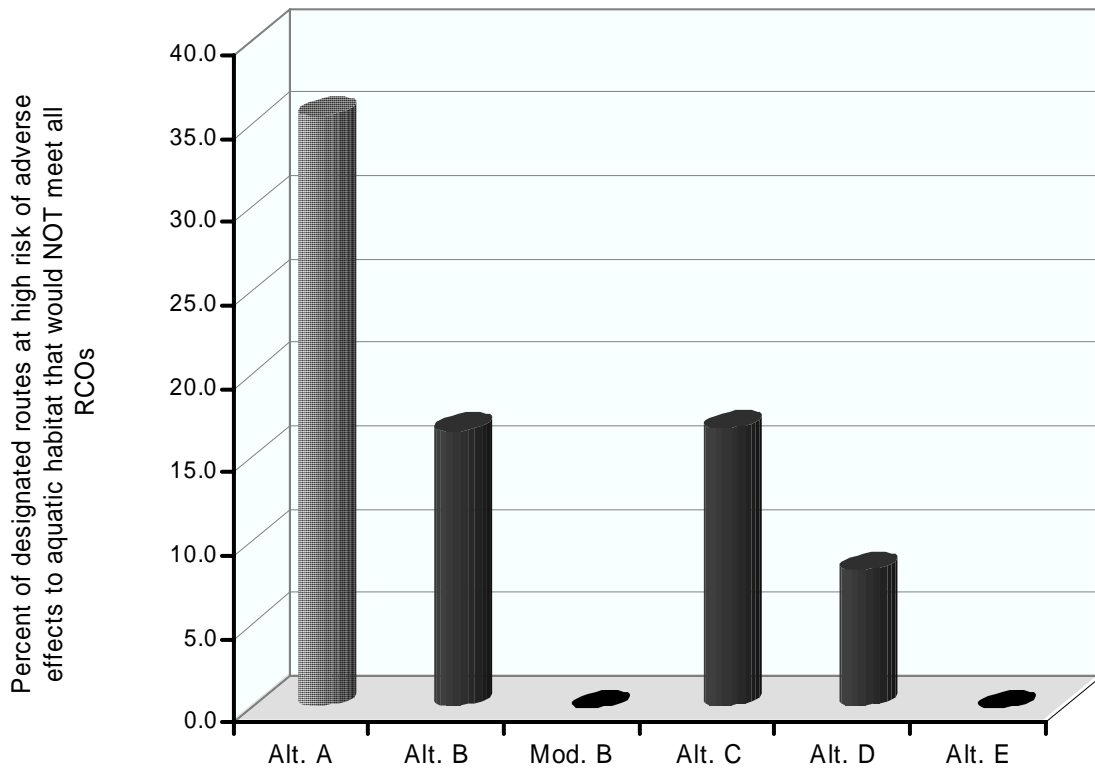
Riparian Conservation Objective (RCO)		Background information and criteria	Alternative A (no action)	Alternatives B, C, and D	Alternatives E and Modified B
5	Preserve, restore, or enhance special aquatic features, such as meadows, lakes, ponds, bogs, fens, and wetlands, to provide the ecological conditions and processes needed to recover or enhance the viability of species that rely on these areas.	Routes that go through special aquatic features disrupt the flow of surface water and ground water through the feature. Complete re-vegetation of the road is necessary in order to result in an aquatic feature that functions properly.	<u>Not</u> likely to meet this RCO. No change to the existing condition of special aquatic features. Routes through meadows will be <u>not</u> be closed	<u>Not</u> likely to meet this RCO. ML-1 routes through a number of meadows will <u>not</u> be closed. As a result, there will be no reduction in the amount sediment contributed to these meadows from unpaved roads and trails. An evaluation of each route that goes through one or more meadows is in the Project File.	Likely to meet this RCO. For Alternative E, all routes through meadows will be closed. In the long-term, these routes will re-vegetate and the natural function of the meadow should return. Under Modified B, all non-system and ML-1 routes through meadows would be closed. (See Tables 7 & 8).
Riparian Conservation Objective (RCO)		Background information and criteria	Alternative A (no action)	All action alternatives (Alternatives B, Modified B, C, D, and E)	
6	Identify and implement restoration activities to maintain ² , restore or enhance water quality and maintain, restore, or enhance habitat for riparian and aquatic species.	Areas with a high degree of soil compaction, lowered water tables, or areas that are actively downcutting can degrade aquatic and riparian habitats.	<u>Not</u> likely to meet this RCO. <u>No</u> restoration activities would be implemented.	Likely to meet this RCO. No stream specific restoration measures would be implemented. However, stream and stream segments at high risk of adverse effects to aquatic habitats from unpaved roads and trails have been identified for each alternative. Under the Monitoring Strategy described the EIS, these streams would be assessed for compliance with Riparian Conservation Objectives.	

¹ “Maintain” is defined as maintenance of habitat to support viable populations of native and desired non-native plant, invertebrate, and vertebrate riparian-dependent and aquatic species.

SUMMARY OF COMPLIANCE WITH RIPARIAN CONSERVATION OBJECTIVES

Alternative A does not benefit water quality and protect beneficial uses of water. As a result, Alternative A would not meet the Riparian Conservation Objectives (RCOs) contained in the Sierra Nevada Forest Plan Amendment (SNFPA) of 2004. All of the action alternatives (Alternatives B, Modified B, C, D, and E) should benefit water quality and protect beneficial uses of water. Alternatives E and Modified B would provide a greater benefit to water quality than the other action alternatives, and are expected to meet all of the RCOs and associated Standards and Guidelines contained in the SNFPA. Alternatives B, C, and D would likely not meet all of the RCOs for two reasons: 1) ML-1 roads (maintenance level 1 roads) would be designated through meadows, and 2) ML-1 roads associated with streams at a high risk of adverse effects to aquatic habitat would not be closed (Figure 1).

Figure 1. Percent of designated routes at high risk of adverse effects to aquatic habitat that do NOT meet all of the Riparian Conservation Objectives (RCOs).



The percent of designated routes at high risk of adverse effects to aquatic habitat that do NOT meet all of the RCOs is ZERO under Alternatives E and Modified B.

Table 3. Beneficial Uses of Water in the Eldorado National Forest.¹

SURFACE WATER BODIES ON THE ELDORADO NATIONAL FOREST AND BENEFICIAL USES OF WATER DESIGNATED BY STATE (1998)													
Surface Water Bodies	Hydro Unit No	Municipal and Domestic	Irrigation	Stock Watering	Power	Contact Recreation	Canoeing and Rafting	Non-contact Recreation	Warm Water Fisheries	Cold Water Fisheries	Warm Water Migration	Cold Water Spawning	Wildlife Habitat
MIDDLE FORK, SOURCE TO FOLSOM LAKE	514.4	E	E	E	E	E	E	E	P	E		E	E
DESOLATION VALLEY LAKES	514.4					E		E		E		E	E
SOUTH FORK AMERICAN R SOURCE TO PLACERVILLE	514.3	E	X	X	E	E	E	E	P	E		E	E
COSUMNES RIVER SOURCES TO NASHVILLE RESERVOIR (PROPOSED)	532	E	E	X		E	X	E		E		E	E
MOKELUMNE RIVER SOURCES TO PARDEE RESERVOIR 5	532.6	E	E	X	E	E	E	E	E	E	E	E	E
<i>E = existing beneficial use designated by state</i> <i>P = potential beneficial use designated by state</i> <i>X = forest existing ecognized beneficial use not yet designated by state</i>													

¹ State law defines beneficial uses of California's waters that may be protected against quality degradation to include (and not be limited to) "...domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves" (Water Code Section 13050[f]).

Table 4. Impaired waterbodies on or adjacent to the Eldorado National Forest.¹

<p><u>Mokelumne River</u> from Lower Bear River Reservoir to the North Fork Mokelumne River</p> <p>Listed as an impaired waterbody due to copper (believed to be from a natural source).</p> <p>At present strategy is to control the concentrations of copper through the modification and control of the flows below the dam.</p>
<p><u>Cosumnes River</u></p> <p>The entire river system is listed for the presence of exotic species.</p> <p>There is no plan in place at the present time for controlling the exotics in the Cosumnes River.</p> <p>High road densities allow vehicles to access more areas and contribute to the spread of exotic species.</p>
<p><u>South Fork American River</u> below Slab Creek Reservoir (downstream of the ENF)</p> <p>Listed for mercury based on samples found in fish tissues.</p> <p>Mercury is believed to be a by-product of historic mining practices.</p> <p>The state water board is in the early phases of developing a plan to address pollution by mercury.</p>

¹ State of California, Water Quality Control Board 2005

Table 5. State Water Quality Standards that are relevant to motorized routes. (Central Valley Region Water Quality Control Board Basin Plan 2006)

Category	Standard	Beneficial Uses Potentially Affected
Bacteria	Fecal coliform concentration shall not exceed a geometric mean of 200/100 ml (min. of 5 samples / 30-day period), nor more than 10 percent of samples (30-day period) exceed 400/100 ml.	Contact Recreation (REC-1)
Color	Water shall be free of discoloration that causes nuisance or adversely affects beneficial uses.	Domestic or municipal Contact Recreation Non-contact Recreation
Floating Material	Water shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.	Domestic or municipal Contact Recreation Non-contact Recreation Power
Oil and Grease	Waters shall not contain oils, greases, waxes, or other materials that causes nuisance, a visible film or coating on the surface or on objects in water, or otherwise adversely affect beneficial uses.	All
Total Dissolved Solids	Shall not exceed 125 mg/l (90 percentile).	Domestic or municipal Contact Recreation Aquatic organisms
Pesticides	Pesticide concentrations shall not: 1)exceed applicable antidegradation policies (see State Water Resources Control Board Resolution No. 68-16 and 40 C.F.R. Section131.12.); 2)exceed the lowest levels technically and economically achievable; 3)contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15 for domestic or municipal supply (MUN); or 4)contain concentrations of thiobencarb in excess of 1.0µg/l for waters designated for use as domestic or municipal supply (MUN). Use the most stringent objective if more than one applies.	Domestic or municipal Contact Recreation Aquatic organisms
Sediment	The suspended sediment load and discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.	All

Category	Standard		Beneficial Uses Potentially Affected
Settleable Materials	Waters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.		Domestic or municipal Power Aquatic organisms
Suspended Material	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.		All
Toxicity	All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.		Domestic or municipal Contact Recreation Aquatic organisms
Turbidity	Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in turbidity shall not exceed the following Nephelometric Turbidity Units (NTU)s:		All
	For natural turbidity between:	Increases shall not exceed	
	0 and 5 NTUs.	1 NTU	
	5 and 50 NTUs,	20 percent	
	50 and 100 NTUs	10 NTUs	
	Greater than 100 NTUs,	10 percent.	

Table 6. Streams at high risk of adverse effects to aquatic habitat for Alternatives A, Modified B, and E by drainage system^{1,2,3,4}.

Alder Creek							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
A	SFAR	HEADWATERS ALDER CREEK	S	10N98	0.10	0.06	100.0
A	SFAR	HEADWATERS ALDER CREEK	S	10N98B; 10N39	0.30	0.42	65.0
A	SFAR	HEADWATERS ALDER CREEK	S	10N85	0.30	0.75	45.0
A	SFAR	HEADWATERS ALDER CREEK	S	11N47	0.70	1.20	60.0
A	SFAR	HEADWATERS ALDER CREEK	S	1044A	0.60	1.40	43.0
A	SFAR	HEADWATERS ALDER CREEK	S	10N08	0.48	0.66	72.7
A	SFAR	HEADWATERS ALDER CREEK	S	10N85A	0.37	0.65	56.8
A	SFAR	HEADWATERS ALDER CREEK	S	10N39	0.31	0.60	51.2
A	SFAR	HEADWATERS ALDER CREEK	S	10N39A	0.44	0.97	45.4
A	SFAR	HEADWATERS ALDER CREEK	S	NSA Route	0.46	1.06	43.8
A	SFAR	HEADWATERS ALDER CREEK	S	10N44A	0.08	0.20	38.94
A	SFAR	HEADWATERS ALDER CREEK	S	NSA Route	0.25	0.66	37.8
A	SFAR	HEADWATERS ALDER CREEK	S	10N08B, 10N09A	0.27	0.78	34.2
A	SFAR	HEADWATERS	S	10N98	0.15	0.44	33.5

Alder Creek							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
		ALDER CREEK					
A	SFAR	LOWER ALDER CREEK	P	NSA Route	0.24	0.25	97.6
A	SFAR	LOWER ALDER CREEK	P	NSA Route	0.09	0.26	35.2
A	SFAR	LOWER ALDER CREEK	S	10N40J	0.39	1.14	33.9
E	SFAR	HEADWATERS ALDER CREEK	S	11N47	0.36	0.66	54.9
E	SFAR	HEADWATERS ALDER CREEK	S	10N39	0.31	0.60	51.2
E	SFAR	HEADWATERS ALDER CREEK	S	11N47	0.70	1.20	60.0
E	SFAR	HEADWATERS ALDER CREEK	S	11N46	0.16	0.50	31.9
E	SFAR	LOWER ALDER CREEK	S	10N40	0.51	1.38	37.3
E	SFAR	LOWER ALDER CREEK	P	11N46	0.19	0.54	35.4
Mod. B	SFAR	Alder Cr. - upstream of Light Canyon Cr.	P	11N46	0.24	0.80	0.3
Mod. B	SFAR	Light Canyon Cr.	S	10N40, 10N95	0.77	1.40	55.0
Mod. B	SFAR	Trib. of Alder Cr.	S	10N39F	0.31	0.60	51.2
Mod. B	SFAR	Trib. of Alder Creek	S	11N47	0.36	0.66	54.9
Mod.	SFAR	Trib. of North	S	10N08	0.48	0.66	72.7

Alder Creek							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
B		Creek					
Mod. B	SFAR	Trib. of North Creek	S	11N47	0.45	1.10	41.0
Mod. B	SFAR	Tributary of Alder Cr.	P	11N46	0.19	0.54	35.4

Camp Creek							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
A	COS	LOWER CAMP CREEK	S	NSA Route	0.40	0.48	82.8
A	COS	LOWER CAMP CREEK	S	NSA Route	0.08	0.13	59.6
A	COS	MIDDLE CAMP CREEK	S	10N60A	0.89	1.74	51.2
A	COS	MIDDLE CAMP CREEK	P	10N675, 10N59	1.80	3.20	56.0
A	COS	MIDDLE CAMP CREEK	S	10N06	0.37	0.85	43.1
A	COS	MIDDLE CAMP CREEK	S	NSA Route	0.25	0.57	43.0
A	COS	MIDDLE CAMP CREEK	P	10N60, 10N58A	1.35	3.79	35.5
A	COS	MIDDLE CAMP CREEK	S	10N88	0.08	0.23	34.7

Camp Creek							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
A	COS	UPPER CAMP CREEK	S	NSA Route	0.50	0.80	62.5
A	COS	UPPER CAMP CREEK	S	09N30Q	0.56	1.20	46.9
A	COS	UPPER CAMP CREEK	S	09N30U, 09N30T, 09NTW	0.50	1.20	41.7
A	COS	UPPER CAMP CREEK	S	09N36	0.20	0.48	41.1
A	COS	MIDDLE CAMP CREEK	S	10N59	0.14	0.42	32.8
A	COS	MIDDLE CAMP CREEK	S	10N59	0.13	0.34	37.4
A	COS	UPPER CAMP CREEK	P	10N75	0.30	0.60	50.0
A	COS	UPPER CAMP CREEK	S	10N38	0.21	0.53	39.0
E	COS	MIDDLE CAMP CREEK	S	10N58	0.43	0.92	46.0
E	COS	MIDDLE CAMP CREEK	S	10N06	0.37	0.85	43.11
E	COS	MIDDLE CAMP CREEK	S	10N59	0.13	0.34	37.4
E	COS	MIDDLE CAMP CREEK	S	10N59	0.14	0.42	32.8
E	COS	MIDDLE CAMP CREEK	P	10N75	0.30	0.70	42.8
E	COS	MIDDLE CAMP	P	10N59,	1.80	3.20	56.00

Camp Creek							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
		CREEK		10N65			
E	COS	UPPER CAMP CREEK	S	10N46	0.62	1.37	45.71
E	COS	UPPER CAMP CREEK	S	09N36	0.20	0.48	41.15
Mod. B	COS	Flows into Camp Cr.	S	10N46	0.63	1.37	45.7
Mod. B	COS	Trib. of Camp Cr.	S	10N38, 10N47, 10N47B	0.15	0.50	30.0
Mod. B	COS	Trib. Of Camp Cr.	S	10N38, 10N46	0.32	0.53	59.7
Mod. B	COS	Camp Cr.	S	09N30U, 09N30T, 09N30W	0.60	1.20	50.00
Mod. B	COS	Diamond Cr.	P	10N65, 10N59	1.80	3.20	56.00
Mod. B	COS	Trib. of Camp Cr.	S	09N36	0.20	0.48	41.1
Mod. B	COS	Trib. of Camp Cr.	S	10N06	0.37	0.85	43.1

Dogtown Creek (includes McKinney Cr., Middle Dry Cr.)							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
A	COS	DOGTOWN CREEK	S	14E25	0.44	0.69	63.3
A	COS	DOGTOWN CREEK	S	14E31	0.23	0.50	45.8
A	COS	DOGTOWN CREEK	S	NSA Route	0.10	0.25	39.2
A	COS	DOGTOWN CREEK	S	09N37, 09NY36	1.30	1.85	70.0
A	COS	DOGTOWN CREEK	P	14E31	1.00	1.60	62.5
A	COS	MCKINNEY CREEK	P	14E26	0.42	0.79	53.2
A	COS	MCKINNEY CREEK	P	09N91; 09n34B	2.40	4.20	57.0
A	COS	MCKINNEY CREEK	P	09N34C	1.09	2.08	52.1
A	COS	MCKINNEY CREEK	S	09N91, 09N72	0.13	0.34	38.6
A	COS	MIDDLE DRY CREEK	S	09N43, 09N38A	1.56	1.79	87.4
A	COS	MIDDLE DRY CREEK	S	09N38B, 09N38	1.20	2.20	54.5
A	COS	MIDDLE DRY CREEK	S	09N38, 14E26	1.30	1.90	68.0
A	COS	MIDDLE DRY CREEK	P	09N55, 09NY17	1.25	3.10	40.3
E	COS	DOGTOWN	P	14E31	0.50	1.60	31.0

Dogtown Creek (includes McKinney Cr., Middle Dry Cr.)							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
		CREEK					
E	COS	MCKINNEY CREEK	P	09N34C	1.09	2.08	52.1
E	COS	MCKINNEY CREEK	P	09N92	0.26	0.79	32.2
E	COS	MIDDLE DRY CREEK	S	09N38A	1.300	1.900	68.0
E	COS	MIDDLE DRY CREEK	S	09N38A	1.56	1.79	87.38
E	COS	MIDDLE DRY CREEK	P	09N55, 09NY17	1.25	3.10	40.30
Mod. B	COS	Dogtown Cr.	P	14E31	0.50	1.60	31.0
Mod. B	COS	Middle Dry Cr.	P	09N55, 09N55D, 09Y17	1.25	3.10	40.3
Mod. B	COS	Tributary of Dogtown Cr.	S	14E25	0.44	0.69	63.4
Mod. B	COS	Tributary of Dogtown Cr.	S	14E31	0.25	0.60	42.0
Mod. B	COS	Tributary of McKinney Cr.	P	09N34, 09N43C, 14E30	1.25	2.08	60.0
Mod. B	COS	Tributary of McKinney Cr.	P	09N91A, 09N92, 14E26	0.35	0.79	44.3
Mod. B	COS	Tributary of Middle Dry Cr.	S	09N38A	1.56	1.79	87.4
Mod.	COS	Tributary of	S	09N38A	1.30	1.90	68.0

Dogtown Creek (includes McKinney Cr., Middle Dry Cr.)							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
B		Middle Dry Cr.					
Mod. B	COS	Tributary of Middle Dry Cr.	P	0950, 14E26, 09N50B	1.40	2.75	51.0

North Fork Cosumnes River							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
A	COS	NORTH FORK COSUMNES RIVER-BEAR MEADOW CREEK	S	09N48	0.88	1.40	63.3
A	COS	NORTH FORK COSUMNES RIVER-BEAR MEADOW CREEK	S	10N82	0.18	0.47	37.6
A	COS	NORTH FORK COSUMNES RIVER-MIDDLE BUTTE	S	10N71B	0.43	0.77	56.2
A	COS	NORTH FORK COSUMNES RIVER-VAN HORN CREEK	S	09NY04	1.29	1.41	91.4
A	COS	NORTH FORK COSUMNES RIVER-VAN	S	09N74	0.98	1.12	87.4

North Fork Cosumnes River							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
		HORN CREEK					
A	COS	NORTH FORK COSUMNES RIVER-VAN HORN CREEK	S	09N29	1.37	1.58	86.9
A	COS	NORTH FORK COSUMNES RIVER-VAN HORN CREEK	S	09NY41, 09Y23	0.47	0.69	67.1
A	COS	NORTH FORK COSUMNES RIVER-VAN HORN CREEK	P	09NY27	0.80	1.34	60.0
A	COS	NORTH FORK COSUMNES RIVER-VAN HORN CREEK	S	09NY23D	0.44	0.75	58.9
A	COS	NORTH FORK COSUMNES RIVER-VAN HORN CREEK	S	09NY01	0.74	1.72	43.2
A	COS	NORTH FORK COSUMNES RIVER-VAN HORN CREEK	S	09NY20A	0.46	1.27	36.14
A	COS	NORTH FORK COSUMNES RIVER-VAN HORN CREEK	S	09NY27A	0.46	1.34	34.57
A	COS	NORTH FORK COSUMNES RIVER-VAN HORN CREEK	P	10N55Q, 09NY22	0.60	1.40	42.80

North Fork Cosumnes River							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
A	COS	UPPER NORTH FORK COSUMNES RIVER	S	09N97	1.13	1.79	63.07
A	COS	UPPER NORTH FORK COSUMNES RIVER	S	09NY25	0.24	0.39	61.19
A	COS	UPPER NORTH FORK COSUMNES RIVER	S	09N27B	0.90	1.60	56.39
A	COS	UPPER NORTH FORK COSUMNES RIVER	P	09NY33A	0.13	0.36	37.39
A	COS	UPPER NORTH FORK COSUMNES RIVER	P	09NY12	0.70	1.95	36.00
E	COS	NORTH FORK COSUMNES RIVER-BEAR MEADOW CREEK	S	10N82	0.18	0.47	37.67
E	COS	NORTH FORK COSUMNES RIVER-MIDDLE BUTTE	S	10N71B	0.43	0.77	56.25
E	COS	NORTH FORK COSUMNES RIVER-VAN HORN CREEK	S	10N46	0.50	1.41	35.80

North Fork Cosumnes River							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
E	COS	BIG CANYON CREEK	P	09N47	0.59	1.83	32.55
E	COS	UPPER NORTH FORK COSUMNES RIVER	P	09N30J	0.80	1.80	44.40
Mod. B	COS	Bear Meadow Cr.	S	09N48, 09N93	1.00	1.50	67.0
Mod. B	COS	Trib. of North Fork Cosumnes R.	S	10N46	0.53	1.50	35.0
Mod. B	COS	Trib. of North Fork Cosumnes R.	S	10N71B	0.43	0.77	56.3
Mod. B	COS	Trib. of North Fork Cosumnes R.	S	09N67, 09Ny33, 09NY33B, 09NY34, 09N67	0.97	2.11	46.1
Mod. B	COS	Trib. of North Fork Cosumnes R.	S	10N82	0.18	0.47	37.67
Mod. B	COS	Trib. of North Fork Cosumnes R.	P	09N30J	0.80	1.80	44.40
Mod. B	COS	Trib. of North Fork Cosumnes R.	P	09N47	0.55	1.30	42.0
Mod. B	COS	Van Horn Cr.	P	10N55Q, 09NY22	0.60	1.40	42.8

Silver Fork American River (includes all tributaries, Caples Creek, Caples Lake, Silver Lake)							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
A	SFAR	BARK SHANTY CANYON	S	11N23L, 11Ny31	0.33	0.75	44.2
A	SFAR	CAPLES CREEK	S	1.70E+52	0.23	0.53	42.4
A	SFAR	CAPLES LAKE	S	ALP-122	0.13	0.16	78.4
A	SFAR	CAPLES LAKE	S	ALP-122	0.37	0.98	38.2
A	SFAR	MULE CANYON	S	NSA Route	0.82	2.04	39.9
A	SFAR	SHERMAN CANYON	S	09N10	0.64	1.47	43.5
A	SFAR	SHERMAN CANYON	S	09N12A	0.29	0.82	35.9
A	SFAR	SILVER FORK AMERICAN RIVER-GIRARD CREEK	S	10N27B	0.94	0.92	100.0
A	SFAR	SILVER FORK AMERICAN RIVER-GIRARD CREEK	S	10NY19	0.11	0.20	53.2
A	SFAR	SILVER FORK AMERICAN RIVER-GIRARD CREEK	S	NSA Route	0.39	0.79	48.94
A	SFAR	SILVER FORK AMERICAN RIVER-GIRARD CREEK	S	10N29D	0.17	0.21	80.1
A	SFAR	SILVER FORK AMERICAN RIVER-GIRARD	S	10N28F	0.26	0.70	36.5

Silver Fork American River (includes all tributaries, Caples Creek, Caples Lake, Silver Lake)							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
		CREEK					
A	SFAR	SILVER FORK AMERICAN RIVER-GIRARD CREEK	S	NSA Route	0.42	1.27	33.4
A	SFAR	SILVER FORK AMERICAN RIVER-SILVER LAKE	P	1.70E+20	0.74	1.55	47.5
A	SFAR	Lower Siilver Fork American River (Middle Cr.)	P	11N18, 11N18C1	0.66	2.20	30.0
A	SFAR	LONG CANYON	S	10N21	0.54	0.82	65.82
A	SFAR	LONG CANYON	S	10NY04	0.80	1.50	53.3
A	SFAR	LONG CANYON	S	11N23G; 11N23F	0.50	1.40	35.7
A	SFAR	SILVER FORK AMERICAN RIVER-SILVER LAKE	P	09N08	0.24	0.51	46.0
E	SFAR	SHERMAN CANYON	S	09N10	0.64	1.47	43.5
E	SFAR	SILVER FORK AMERICAN RIVER-GIRARD CREEK	S	10N34	0.82	2.65	30.9
Mod.	SFAR	Girard Creek	S	10N27,	1.20	3.00	40.0

Silver Fork American River (includes all tributaries, Caples Creek, Caples Lake, Silver Lake)							
Alt.	Drainage basin	Name of HUC7 Watershed	Stream type	Unpaved roads within 200 ft. of stream	Length of unpaved road (miles)	Total length of the entire stream (miles)	Percent of stream length with roads less than 200 feet from stream
B				10N34			
Mod. B	SFAR	Trib. of Silver Fork American R.	S	09N10, 0910F	0.64	1.47	43.5
Mod. B	SFAR	Trib. of Silver Fork American R.	S	10N21	0.54	0.82	65.8
Mod. B	SFAR	Trib. Of Girard Cr.	S	10N27	0.94	1.22	77.2
Mod. B	SFAR	Tributary of Silver Fork American R.	S	10NY04	0.80	2.20	37.0
Mod. B	SFAR	Tributary of Silver Lake	P	17E19	0.74	1.55	47.5
Mod. B	SFAR	Middle Cr.	P	11N18	0.66	2.20	30.0

¹ High risk = more than one-third of the length of the stream is bordered by unpaved roads that are less than 200 ft. from the stream.

² COS = Cosumnes River; SFAR = South Fork American River

³ P = perennial stream; S = seasonal stream.

⁴ This analysis includes all unpaved roads and trails for all maintenance levels.

Table 7. Analysis of system routes through meadows for Alternatives E and Modified B.¹ DND = Do Not Designate.

	Route Number for NFS roads	Decision for Alt. E	Decision for Mod. B	Current ML	ML after Mod. B	No. of meadows bisected by route	No. of meadows bordered by route	Risk of affecting meadow hydrology	Comments
1	08N23B	DND	Designate	ML-2	ML-2	1		1	Crosses Prothro Creek.
2	08N35	DND	Designate	ML-2	ML-2		1	3	
3	08N05L	DND	DND	ML-2	ML-2	1		3	
4	09N01	DND	Designate	ML-2	ML-2	1	1	1	
5	09N03	DND	DND	ML-2	ML-2	1		1	Indian Valley
6	09N04	DND	Designate	4WD trail	4WD trail	1	1	1	Meadow borders Bear R. and Allen Camp.
7	09N08	DND	Designate	ML-2	ML-2	1		1	
8	09N12	DND	DND			1		1	Spicer Meadow.
9	09N15	DND	Designate	ML-2	ML-2		1	2	
10	09N54	DND	Designate	ML-2	ML-2			3	Borders one meadow on private land.
11	09N82	DND	Designate	4WD trail	4WD trail	6	4	1	Includes Upper Pardoe Camp and Long Valley.
12	09N83	DND	Designate	4WD trail	4WD trail	3		1	Includes Clover Valley.
13	09N95	DND	Designate	ML-2	ML-2		1	2	
14	10N01	DND	Designate	DND	ML-2	3	2	1	Between highway 88 and Woods Lake.

	Route Number for NFS roads	Decision for Alt. E	Decision for Mod. B	Current ML	ML after Mod. B	No. of meadows bisected by route	No. of meadows bordered by route	Risk of affecting meadow hydrology	Comments
15	10N03	DND	Designate	ML-2	ML-2			1	Bisects one meadow on private land.
16	10N06	DND	Designate	ML-2	ML-2	1		1	
17	10N13	DND	Designate	ML-2	ML-2	2	1	1	Schneider Camp Meadow
18	10N14	DND	Designate	ML-2	ML-2	1		1	At Negro Flat.
19	10N14B	DND	DND	ML-2	ML-2	1		1	Cody Meadow
20	10N21	DND	Designate	4WD trail	4WD trail	3		1	
21	10N26	DND	Designate	ML-2	ML-2	1		1	
22	10N32	DND	Designate	ML-2	ML-2	1		1	
23	10N98	DND	Designate	ML-2	ML-2	1	1	1	
24	10NY04	DND	Designate	ML-2	ML-2	1		1	
25	10NY05	DND	Designate	ML-2	ML-2	2		1	
26	10N1Y06	DND	Designate	ML-2	ML-2	1	1	1	
27	11N09A	DND	Designate	ML-2	ML-2				Meadows are ski runs at Sierra-at-Tahoe ski resort.
28	11N22	DND	Designate	ML-2	ML-2		1	3	Borders Strawberry Canyon Meadow.
29	11N23F	DND	Designate	4WD trail	4WD trail	1		1	

	Route Number for NFS roads	Decision for Alt. E	Decision for Mod. B	Current ML	ML after Mod. B	No. of meadows bisected by route	No. of meadows bordered by route	Risk of affecting meadow hydrology	Comments
30	11N23P	DND	DND	ML-1	MIL-1	1		1	
31	11N26F	DND	Designate	4WD trail	4WD trail	3	2	1	
32	11N63	DND	DND	ML-2	ML-2	1		1	
33	11N64	DND	DND	ML-3	ML-3		1	1	
34	11N70	DND	Designate	ML-2	ML-2			1	Bisects one meadow on private land.
35	11NY32	DND	Designate	ML-2	ML-2		1	1	
36	12NY06	DND	Designate	ML-2	ML-2	1		1	
37	12NY15	DND	Designate	ML-2	ML-2	1		1	
38	13N24	DND	Designate	ML-2	ML-2	1		1	
39	13N72A	DND	DND	ML-2	ML-2		1	2	
40	14N05	DND	Designate	ML-2	ML-2	3	3	1	
41	14N27	DND	Designate	ML-2	ML-2	2	3	1	
42	14N39	DND	Designate	ML-2	ML-2	3	3	1	Miller Meadow.
43	14N58	DND	Designate	ML-2	ML-2	2	1	1	
44	17E12	DND	Designate	NFS trail	NFS trail	3		1	
45	17E16	DND	Designate	NFS trail	NFS trail		1	3	

	Route Number for NFS roads	Decision for Alt. E	Decision for Mod. B	Current ML	ML after Mod. B	No. of meadows bisected by route	No. of meadows bordered by route	Risk of affecting meadow hydrology	Comments
46	17E17	DND	Designate	NFS trail	NFS trail	2		1	
47	17E19	DND	Designate	NFS trail	NFS trail	5		1	
48	17E21	DND	Designate	NFS trail	NFS trail	2		1	
49	17E24	DND	Designate	NFS trail	NFS trail	6		1	
50	17E28	DND	Designate	NFS trail	NFS trail	7		1	
51	17E51	DND	DND	NFS trail	NFS trail	1		1	Jake Schnieder Meadow.
Number of meadows affected						37	23		
1	NSR1013-A	DND	DND	NS route		1	2		Short route into dispersed camping area.
2	NSR1014-AB	DND	DND	NS route		1	1		
3	NSR1439-CA	DND	DND	NS route		1	1		For ~280 m, route parallels shoreline with a maximum distance from the shore of 13 m.
Number of meadows affected						3	3		

Risk category

1 = Route likely to be adversely affecting meadow hydrology.

2 = Route unlikely to be substantially affecting meadow hydrology.

3 = Insufficient information to determine potential affects.

Table 8. Analysis of non-system routes within one site-potential tree height of seasonal and perennial stream channels by alternative.

Route ¹	Stream type ²	Route crosses channel ?	Route parallels channel?	Number of channels affected	Consistent with RCOs	Comments ³	Alt B	Mod B	Alt C	Alt D	Alt E
13N22U	P	No	Yes	1	Yes	Route is within Tells Cr RCA - NEPA for route completed circa 2000.	Designate	Designate	Designate	Designate	Designate
NSA0914M-A	S	Yes	Yes	1	No	Route parallels and then crosses an unnamed channel.	Designate	Not Designated	Not Designated	Not Designated	Not Designated
NSA0914M-B	P	No	No	1	No	Within the RCA.	Designate	Not Designated	Designate	Designate	Not Designated
NSA0973-A	P	Yes	Yes	4	No	Route crosses an unnamed tributary to Dogtown Creek and then parallels Dogtown Creek within its RCA before crossing an unnamed seasonal tributary to Dogtown Creek; Road 9N73 lies between NSA0973-A and Dogtown Creek (ref: Caldor Mastication).	Designate	Not Designated	Designate	Designate	Not Designated
	P						Designate	Not Designated	Designate	Designate	Not Designated
	S	Designate	Not Designated				Designate	Designate	Not Designated		
	S	Designate	Not Designated				Designate	Designate	Not Designated		
NSA09Y12-A	S	No	No	1	Yes	Route is within 61 m of an unnamed seasonal channel.	Designate	Designate	Designate	Designate	Designate
NSA1025-A	P	Yes	No	2	No	Route crosses Long Canyon and is within 61 m of an unnamed seasonal channel. Route also bisects a meadow.	Designate	Not Designated	Not Designated	Designate	Not Designated
	S	No	No				Designate	Not Designated	Not Designated	Designate	Not Designated
	P						Designate	Not Designated	Not Designated	Designate	Not Designated
NSA1112-A	S	Yes	Yes	2	No	Route segments cross 2 channels 4 times (RCO analysis completed for Hey Joe).	Designate	Not Designated	Not Designated	Designate	Not Designated
	S						Designate	Not Designated	Not Designated	Designate	Not Designated
	S						Designate	Not Designated	Not Designated	Designate	Not Designated
NSA1112-AA	S	Yes	No	1	No	Route crosses an unnamed seasonal channel (RCO analysis completed for Hey Joe).	Designate	Not Designated	Not Designated	Designate	Designate
NSA1112-B	S	No	No	1	Yes	Route is within 61 m of channel.	Designate	Designate	Not Designated	Designate	Designate
NSA1140-A	P	No	No	1	No	Entire route is within the RCA of a perennial channel; max distance ~	Designate	Not Designated	Not Designated	Designate	Not Designated

Route ¹	Stream type ²	Route crosses channel ?	Route parallels channel?	Number of channels affected	Consistent with RCOs	Comments ³	Alt B	Mod B	Alt C	Alt D	Alt E
						60 m / min distance ~13 m.					
NSA1146-A	P	No	No	2	No	Entire route is within the RCA of Alder Creek; segments of the route are within 61 m of an unnamed seasonal tributary to Alder Creek (ref: Alder Fuels Project RCO). Issue with Alder Creek.	Designate	Not Designated	Designate	Designate	Not Designated
	S						Designate	Designate	Designate	Designate	
	P						Designate	Not Designated	Designate	Designate	Not Designated
	S						Designate	Not Designated	Designate	Designate	Not Designated
NSA1146-AA	P	No	No	2	No	Entire route is within the RCA of Alder Creek (ref: Alder Fuels Project RCO) Issue with Alder Creek.	Designate	Not Designated	Designate	Designate	Not Designated
	P						Designate	Not Designated	Designate	Designate	Not Designated
	S						Designate	Not Designated	Designate	Designate	Not Designated
NSA1234-A	S	Yes	Yes	1	No	Route crosses a seasonal channel.	Designate	Not Designated	Not Designated	Designate	Not Designated
NSA1408A-A	P	Yes	Yes	2	No	Route crosses 2 perennial channels.	Designate	Not Designated	Not Designated	Designate	Not Designated
NSR0803-A	P	No	No	2	No	Route crosses 1 seasonal channel, clips a meadow, and enters RCA of a perennial channel. Route has low use; associated dispersed camping is moderate to high (J Walker 7-18-2007).	Designate	Not Designated	Designate	Designate	Not Designated
	S	Yes	Yes				Designate	Not Designated	Designate	Designate	Not Designated
NSR0803-B	P	No	Yes	1	No	Route parallels perennial channel at a distance of ~55 m; the RCA is 91 m	Designate	Not Designated	Designate	Designate	Not Designated
NSR0821-B	P	Yes	Yes	1	No	Entire route is within Sugar Pine Creek RCA; route crosses Sugar Pine Creek	Designate	Not Designated	Designate	Designate	Not Designated
NSR0821-BA	P	Yes	No	1	No	Route Crosses Sugar Pine Creek; route overgrown (J Walker 7-18-2007).	Designate	Not Designated	Designate	Designate	Not Designated
NSR0850-A	P	No	Yes	1	Unknown	Entire route is within Bear River RCA	Designate	Not Designated	Not Designated	Not Designated	Not Designated
NSR0850-B	P	No	Yes	1	Unknown	Entire route is within Bear River RCA; however, canal lies between	Designate	Not Designated	Not Designated	Not Designated	Not Designated

Route ¹	Stream type ²	Route crosses channel ?	Route parallels channel?	Number of channels affected	Consistent with RCOs	Comments ³	Alt B	Mod B	Alt C	Alt D	Alt E
						route and river.					
NSR0930-C	P	No	No	2	Yes	Route is an Agency constructed parking area; NEPA completed	Designate	Designate	Designate	Designate	Designate
	S						Designate	Designate	Designate	Designate	Designate
	P						Designate	Designate	Designate	Designate	Designate
	S						Designate	Designate	Designate	Designate	Designate
NSR0930-K	P	No	Yes	1	Yes	Entire route lies within NF Cosumnes River RCA; enters meadow.	Designate	Designate	Designate	Designate	Designate
NSR0930-L	P	No	No	2	Yes	Route is an Agency constructed parking area; NEPA completed.	Designate	Designate	Designate	Designate	Designate
	P						Designate	Designate	Designate	Designate	Designate
	S						Designate	Designate	Designate	Designate	Designate
NSR0930L-A	P						Designate	Designate	Designate	Designate	Designate
	S						Designate	Designate	Designate	Designate	Designate
NSR0930-N	P	No	No	1	Unknown	Terminus of route is within ~25 m of NF Cosumnes River; entire route within RCA.	Designate	Not Designated	Designate	Designate	Not Designated
NSR0938-A	P	No	No	1	Unknown	Route mainly outside of RCA; terminus within ~40 m of channel	Designate	Not Designated	Designate	Designate	Not Designated
NSR0983-A	P	No	Yes	1	No	Route parallels Blue Creek and clips a portion of Clover Valley Meadow.	Designate	Not Designated	Not Designated	Designate	Not Designated
NSR0983-B	P	No	No	1	No	Route within Deer Creek RCA and clips a portion of Deer Creek Meadow	Designate	Not Designated	Not Designated	Designate	Not Designated
	P						Designate	Not Designated	Not Designated	Designate	Not Designated
NSR0983-C	P	No	No	1	No	Much of route within RCA of Deer Creek; terminus within ~5 m of channel.	Designate	Not Designated	Not Designated	Designate	Not Designated
	P						Designate	Not Designated	Not Designated	Designate	Not Designated
NSR1013-A	S	No	No	1	No	Route is within Schneider Camp Meadow and parallels the associated stream channel (PFC completed - vehicle use identified as contributing to Functioning at Risk rating).	Designate	Not Designated	Not Designated	Designate	Not Designated
NSR1046-C	S	No	No	1	Yes	Route is generally outside the RCA but within 61 m of channel.	Designate	Designate	Designate	Designate	Designate
NSR1109A-	P	No	No	1	Yes	Agency constructed trailhead;	Designate	Designate	Designate	Designate	Not

Route ¹	Stream type ²	Route crosses channel ?	Route parallels channel?	Number of channels affected	Consistent with RCOs	Comments ³	Alt B	Mod B	Alt C	Alt D	Alt E
A						NEPA completed.					Designated
NSR1135-A	S	No	No	1	No	Within the RCA.	Designate	Not Designated	Not Designated	Designate	Not Designated
NSR1136A-A	S	No	No	1	Yes	Terminus of route within ~15-20 m of a seasonal channel, but ends at road 11N36A before intersecting channel.	Designate	Not Designated	Not Designated	Not Designated	Not Designated
NSR1198-A	P	No	No	1	No	Route is within the RCA of South Fork Silver Creek.	Designate	Not Designated	Designate	Designate	Not Designated
NSR1199A-A	S	No	Yes	1	Yes	Entire route is within 61 m of channels; at its closest point which is the intersection with SR 11N34, route is ~20 m from channel.	Designate	Designate	Not Designated	Designate	Designate
NSR1230D-A	P	No	No	1	Yes	Route to boat ramp; boat ramp covered by NEPA.	Designate	Designate	Designate	Designate	Designate
NSR1232-F	P	No	Yes	1	Yes	Southern segment of route is within RCA of Big Silver Creek (Millionaire Camp - NEPA completed).	Designate	Designate	Designate	Designate	Designate
	P						Designate	Designate	Designate	Designate	Designate
	S						Designate	Designate	Designate	Designate	Designate
NSR1408-A	P	No	Yes	1	Yes	The southern end of route is <50 m from the Rubicon River; most of route is >100 m from channel (J F-K photo site).	Designate	Designate	Designate	Designate	Designate
NSR1409-B	P	No	No	2	No	Route is mostly within the RCA of Long Canyon.	Designate	Not Designated	Not Designated	Designate	Not Designated
	P						Designate	Not Designated	Not Designated	Designate	Not Designated
	S						Designate	Not Designated	Not Designated	Designate	Not Designated
NSRALP-114-A	P	Yes	Yes	1	No	Route crosses an unnamed channel associated with Little Indian Valley and is within the CAR	Designate	Not Designated	Not Designated	Not Designated	Not Designated
	S						Designate	Not Designated	Not Designated	Not Designated	Not Designated
NSRALP-114-AA	S	No	No	1	No	Route is within the RCA of an unnamed channel associated with Little Indian Valley.	Designate	Not Designated	Not Designated	Not Designated	Not Designated
NSRALP-122-A	P	No	No	2	Yes	Loop route is within the RCA of channel. Woods Lake Parking	Designate	Designate	Designate	Designate	Designate

Route ¹	Stream type ²	Route crosses channel ?	Route parallels channel?	Number of channels affected	Consistent with RCOs	Comments ³	Alt B	Mod B	Alt C	Alt D	Alt E
						area (NEPA completed)					
NST1640-A	S	Yes	No	1	No	Route crosses an unnamed seasonal channel.	Designate	Not Designated	Designate	Designate	Not Designated
NST1640-D	S	No	No	1	No	Over 0.1 mi of route within 61 m of channel.	Designate	Not Designated	Not Designated	Designate	Not Designated
NST1724-B	S	Yes	No	1	Yes	Route Crosses an Unnamed seasonal channel.	Designate	Designate	Designate	Designate	Designate
Unnamed	S	No	Yes	1	No	Route within RCA of Negro Flat Meadow.	Not Designated	Not Designated	Not Designated	Designate	Not Designated

¹ Seventy-three route segments of 47 unique routes were identified as having a high likelihood of adversely affecting 32 seasonal and 41 perennial stream segments.

² P = perennial channel; S = seasonal channel. ³ All non-system routes that cross channels were determined to be inconsistent with RCO #2 and #4.

Table 9. Decisions on maintenance level 1 roads (ML-1 roads) associated with streams at high risk of adverse effects to aquatic habitat for Modified B.

Alt	Basin	Route	Current maintenance level	Maintenance level for Modified B	Route miles assoc. with streams at high risk	Stream miles at high risk	Total route length (miles)	Stream name and type	Crosses channel	Number of channels affected	Parallels channel	Meets RCOs	Comments	Decision on Feb. 27, 2008
Mod. B	COS	09N55 D	1 - BASIC CUSTODIAL CARE (CLOSED)	NFS Trail: Open to Motorcycles Only	0.30	3.10	0.35	Middle Dry Cr. (perennial)	Yes	1	Yes	No	Parallels and crosses the stream of Middle Dry Cr.	Do not Designate
Mod. B	COS	09N86 A	1 - BASIC CUSTODIAL CARE (CLOSED)	NFS ML-2 Road: Open to All Street-Legal and Greensticker Vehicle	0.39	0.54	0.34	Salt Rock Creek perennial)	Yes	2	Yes	No	Parallels and crosses the perennial stream of Salt Rock Creek.	Do not Designate
Mod. B	COS	09NY2 2	1 - BASIC CUSTODIAL CARE (CLOSED)	NFS ML-2 Road: Open to All Street-Legal and Greensticker Vehicle	0.60	1.40	2.19	Van Horn Creek (perennial)	No	1	Yes	No	Parallels 1.4 miles of stream in poor condition according to field survey in summer 2007.	Improve road as part of Marshall Mine Project
Mod. B	COS	09NY3 3B	1 - BASIC CUSTODIAL CARE (CLOSED)	NFS ML-2 Road: Open to All Street-Legal and Greensticker Vehicle	0.30	2.11	0.24	Trib. of North Fork Cosumnes R. (seas.)	No	1	Yes	No	Entire road parallels intermittent stream.	Do not designate

Alt	Basin	Route	Current maintenance level	Maintenance level for Modified B	Route miles assoc. with streams at high risk	Stream miles at high risk	Total route length (miles)	Stream name and type	Crosses channel	Number of channels affected	Parallels channel	Meets RCOs	Comments	Decision on Feb. 27, 2008
Mod. B	COS	09NY34	1 - BASIC CUSTODIAL CARE (CLOSED)	NFS ML-2 Road: Open to All Street-Legal and Greensticker Vehicle	0.20		1.62	Trib. of North Fork Cosumnes River (seasonal)	Yes	1	No	No	Crosses intermittent stream and borders a large portion of one meadow.	Do not designate a portion of the road
Mod. B	SFAR	11N34	1 - BASIC CUSTODIAL CARE (CLOSED)	NFS ML-2 Road: Open to Street-Legal Vehicles Only	0.10	0.28	1.70	Tributary Silver Fork American R. (seas.)	Yes	1	No	No	Crosses one intermittent channel and bisects one meadow.	Do not designate a portion of the road.
Mod. B	SFAR	11N36A	1 - BASIC CUSTODIAL CARE (CLOSED)	NFS ML-2 Road: Open to All Street-Legal and Greensticker Vehicle	0.78	1.20	1.43	Trib. Of Cody Cr. (seasonal)	No	1	Yes	No	Parallels a large portion of one seasonal stream and borders one meadow.	Do not designate
Mod. B	SFAR	11N39	1 - BASIC CUSTODIAL CARE (CLOSED)	NFS ML-2 Road: Open to All Street-Legal and Greensticker Vehicle	0.40	1.50	1.40	Tributary of Lower Jones Fork Silver Cr. (seasonal)	Yes	1	Yes	No	Crosses and parallels a large portion of one seasonal stream.	Do not designate 1 crossing.

Alt	Basin	Route	Current maintenance level	Maintenance level for Modified B	Route miles assoc. with streams at high risk	Stream miles at high risk	Total route length (miles)	Stream name and type	Crosses channel	Number of channels affected	Parallels channel	Meets RCOs	Comments	Decision on Feb. 27, 2008
Mod. B	NFAR	13N24	1 - BASIC CUSTODIAL CARE (CLOSED)	NFS ML-2 Road: Open to All Street-Legal and Greensticker Vehicle	1.0	1.5	2.22	Charles Creek (tributary of Deer Creek) (perennial)	Yes	1	Yes	No	Parallels a large portion of Charles Creek.	Error in database . Change to ML-2 road.
Mod. B	NFAR	13N77	1 - BASIC CUSTODIAL CARE (CLOSED)	NFS ML-2 Road: Open to All Street-Legal and Greensticker Vehicle	1.00	1.50	2.13	Charles Creek (tributary of Deer Cr.) (perennial)	Yes	1	Yes	No	Parallels a large portion of Charles Creek.	Error in database . Change to ML-2 road.