

NOTE: This is a DRAFT THP and substantial revisions will likely occur prior to submittal.

FOR ADMIN. USE ONLY
Amendments-date & S or M

TIMBER HARVESTING PLAN

FOR ADMIN. USE ONLY

STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY
AND FIRE PROTECTION
RM-63 (01-00)

THP No. _____

Dates Rec'd _____

- 1. _____ 7. _____
- 2. _____ 8. _____
- 3. _____ 9. _____
- 4. _____ 10. _____
- 5. _____ 11. _____
- 6. _____ 12. _____

THP Name: **Dunlap North 2009**

Date Filed _____

(In the CDF FPS, this is "THP Description")

Date Approved _____

If this is a Modified THP, check box: []

Date Expires _____

**Water Quality Erosion Control Plan
Complying under R1-2004-0030
See Section V**

Extensions 1) [] 2) []

This Timber Harvesting Plan (THP) form, when properly completed, is designed to comply with the Forest Practice Act (FPA) and Board of Forestry and Fire Protection rules. See separate instructions for information on completing this form. NOTE: The form must be printed legibly in ink or typewritten. The THP is divided into six sections. If more space is necessary to answer a question, continue the answer at the end of the appropriate section of your THP. If writing an electronic version, insert additional space for your answer. Please distinguish answers from questions by *font change*, **bold** or underline.

SECTION I - GENERAL INFORMATION

This THP conforms to my/our plan and upon approval, I/we agree to conduct harvesting in accordance therewith. Consent is hereby given to the Director of Forestry and Fire Protection, and his or her agents and employees, to enter the premises to inspect timber operations for compliance with the Forest Practice Act and Forest Practice Rules.

- 1. TIMBER OWNER(S) OF RECORD: Name **State of California, Jackson Demonstration State Forest (JDSF)**
Address **802 North Main Street**
City **Fort Bragg** State **CA** Zip **95437** Phone **(707) 964-5674**
Signature **Signature is on file with CAL FIRE, refer to page 1.1** Date _____
Marc J. Jameson, State Forest Manager

NOTE: The timber owner is responsible for payment of a yield tax. Timber Yield Tax information may be obtained at the Timber Tax Section, MIC: 60, State Board of Equalization, P.O. Box 942879, Sacramento, California 94279-0060; phone 1-800-400-7115; **BOE Web Page** at <http://www.boe.ca.gov> **HYPERLINK** <http://www.boe.ca.gov> .

- 2. a. (for the harvest area and appurtenant roads)
TIMBERLAND OWNER(S) OF RECORD: Name **State of California, Jackson Demonstration State Forest**
Address **802 North Main Street**
City **Fort Bragg** State **CA** Zip **95437** Phone **(707) 964-5674**
Signature: **Signature is on file with CAL FIRE, refer to page 1.1** Date: _____
Marc J. Jameson, State Forest Manager

- 3. LICENSED TIMBER OPERATOR(S): Name **LTO will be named prior to operations.** Lic. No. _____
(If unknown, so state. You must notify CAL FIRE of LTO prior to start of operations)
Address _____
City _____ State _____ Zip _____ Phone _____
Signature _____ Date _____

- 4. PLAN SUBMITTER(S): Name **State of California, Jackson Demonstration State Forest**
Address **802 North Main Street**
City **Fort Bragg** State **CA** Zip **95437** Phone **(707) 964-5674**
(Submitter must be from 1, 2, or 3 above. He/she must sign below. Ref. Title 14 CCR 1032.7 (a))
Signature **Signature is on file with CAL FIRE, refer to page 1.1** Date _____
Marc J. Jameson, State Forest Manager

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5. a. List person to contact on-site who is responsible for the conduct of the operation. If unknown, so state and name must be provided for inclusion in the THP prior to start of timber operations.

The LTO shall be the person to contact on-site who is responsible for the conduct of operations. The LTO is unknown at this time. An LTO Responsibility Acknowledgement Form will be amended to the THP prior to the start of operations.

Name Unknown at time of submission

Address _____

City _____ State _____ Zip _____ Phone _____

- b. Yes No Will the timber operator be employed for the construction and maintenance of roads and landings during conduct of timber operations? If no, who is responsible?

c. Who is responsible for erosion control maintenance after timber operations have ceased and until certification of the Work Completion Report? If not the LTO, then a written agreement must be provided per 14 CCR 1050 (c).

The LTO is responsible for erosion control maintenance after timber operations have ceased and until certification of the Work Completion Report. The timberland owner shall be responsible for erosion control maintenance thereafter.

Per 14CCR 916.9.1(p), the erosion control maintenance period on permanent and seasonal roads and associated landings that are not abandoned in accordance with 14 CCR 923.8 shall be three years.

6. a. Expected date of commencement of timber operations:

date of THP conformance, or _____ (date)

- b. Expected date of completion of timber operations:

3 years from date of THP conformance, or _____ (date)

7. The timber operation will occur within the:

- COAST FOREST DISTRICT The Tahoe Regional Planning Authority Jurisdiction
- Southern Subdistrict of the Coast F. D. A County with Special Regulations, identify:
- SOUTHERN FOREST DISTRICT Coastal Zone, no Special Treatment Area
- High use subdistrict of the Southern F. D. Special Treatment Area(s), type and identify:
- NORTHERN FOREST DISTRICT Other

8. Location of the timber operation by legal description:

Base and Meridian: Mount Diablo Humboldt San Bernardino

<u>Section</u>	<u>Township</u>	<u>Range</u>	<u>Acreage</u>	<u>County</u>	<u>Assessor's Parcel Number (Optional)</u>
5	T17N	R15W	21	Mendocino	
6	T17N	R15W	143	Mendocino	
7	T17N	R15W	173	Mendocino	
8	T17N	R15W	5	Mendocino	

TOTAL ACREAGE 342 (Logging Area Only)

Planning Watershed: CALWATER Version, Identification Number, and Name: **V2.2, 1113.300304, Lower North Fork Big River and V2.2, 1113.300406, Two Log Creek.**

7.5 Minute USGS quadrangle: **Northspur and Comptche provisional editions 1991**

9. Yes No Has a Timberland Conversion been submitted? If yes, list expected approval date or permit number and expiration date if already approved.

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10. Yes No Is there an approved Sustained Yield Plan for this property? Number _____ Date app.
 Yes No Has a Sustained Yield Plan been submitted but not approved? Number _____ Date sub.
11. Yes No Is there a THP or NTMP on file with CAL FIRE for any portion of the plan area for which a Report of Satisfactory Stocking has not been issued by CAL FIRE?
If yes, identify the THP or NTMP number(s):
 Yes No Is there a contiguous even aged unit with regeneration less than five years old or less than five feet tall? If yes, explain. Ref. Title 14 CCR 913.1 (933.1, 953.1) (a)(4).
12. Yes No Is a Notice of Intent necessary for this THP?
 Yes No If yes, was the Notice of Intent posted as required by 14 CCR 1032.7 (g)?
13. RPF preparing the THP: Name Erik D. Wahl RPF Number 2800

Address 802 North Main Street

City Fort Bragg State CA Zip 95437 Phone (707) 964-5674

- a. Yes No I have notified the plan submitter(s), in writing, of their responsibilities pursuant to 14 CCR 1035 of the Forest Practice Rules.

Jackson Demonstration State Forest (JDSF) is a large landowner with many years of experience with timber harvesting plans. Copies of plans involving JDSF are filed at the Fort Bragg office. The Plan Submitter and Timber/Timberland owner is an RPF and is knowledgeable about the requirements listed under this item.

- Yes No I have notified the timber owner and the timberland owner of their responsibilities for compliance with the Forest Practice Act and rules, specifically the stocking requirements of the rules and the maintenance of erosion control structures of the rules.

Same as Item 13(a) above.

- b. Yes No I will provide the timber operator with a copy of the portions of the approved THP as listed in 14 CCR 1035 (e). If "no", who will provide the LTO a copy of the approved THP?

I or my supervised designee will meet with the LTO prior to commencement of operations to advise of sensitive conditions and provisions of the plan pursuant to 14 CCR 1035.2.

- c. I have the following authority and responsibilities for preparation and administration of the THP and timber operation. (Include both work completed and work remaining to be done):

The listed RPF will be the agent for Plan Submitter during the initial THP preparation and approval process. The RPF has been retained by the Plan Submitter to provide professional advice throughout the timber operations. Additional work for which the RPF has authority and responsibility is all requirements under 1035.2, LTO pre-operational meeting.

Pursuant to 14 CCR 1035.1, my authority and responsibilities for the preparation of this THP include:

**The accuracy and completeness of the plan.
Design of the road and logging system.
Development of the silvicultural prescription.
Determination of watercourse classifications and protection zones.
Assessment of archaeological impacts.
Supervision of licensed and unlicensed employees who conducted marking, flagging and other work.
Assessment of potential direct and cumulative environmental impacts and development of mitigation measures.
Submit work completion and stocking report.**

- d. Additional required work requiring an RPF, which I do not have the authority or responsibility to perform:

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None

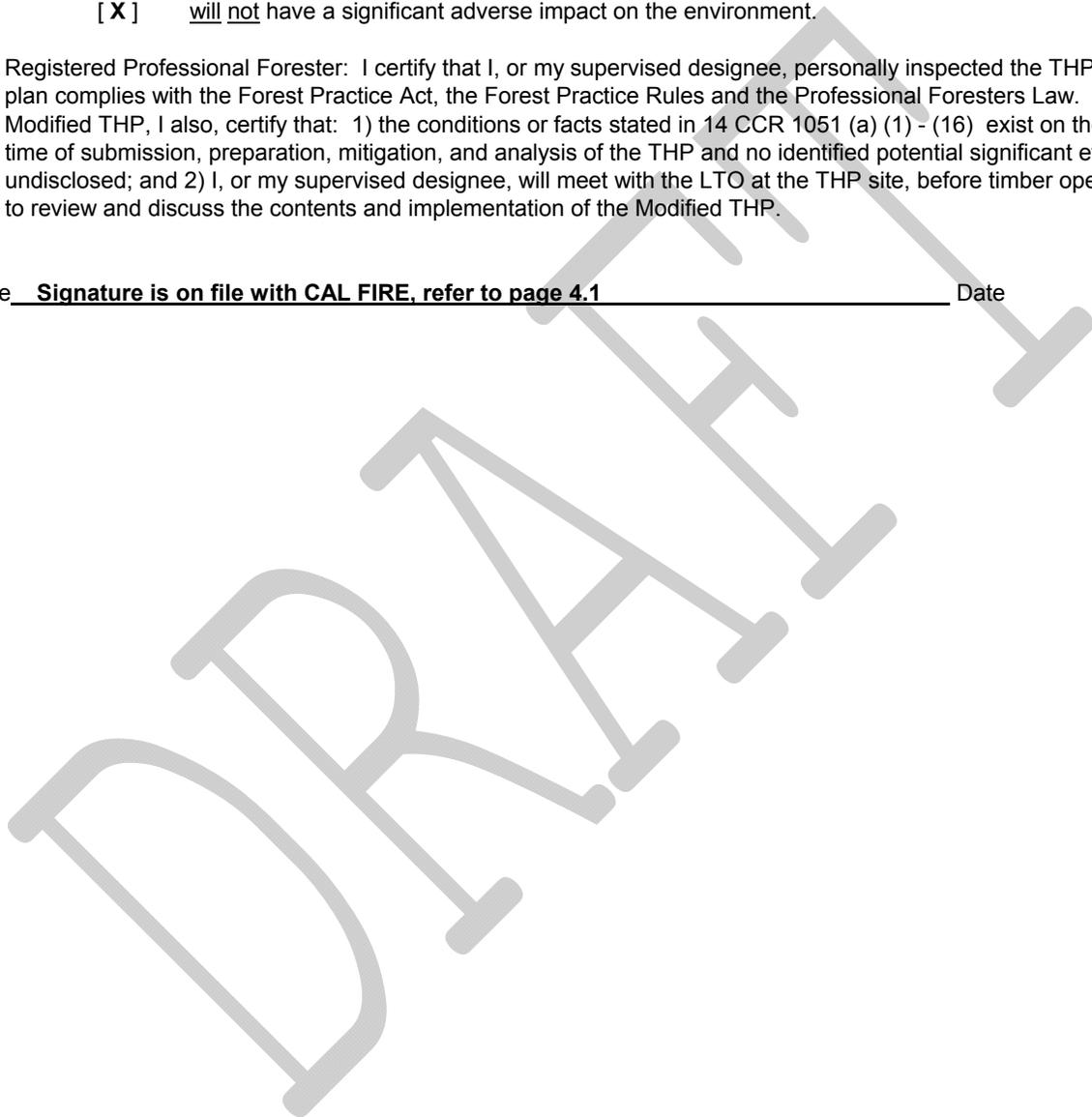
e. After considering the rules of the Board of Forestry and Fire Protection and the mitigation measures incorporated in this THP, I have determined that the timber operation:

[] will have a significant adverse impact on the environment. (Statement of reasons for overriding considerations contained in Section III).

[X] will not have a significant adverse impact on the environment.

Registered Professional Forester: I certify that I, or my supervised designee, personally inspected the THP area, and this plan complies with the Forest Practice Act, the Forest Practice Rules and the Professional Foresters Law. If this is a Modified THP, I also, certify that: 1) the conditions or facts stated in 14 CCR 1051 (a) (1) - (16) exist on the THP area at the time of submission, preparation, mitigation, and analysis of the THP and no identified potential significant effects remain undisclosed; and 2) I, or my supervised designee, will meet with the LTO at the THP site, before timber operations commence, to review and discuss the contents and implementation of the Modified THP.

Signature Signature is on file with CAL FIRE, refer to page 4.1 Date _____



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Unmarked trees may be felled in the following situations:

- 1) To provide safe operating corridors for skyline cable operations.
- 2) To provide stumps for cable-rigging purposes.
- 3) Compliance with Title 8 CCR, Logging and Sawmill Safety Orders.
- 4) As described in Item 14(g) below for damaged trees.

Yes No Is a waiver of marking by the RPF requirement requested? If yes, how will LTO determine which trees will be harvested or retained? If yes and more than one silvicultural method, or Group Selection is to be used, how will LTO determine boundaries of different methods or groups?

The LTO may only fall and harvest unmarked trees subject to the provisions of Item 14 (d) & (g).

e. Forest products to be harvested: **Sawlogs, chiplogs, poles, split products, fuelwood and pulpwood.**

- f. Yes No Are group B species proposed for management?
 Yes No Are group B or non-indigenous A species to be used to meet stocking standards?
 Yes No Will group B species need to be reduced to maintain relative site occupancy of A species?

If any answer is yes, list the species, describe treatment, and provide the LTO with necessary felling and slash treatment guidance. Explain who is responsible and what additional follow-up measures of manual treatment or herbicide treatment are to be expected to maintain relative site occupancy of A species. Explain when a licensed Pest Control Advisor shall be involved in this process.

Marking of hardwoods to be harvested shall conform to the marking guidelines of item 14(d). Tanoak will be harvested to reduce the competition with conifers. The objective is to maintain most hardwoods with a DBH of 22 or greater. Removal of hardwood with a DBH of 22 or greater may be necessary for safety, yarding, road reconstruction, road construction, landing construction or reducing competition with nearby conifers.

Slash generated at tractor and cable landings shall be spread on the landing, placed in a burn pile or removed in a manner which will leave roads passable by logging truck. For tractor landings, slash may be spread along skid trails within the tractor yarding portions of the harvest area. Slash generated at any location may also be treated by chipping with permission of the RPF.

g. Other instructions to LTO concerning felling operations.

As per 14 CCR 914.1, felling shall adhere to the following:

14 CCR 914.1 (a) To the fullest extent possible and with due consideration given to topography, lean of trees, landings, utility lines, local obstructions, and safety factors, trees shall be felled to lead in a direction away from watercourses, no harvest areas and property lines.

14 CCR 914.1 (b) Desirable residual trees and tree seedlings of commercial species shall not be damaged or destroyed by felling operations, except where unavoidable due to safety factors, lean of trees, location of obstructions or roads, or lack of sufficient openings to accommodate felled trees.

14 CCR 914.1 (c) Trees shall be felled in conformance with watercourse and lake protection measures incorporated in the Timber Harvest Plan and consistent with Article 6 of these rules.

14 CCR 914.1 (d) Felling practices shall conform to requirements of 14 CCR 919.2 to protect any bird nest sites.

Wedges, jacks and cable pulling methods shall be used as needed to direct the fall of trees away from watercourses, and sensitive areas, to minimize damage to regeneration and residual timber, to minimize breakage, and to fell to lead. There shall be no trading of trees.

CABLE CORRIDORS: Outside of the WLPZ, to the extent possible cable yarding corridors shall be limited to 10 feet in total width, with the understanding that some corridors may be wider as a result of silviculture prescription or harvesting trees that have been substantially damaged by timber operations. Cable corridors shall be pre-planned and pre-located by the LTO.

CABLE CLEARANCE TREES: Any tree (within the THP area only) may be harvested/felled if necessary for cable

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clearance, except for trees located within a WPLZ. Trees located within a WLPZ shall not be felled for cable corridors unless they directly impact the safety of cable-yarding operations.

TREES SUBSTANTIALLY DAMAGED BY LOGGING OPERATIONS: Damaged trees may not be felled if within a WLPZ, if marked for retention, or if the damaged tree has a cavity used by wildlife. Otherwise, merchantable young growth trees damaged during timber operations shall be felled as approved and directed by the RPF.

DOWNED TREES: There shall be no cutting or removal of existing unmarked down trees or logs. These logs may be moved if necessary for clearing truck road rights-of-way and as otherwise necessary to harvest the designated timber. If windthrow of merchantable trees occurs in the logging area prior to completion of operations, windthrown trees outside of the WLPZ may be harvested upon approval of the RPF.

Except as described above, all trees designated for cutting shall be felled, regardless of size, species or merchantability. Felled trees shall be limbed and topped at the time of felling.

- h. Yes No Will artificial regeneration be required to meet stocking standards?
- i. Yes No Will site preparation be used to meet stocking standards? If yes, provide the information required for a site preparation addendum, as per 14 CCR 915.4 (935.4, 955.4).
- j. If the rehabilitation method is chosen provide a regeneration plan as required by 14 CCR 913 (933, 953) .4 (b)

PESTS

15. a. Yes No Is this THP within an area that the Board of Forestry and Fire Protection has declared a Zone of Infestation or Infection, pursuant to PRC 4712 - 4718? If yes, identify feasible measures being taken to mitigate adverse infestation or infection impacts from the timber operation. See 14 CCR 917 (937, 957) .9 (a).

The plan area is within the Coastal Pitch Canker Zone of Infestation declared by the Director and approved by the Board on June 4, 1997. There are no pine trees within the harvest area.

The plan area is within the Sudden Oak Death (SOD) Zone of Infestation (ZOI) declared by the Director and approved by the Board. Currently, the following counties are within the regulated area: Alameda, Contra Costa, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, San Mateo, San Francisco, Santa Clara, Santa Cruz, Solano, and Sonoma. There are no known infestation sites within the state forest or ¼ mile of the THP area. Information on the disease and its hosts, can be obtained from the California Oak Mortality Task Force web page at www.suddenoakdeath.org.

Fuelwood will potentially be transported to local residences in Mendocino County. Sawlogs may be transported to sawmills in Ukiah, Cloverdale, Philo, Scotia, Korbelt, Fortuna, or Willits, all located within the SOD ZOI.

The following are regulated *Phytophthora ramorum* hosts of concern when filing Timber Harvest Documents as of July 11, 2006. Those with an asterisk were observed in the THP area: Bigleaf maple, California bay laurel*, California black oak, California coffeeberry, California honeysuckle*, California maidenhair fern, California buckeye, canyon live oak, cascara*, coast live oak, coast redwood*, Douglas-fir*, evergreen huckleberry*, False Solomon's seal*, madrone*, manzanita*, rhododendron (including azalea)*, Shreve's oak, tanoak*, toyon, western starflower*, western maidenhair fern, wood rose*.

Conifers and hardwoods, primarily tanoak, are proposed for harvest within this THP and may be transported (material over 4-inches in diameter) as sawlogs, fuelwood, pulpwood, or firewood. This THP is to be considered the compliance agreement. Host material shall only be removed under the following conditions:

- Host material shall not be removed from the site until an approved amendment, clarifying the specific destination of the host material, is received from the Department.
- Material originating from host plant parts, less than 4-inches in diameter (less than 1" on coast redwood and Douglas-fir) shall not be removed from the site.
- The LTO or representative shall inspect all vehicles and equipment prior to leaving the site and remove non-commercial host material (branches, twigs, leaves, bark, etc. of the host species listed above) to minimize the potential to spread the disease. This includes but is not limited to: the undercarriage, belly pans, etc. of equipment working in the woods; the beds of pickups and crew vehicles, logging trucks and their loads.

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- The LTO shall inform the crew about working within an infested area and advise them of the precautions needed to minimize spread of the disease based on the most current research available.
- If operations are not completed within 1-year of approval of this THP and host material is to be removed, the plan submitter or successor in interest shall submit an amendment to the Department with updated mitigation measures to meet compliance prior to removal of host material.

The LTO shall immediately advise the RPF if any of the above host species, exhibiting symptoms of sudden oak death (SOD), are observed within the plan area. The LTO is encouraged to review symptoms of SOD at the above website.

The RPF responsible for providing professional advice shall inform the LTO prior to start-up of initial timber operations for any given year and throughout active timber operations as necessary regarding current SOD hosts, regulated area and operational requirements necessary to be in conformance with the compliance agreement.

- b. Yes No If outside a declared zone, are there any insect, disease or pest problems of significance in the THP area? If yes, describe the proposed measures to improve the health, vigor, and productivity of the stand(s).

HARVESTING PRACTICES

16. Indicate type of yarding system and equipment to be used:

- | GROUND BASED* | CABLE | SPECIAL |
|---------------------------------------------------------------------------|-----------------------------------------------------------|----------------------------------------|
| a. <input checked="" type="checkbox"/> Tractor, including end/long lining | d. <input checked="" type="checkbox"/> Cable, ground lead | g. <input type="checkbox"/> Animal |
| b. <input checked="" type="checkbox"/> Rubber tired skidder, Forwarder | e. <input checked="" type="checkbox"/> Cable, high lead | h. <input type="checkbox"/> Helicopter |
| c. <input checked="" type="checkbox"/> Feller buncher | f. <input checked="" type="checkbox"/> Cable, Skyline | i. <input type="checkbox"/> Other |

* All tractor operations restrictions apply to ground based equipment.

No cable corridors shall be situated such that logs are yarded directly up or down watercourse channels.

With prior approval of the Plan Submitter, the LTO may cable yard any area designated for ground based yarding provided it will afford equal or greater protection to the soil and residual stand.

Tailholds located outside the plan boundary shall be considered part of the logging area. Where tailholds are located outside the plan boundary, stumps shall be used to the extent feasible. Live trees may be used for tailholds where no suitable stumps exist.

Equipment Limitation Zones shall be observed within 25 feet of Class III watercourses when slopes are 30% or less and 50 feet when slopes are greater than 30%. This regulation shall be observed for all tractor yarding portions of this Timber Harvest Plan.

Reference Item 38 for flagging codes pertaining to yarding operations.

17. Erosion Hazard Rating: Indicate Erosion Hazard Ratings present on THP. (Must match EHR worksheets)

- Low Moderate High Extreme
If more than one rating is checked, areas must be delineated on map down to 20 acres in size (10 acres for high and Extreme EHRs in the Coast District).

Reference soils and operations map, Section II. The EHR worksheet is located in THP Section V.

18. Soil Stabilization: In addition to the standard waterbreak requirements describe soil stabilization measures or additional erosion control measures to be implemented and the location of their application. See requirements of 14 CCR 916.7 (936.7, 956.7), and 923.2 (943.2, 963.2) (m), and 923.5 (943.5, 963.5) (f).

Treatment for soil stabilization as discussed in this item shall be with “weed free” straw mulch or other appropriate material less than 3” in diameter (logging slash, brush, etc.). Coverage rate shall be at least 90% of the surface to a depth of at least three inches at the time of application.

916.9.1 (n) Within the WLPZ, and within any ELZ or EEZ designated for watercourse or lake protection, treatments to

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stabilize soils, minimize soil erosion, and prevent the discharge of sediment into waters in amounts deleterious to aquatic species or the quality and beneficial uses of water, or that threaten to violate applicable water quality requirements, shall be applied in accordance with the following standards:

- (1) The following requirements shall apply to all such treatments.
 - (B) For areas disturbed from May 1 through October 15, treatment shall be completed prior to the start of any rain that causes overland flow across or along the disturbed surface.
 - (C) For areas disturbed from October 16 through April 30, treatment shall be completed prior to any day for which a chance of rain of 30 percent or greater is forecast by the National Weather Service or within 10 days, whichever is earlier.
- (2) The traveled surface of logging roads shall be treated to prevent waterborne transport of sediment and concentration of runoff that results from timber operations. **Maintenance of a firm packed surface is considered appropriate treatment.**
- (3) The treatment for other disturbed areas, including: (A) areas exceeding 100 contiguous square feet where timber operations have exposed bare soil, (B) approaches to tractor road watercourse crossings between the drainage facilities closest to the crossing, (C) road cut banks and fills, and (D) any other area of disturbed soil that threatens to discharge sediment into waters in amounts deleterious to the quality and beneficial uses of water, may include, but need not be limited to, mulching, rip-rapping, grass seeding, or chemical soil stabilizers.
- (4) Where the undisturbed natural ground cover cannot effectively protect beneficial uses of water from timber operations, the ground shall be treated by measures including, but not limited to, seeding, mulching, or replanting, in order to retain and improve its natural ability to filter sediment, minimize soil erosion, and stabilize banks of watercourses and lakes.

923.2 (m) On new road construction, sidecast or fill material extending more than 20 feet in slope distance from the outside edge of the roadbed which has access to a watercourse or lake which is protected by a WLPZ shall be mulched as specified above to adequately reduce soil erosion.

923.5 (f)(4) On new landing construction, sidecast or fill material extending more than 20 feet in slope distance from the outside edge of the landing and which has access to a watercourse or lake shall be mulched as specified above.

914.6 Waterbreaks

The following standards are applicable to the construction of waterbreaks:

- (a) except as otherwise provided for in the rules:
 - (1) All waterbreaks shall be installed no later than the beginning of the winter period of the current year of timber operations.
 - (2) Installation of drainage facilities and structures is required from October 15 to November 15 and from April 1 to May 1 on all constructed skid trails and tractor roads prior to sunset if the National Weather Service forecast is a "chance" (30% or more) of rain within the next 24 hours.
- (b) Waterbreaks shall be constructed concurrently with the construction of firebreaks and immediately upon conclusion of use of tractor roads, roads, layouts, and landings which do not have permanent and adequate drainage facilities, or drainage structures.

The appropriate waterbreak spacing shall be based upon the erosion hazard rating, where distances between waterbreaks shall not exceed the following standards:

14 CCR § 914.6(c) MAXIMUM DISTANCE BETWEEN WATERBREAKS (in feet)				
Erosion Hazard Rating (for surface Erosion) (See THP Section II, Item 17)	Road or Trail Gradient (%)			
	10%, or less	11 - 25%	26 - 50%	Over 50%
Extreme	100'	75'	50'	50'
High	150'	100'	75'	50'
Moderate	200'	150'	100'	75'
Low	300'	200'	150'	100'

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Wet Weather Plan

(Applicable year-round)

Definitions (895.1):

“Saturated Soil Conditions” means that site conditions are sufficiently wet that timber operations displace soils in yarding or mechanical site preparation areas or displace road and landing surface materials in amounts sufficient to cause a turbidity increase in drainage facilities that discharge into Class I, II, III, or IV waters, or in downstream Class I, II, III, or IV waters that is visible or would violate applicable water quality requirements.

In yarding and site preparation areas, this condition may be evidenced by: a) reduced traction by equipment as indicated by spinning or churning of wheels or tracks in excess of normal performance, b) inadequate traction without blading wet soil, c) soil displacement in amounts that cause visible increase in turbidity of the downstream waters in a receiving Class I, II, III, or IV waters, or in amounts sufficient to cause a turbidity increase in drainage facilities that discharge into Class I, II, III, or IV waters, or d) creation of ruts greater than would be normal following a light rainfall.

On logging roads and landing surfaces, this condition may be evidenced by a) reduced traction by equipment as indicated by spinning or churning of wheels or tracks in excess of normal performance, b) inadequate traction without blading wet soil, c) soil displacement in amounts that cause visible increase in turbidity of the downstream waters in receiving Class I, II, III, or IV waters, or in amounts sufficient to cause a turbidity increase in drainage facilities that discharge into Class I, II, III, or IV waters, d) pumping of road surface materials by traffic, or e) creation of ruts greater than would be created by traffic following normal road watering, which transports surface material to a drainage facility that discharges directly into a watercourse.

“Significant rain” means ¼” or more of rain within a 24-hour period, as measured at the McGuire RAWS station located in Section 12, T17N, R16W, MDBM. This information can be accessed at the following website address : http://raws.wrh.noaa.gov/cgi-bin/roman/meso_base.cgi?stn=MCGC1&time=GMT

“Proper functioning of drainage facilities and structures” occurs when:

- **Rolling dips and waterbreaks are capturing runoff from road surfaces and discharging it to locations so that sediment is not delivered to watercourses.**
- **Inside ditches are carrying runoff to culverts or ditch drains.**
- **Culverts are not occluded by debris.**

“Stable operating surface” means that throughout the period of use, the operating surface of a logging road or landing does not either (1) generate waterborne sediment in amounts sufficient to cause a turbidity increase in downstream Class I, II, III, or IV waters, or in amounts sufficient to cause a turbidity increase in drainage facilities that discharge into Class I, II, III, or IV waters or, that is visible or would violate applicable water quality requirements; or (2) channel water for more than 50 feet that is discharged into Class I, II, III, or IV waters.

General Restrictions:

Use of logging roads, tractor roads, or landings shall not take place at any location where saturated soil conditions exist, where a stable logging road or landing operating surface does not exist, or when visibly turbid water from the road, landing, or skid trail surface or inside ditch may reach a watercourse or lake.

Cable roads that are so deeply cut as to divert and carry water away from natural drainage patterns for more than 100 feet shall have waterbreaks installed on them at 100 feet intervals.

Waterbreaks shall be located to allow water to be discharged into some form of vegetative cover, duff, slash, rocks, or less erodible material wherever possible and shall be constructed to provide for unrestricted discharge at the lower end of the waterbreak so that water will be discharged and spread in such a manner that erosion shall be minimized.

Waterbreaks shall be cut diagonally a minimum of 15.2 cm (6 inches) into the firm roadbed, cable road, skid trail or firebreak surface and shall have a continuous firm embankment of at least 15.2 (6 inches) in height immediately adjacent to the lower edge of the waterbreak cut.

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Tractor Operations:

916.9.1 (m) All tractor roads shall have drainage and/or drainage collection and storage facilities installed as soon as practical following yarding and prior to either (1) the start of any rain which causes overland flow across or along the disturbed surface within a WLPZ or within any ELZ or EEZ designated for watercourse or lake protection, or (2) any day with a National Weather Service forecast of a chance of rain of 30 percent or more, a flash flood warning, or a flash flood watch.

Road and landing construction or reconstruction, tractor yarding, and the use of tractors for constructing fire-breaks and other tractor roads shall be done only during extended dry, rainless periods where soils are not saturated.

Logging Road Use:

- Operation of trucks and heavy equipment on roads and landings shall be limited to those with a stable operating surface.
- No hauling when significant rain has fallen during the preceding 24 hour period.
- No hauling/vehicle access when road rutting is occurring at a rate greater than that found during normal road watering.
- Resumption of hauling only after rain has ceased for 24 hours and no turbid water produced from road surface runoff is observed in ditches along the roads where hauling may occur.
- During and following periods of significant rain while timber operations are ongoing, the LTO shall inspect logging roads for proper functioning of drainage facilities and structures, and shall take appropriate action to ensure proper functioning.
- Drainage facilities (i.e. waterbreaks) shall be in place and functional by October 15, except on roads in use after October 15 provided that all such waterbreaks are installed prior to the start of rain that generates overland flow.

14CCR 916.9.1(o) As part of the plan, the RPF shall identify active erosion sites in the logging area, assess them to determine which sites pose significant risks to the beneficial uses of water, assess them to determine whether feasible remedies exist, and address in the plan feasible remediation for all sites that pose significant risk to the beneficial uses of water.

Potential instabilities were identified during the geological assessment. A full geologic assessment of the timber harvest plan area was conducted, refer to the Engineering Geologic Report included in Section V. All recommendations provided by the engineering geologist are included in this THP.

Erosion sites related to roads are addressed in item 25 and the Erosion Control Plan found in the attachments, Section V.

Protection measures between map points 1.1 and 1.2 and at map points 9, 10 and 11: Tractor equipment shall not operate and trees shall not be removed within landslide features. The perimeters of these features have been identified with Special Treatment flagging.

19. [] Yes [X] No Are tractor or skidder constructed layouts to be used? If yes, specify the location and extent of use:
20. [X] Yes [] No Will ground based equipment be used within the area(s) designated for cable yarding? If yes, specify the location and for what purpose the equipment will be used. See 14 CCR 914.3 (934.3, 954.3) (e).

Tractors may be used on slopes up to 40 percent to construct fire lines around concentrations of slash at cable landings provided there are no other limitations on tractor use.

Ground based equipment may be used within the area designated for cable yarding to long-line trees from cable areas with tracks/tires resting in the area designated for ground based equipment including roads.

21. Within the THP area will ground based equipment be used on:
- a. [] Yes [X] No Unstable soils or slide areas? Only allowed if unavoidable.
 - b. [] Yes [X] No Slopes over 65%?
 - c. [] Yes [X] No Slopes over 50% with high or extreme EHR?
 - d. [] Yes [X] No Slopes between 50% and 65% with moderate EHR where heavy equipment use will not be

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- restricted to the limits described in 14 CCR 914 (934, 954) .2 (f) (2) (i) or (ii)?
- e. Yes No Slopes over 50% which lead without flattening to sufficiently dissipate water flow and trap sediment before it reaches a watercourse or lake?

If a. is yes, provide site specific measures to minimize effect of operations on slope stability below. Provide explanation and justification in section III as required per 14 CCR 914 (934, 954) .2 (d). CAL FIRE requests the RPF consider flagging tractor road locations if "a." is yes.

If b., c., d. or e. is yes:

- 1) the location of tractor roads must be flagged on the ground prior to the PHI or start of operations if a PHI is not required, and
- 2) you must clearly explain the proposed exception and justify why the standard rule is not feasible or would not comply with 14 CCR 914 (934, 954).

The location of heavy equipment operation on unstable areas or any use beyond the limitations of the standard rules must be shown on the map. List specific instructions to the LTO below.

All tractor operations shall adhere to the following:

914.1 (f) Tractor operations shall be subject to the following limitations:

(1) Heavy equipment shall be prohibited where any of the following conditions are present:

- (i) Slopes steeper than 65%.
- (ii) Slopes steeper than 50% where the erosion hazard rating is high or extreme.
- (iii) Slopes over 50% which lead without flattening to sufficiently dissipate water flow and trap sediment before it reaches a watercourse or lake.

(2) On slopes between 50 percent and 65 percent where the erosion hazard rating is moderate, and all slope percentages are for average slope steepness based on sample areas that are 20 acres, or less if proposed by the RPF or required by the Director, heavy equipment shall be limited to:

- (i) Existing tractor roads that do not require reconstruction, or
- (ii) New tractor roads at a location that has been shown on the THP map, flagged by an RPF or supervised designee prior to the pre-harvest inspection or, when a pre-harvest inspection is not required, prior to the start of timber operations, and approved by the Director.

22. Yes No Are any alternative practices to the standard harvesting or erosion control rules proposed for this plan? If yes, provide all the information as required by 14 CCR 914 (934, 954) .9 in Section III. List specific instructions to the LTO below.

WINTER OPERATIONS

23. a. Yes No Will timber operations occur during the winter period? If yes, complete "b, c, or d." State in space provided if exempt because yarding method will be cable, helicopter, or balloon.
- b. Yes No Will mechanical site preparation be conducted during the winter period? If yes, complete "d".
- c. I choose the in-lieu option as allowed in 14 CCR 914 (934, 954) .7 (c). Specify below the procedures listed in subsections (1) and (2), and list the site specific measures for operations in the WLPZ and unstable areas as required by subsection (3), if there will be no winter operations in these areas, so state.
- d. I choose to prepare a winter operating plan per 14 CCR 914 (934, 954) .7 (b).

Year Round Wet Weather Restriction

1. No log hauling shall occur at anytime of the year if greater than .25 inch of precipitation has fallen at the CAL FIRE office in Fort Bragg during the preceding 24 hour period. Hauling can resume only after rain has ceased for 24 hours and no road related turbid water is observed in inside ditches along the roads where hauling may occur.
2. No log hauling shall occur when pumping of fines from road surface produces sediment that enters inside ditches and causes turbid water to flow in ditchlines with direct access to watercourses.
3. Grading to obtain a drier running surface is discouraged and will be evaluated on a site specific basis. Such grading will only be allowed for short distances with permission from the RPF and is prohibited for roads located within the WLPZ of a watercourse. Material developed will be deposited in safe locations with no access to watercourses, and situated so it can be incorporated into the road's running surface as soon as possible.

WINTER PERIOD OPERATING PLAN

"Winter period" as defined in 14 CCR 895.1 means the period between November 15 and April 1. This plan is located within a watershed that meets the criteria for "watersheds with threatened or impaired values" defined in 14CCR 895.1 (effective July 1, 2000). Under the rules that took effect July 1, 2000, different operational restrictions apply at different times within the year, especially in the fall, winter and spring. To clarify implementation of this plan, the

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“Winter Period is divided into three segments:

- A. Fall Period = that interval from October 15 to November 14.
- B. Mid Winter Period = that interval from November 15 to April 1.
- C. Spring Period = that interval from April 2 to May 1.

A & C - During the Fall and Spring Periods the following protection measures shall apply:

1. Year round wet weather restrictions 1,2,3 stated above.
2. Tractor yarding or the use of tractors for construction of fire breaks or the construction of tractor roads shall be done only during extended dry, rainless periods with low antecedent soil wetness (no more than one-quarter inch of rain in the previous 24 hour period measured at the CAL FIRE office in Fort Bragg) and where soils are not saturated. (Refer to the definition of *saturated soils* under 14 CCR 895.1 that is reproduced at the end of this winter period operating plan.) No such construction shall occur when visibly turbid water from the road, landing or skid trail surface may reach a watercourse or lake.
3. Use of logging roads, tractor roads, or landings shall not take place at any location where saturated soil conditions exist, where a stable logging road or landing operating surface does not exist, or when visibly turbid water from the road, landing, or skid trail surface or inside ditch may reach a watercourse or lake.
4. The operation of trucks and heavy equipment on roads and landings shall be limited to those roads and landings with a stable operating surface. (Refer to the definition of *stable operating surface* under 14 CCR 895.1 that is reproduced at the end of this winter period operating plan.)
5. Grading to obtain a drier running surface more than one time before reincorporating of any resulting berms back into the road surface is prohibited.
6. Grading to obtain a drier running surface is discouraged and will be evaluated on a site specific basis. Such grading will only be allowed for short distances with permission from the RPF and is prohibited for roads located within the WLPZ of a watercourse. Material developed during grading will be deposited in safe locations with no access to watercourses, and situated so it can be incorporated into the road’s running surface as soon as possible.
7. No more than one main skid trail and one spur skid trail per piece of operational yarding equipment shall be opened during this period. Immediately upon completion of use any temporary crossings shall be removed and stabilized and waterbreaks shall be installed on the skid trail as required by the Forest Practice Rules.
8. Berms shall be removed or breached, except where required for erosion control, prior to the Mid Winter Period.
9. Construction or reconstruction of logging roads, tractor roads or landings shall take place in the Early and Late Winter Period only during dry rainless periods when saturated soil conditions do not exist. No such construction shall occur when visibly turbid water from the road, landing or skid trail surface may reach a watercourse or lake. No such construction shall occur if greater than .25 inch of precipitation has fallen at the CAL FIRE office in Fort Bragg during the preceding 24 hour period. Construction activities can resume only after rain has ceased for 24 hours and saturated soil conditions do not exist.
10. Log loading and hauling shall not occur when saturated soil conditions exist on the road/landing or during periods when precipitation is sufficient to generate overland flow off the road or when it is capable of leaving the road. Once road use has ceased due to the foregoing conditions, use shall not resume until and unless the road surface is dry. A dry road is one in which moisture is less than or equal to that found during normal watering (dust abatement) treatments or light rainfall, and soil is not rutting or pumping fines causing a visible increase in turbidity in any drainage facility, construction/reconstruction site or road surface, any of which drains directly to Class I, II or III waters. This provision shall be applied according to a rule of reasonableness, and it shall not prohibit, for example, use of a small segment of wet road on an otherwise dry road. If any permitted use results in damage to the road surface, drainage facilities, water bars, or stream crossings, the damage will be repaired within 24 hours after it occurs to eliminate the likelihood of related sediment reaching Class I, II, or III waters.
11. Light vehicles (defined as 1-ton pickup trucks or less, or smaller vehicles such as quadra-tracts or motorcycles) may be used during periods of wet weather, however access will be limited to ATVs whenever rutting of the logging roads would occur (such that runoff is carried along the ruts) and/or waterbars would be breached (such that they no longer would function as intended) as a result of use by light vehicles (pickups, etc.). If any permitted use results in damage to the road surface, drainage facilities, water bars, or stream crossings, the damage shall be repaired by the LTO within 24 hours after the initial damage has occurred to eliminate the likelihood of related sediment reaching Class I, II or III waters.
12. Accidental depositions of debris within a Class III watercourse during the winter period will be stabilized by the LTO (such that the debris does not create the potential for diversion of the watercourse or the potential build up of excess sediment in amounts greater than found in the watercourse where there is no logging associated debris), within 24 hours.

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13. Treatments to comply with 916.9.1(n) B&C described in item 18, soil stabilization, shall be applied when necessary for operations within the WLPZ.

B. Mid Winter Period = that interval from November 15 to April 1.

The period of November 15 to April 1 the following restrictions and protection measures shall apply:

Operations shall be limited to timber falling, tree planting, slash pile burning, maintenance of erosion control structures and other vegetation or slash treatments not requiring the use of heavy equipment.

1. There shall be no hauling of logs, yarding or use of any heavy equipment with the exception of emergency maintenance access.
2. On seasonal roads light vehicles (defined as 1 ton pickup trucks or less, or smaller vehicles such as quadra-tracks or motorcycles) may be used for access during periods of wet weather, however access will be limited to ATV's whenever rutting of the logging roads would occur (such that they no longer would function as intended) as a result of road use by light vehicles (pickups, etc.). If any permitted use results in damage to the road surface, drainage facilities, water bars, or stream crossings, the damage will be repaired immediately during a time which drainage facilities are required to be in place.
3. Fallers, tree planters and other project personnel will access the harvest area using existing roads by light vehicles and/or ATV's. The LTO will be responsible for maintaining erosion control structures.
4. There shall be no falling within any WLPZ or any identified unstable area.
5. Timber falling is proposed within the Class III EEZ.
6. Use of logging roads, or landings shall not take place at any location where saturated soil conditions exist, where a stable logging road or landing operating surface does not exist, or when visibly turbid water from the road, landing, or inside ditch may reach a watercourse or lake. The following additional provisions shall also apply:
 - The LTO shall be responsible for the maintenance of all erosion control structures.
 - Consistent with federal and state law and regulations, in order to prevent or minimize significant adverse effects to aquatic resources, emergency access is allowed during periods of wet weather in order to correct emergency, road-related problems in the form of imminent road fill failures or other erosion problems and emergency human safety situations.
 - Accidental deposition of debris within a Class III watercourse during the mid winter period shall be removed or stabilized immediately by the LTO (such that the debris does not create the potential for diversion of the watercourse or the potential build up of excess sediment in amounts greater than found in the watercourse where there is no logging associated debris).
 - See Item # 18 regarding water bar spacing and timing of installation.

Stable operating surface means that throughout the period of use, the operating surface of a logging road or landing does not either

- (1) generate waterborne sediment in amounts sufficient to cause a turbidity increase in downstream Class I, II, III, or IV waters, or in amounts sufficient to cause a turbidity increase in drainage facilities that discharge into Class I, II, III, or IV waters or, that is visible or would violate applicable water quality requirements; or
- (2) channel water for more than 50 feet that is discharged into Class I, II, III, or IV waters.

SATURATED SOIL CONDITIONS- means that site conditions are sufficiently wet that timber operations displace soils in yarding or mechanical site preparation areas or displace road and landing surface materials in amounts sufficient to cause a turbidity increase in drainage facilities that discharge into Class I, II, III, or IV waters, or in downstream Class I, II, III, or IV waters that is visible or would violate applicable water quality requirements.

In yarding areas this condition may be evidenced by:

- a) reduced traction by equipment as indicated by spinning or churning of wheels or tracks in excess of normal performance,
- b) inadequate traction without blading wet soil,
- c) soil displacement in amounts that cause visible increase in turbidity of the downstream waters in a receiving Class I, II, III, or IV waters, or in amounts sufficient to cause a turbidity increase in drainage facilities that discharge into Class I, II, III, or IV waters, or
- d) creation of ruts greater than would be normal following a light rainfall.

On logging roads and landing surfaces, this condition may be evidenced by:

- a) reduced traction by equipment as indicated by spinning or churning of wheels or tracks in excess of normal performance,
- b) inadequate traction without blading wet soil,

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- c) soil displacement in amounts that cause visible increase in turbidity of the downstream waters in receiving Class I, II, III, or IV waters, or in amounts sufficient to cause turbidity increase in drainage facilities that discharge into Class I, II, III, or IV waters,
- d) pumping of road surface materials by traffic, or
- e) creation of ruts greater than would be created by traffic following normal road watering, which transports surface material to a drainage facility that discharges directly into a watercourse.

Soils or road and landing surfaces that are hard frozen are excluded from this definition.

NOTE: "Winter period" means the period between November 15 and April 1, except as noted under special County Rules at Title 14 CCR 925.1, 926.18, 927.1, and 965.5... (a) except as otherwise provided in the rules: (1) All waterbreaks shall be installed no later than the beginning of the winter period of the current year of timber operations. (2) Installation of drainage facilities and structures is required from October 15 to November 15 and April 1 to May 1 on all constructed skid trails and tractor roads prior to sunset if the National Weather Service forecast is a "chance" (30% or more) of rain within the next 24 hours.

Winter Operating Plan – 14 CCR 914.7(b) & 916.9.1(k):

The following table discusses information to comply with 14 CCR 914.7(b):

SUBJECT	PROPOSED WINTER PERIOD OPERATION
Erosion hazard rating	Moderate/High
Mechanical site preparation methods	None
Yarding system	Cable/Tractor
Operating period	Potentially from October 15 to May 1
Erosion control facilities timing	Facilities will be installed as per 14 CCR 914.6(a)(2)
Consideration of form of precipitation	Rain
Ground conditions	Access has been limited as described above during saturated soil conditions
Silvicultural system	Selection
Operations within the WLPZ	None
Equipment use limitations	See Winter Operating Plan in Section II
Known unstable areas	No equipment operations proposed within known unstable areas.

ROADS AND LANDINGS

24. Will any roads be constructed? Yes No, or reconstructed? Yes No. If yes, check items "a." through "g."
 Will any landings be constructed? Yes No, or reconstructed? Yes No. If yes, check items "h." through "k."
- a. Yes No Will new or reconstructed roads be wider than single lane with turnouts?
 - b. Yes No Are logging roads proposed in areas of unstable soils or known slide-prone areas?
 - c. Yes No Will new roads exceed a grade of 15% or have pitches of up to 20% for distances greater than 500 feet? Map must identify any new or reconstructed road segments that exceed an average 15% grade for over 200 feet. **(refer to Map Point 4.0)**
 - d. Yes No Are roads to be constructed or reconstructed, other than crossings, within the WLPZ of a watercourse? If yes, completion of THP Item 27 a. will satisfy required documentation.
 - e. Yes No Will roads be located across more than 100 feet of lineal distance on slopes over 65%, or on slopes over 50% which are within 100 feet of the boundary of a WLPZ?
 - f. Yes No Will any roads or watercourse crossings be abandoned?
 - g. Yes No Are exceptions proposed for flagging or otherwise identifying the location or roads to be constructed?
 - h. Yes No Will any landings exceed one half acre in size? If any landing exceeds one quarter acre in size or requires substantial excavation the location must be shown on the map.
 - i. Yes No Are any landings proposed in areas of unstable soils or known slide prone areas?
 - j. Yes No Will any landings be located on slopes over 65% or on slopes over 50% which are within 100 feet of the boundary of a WLPZ?
 - k. Yes No Will any landings be abandoned?
25. If any section in "item 24" above is answered yes, specify site-specific measures to reduce adverse impacts and list any additional or special information needed by the LTO concerning the construction, maintenance, and/or abandonment of roads or landings, as required by 14 CCR Article 12. Include required explanation and justification in THP Section III.

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ROAD CONSTRUCTION

Excavated materials created during road work shall not be placed within a watercourse and lake protection zone, equipment exclusion zone, equipment limitation zone, or on slopes greater than 30 percent. Excavated materials shall be compacted to consolidate loose material and contoured to facilitate drainage.

14CCR 923.9 (a): The proposed road construction and reconstruction is necessary to facilitate favorable skidding conditions for ground based equipment operations. Favorable skidding conditions will reduce the amount of ground disturbance and growing space lost to tractor road construction. The roads proposed for use in this THP are the minimum necessary to conduct timber harvest operations. There will be no significant change in the long-term site occupancy of roads within the watershed.

14CCR 923.9 (b): New and reconstructed logging roads shall be no wider than a single lane compatible with the largest type of equipment specified for use on the road, with adequate turnouts provided as required for safety. The maximum width of logging roads shall be 14 feet, including a one-foot shoulder on each side of a 12-foot traveled surface, to accommodate cable yarding equipment, with the exception of those areas that need to be wider to a maximum of 20 feet to allow for turnouts and curve widening. These roads shall be outsloped where feasible and drained with water breaks or rolling dips (where the road grade is inclined at 7 percent or less), in conformance with other applicable Forest Practice Rules.

LANDING CONSTRUCTION

Landings to be constructed shall be located along roads that are adjacent to or interior to the proposed harvest units (THP roads). Landings shall be no larger than one-quarter acre in size. Landings shall be located outside the watercourse protection zones and located on slopes less than 50%.

JDSF FOREST ROAD 210

The following mitigation measures apply to appurtenant Road 210:

MP 3.0 – At Map Point 3.0 road 210 crosses a Class III watercourse with 24 inch culvert. The existing culvert is not in-line with the stream channel at the culvert inlet.

Mitigation

Replace the culvert capable to carry water at a one hundred-year flood level. The culvert shall be minimum of xx inches in diameter and long enough to extent beyond the fill material. The culvert shall be placed to the natural stream gradient to the highest extent feasible. Backfill shall be tamped and compacted from the base to the original road surface.

MP 3.1 – At Map Point 3.1 a cutbank failure has deposited material within the inside ditch of seasonal Road 210.

Remove material from the inside ditch. Material within the inside ditch shall be cleared. Any overhanging material within the cutbank failure shall be removed. Excavated materials shall be incorporated into the road prism and packed with heavy equipment.

MP 3.2 – At Map Point 3.2 the outlet of a ditch relief culvert did not extent past the fill material. Consequently this has resulted in the failure of approximately 4 cubic yards of fill slope material, decreasing the road width.

Mitigation

Replace the ditch relief culvert and fill. The ditch relief culvert shall be a minimum of 12 inches in diameter and long enough to extent beyond the fill material. Backfill shall be tamped and compacted from the base to the original road surface.

MP 3.3 – At Map Point 3.3 there is section of approximately 500 feet of un-drained inside ditch. This extended length of un-drained inside ditch could have contributed to the fill failure at Map Point 3.2.

Mitigation

Install an inside ditch relief culvert to shorten the un-drained section of inside ditch. The ditch relief culvert shall be minimum of 12 inches in diameter and long enough to extend beyond the fill material. Backfill shall be tamped and compacted from the base to the original road surface.

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MP 3.4 – At Map Point 3.4, drainage from Road 210 is directed into a swale within the harvest area.

Mitigation

Install waterbars on Road 210 on each side of the swale in order to facilitate drainage.

ITEM 24c:

MP 4.0 exceeds a 15% grade that extends 500 continuous feet or more. The following mitigation measures apply to new road segments that exceed a 15 percent grade:

- Waterbreaks shall be installed to extreme EHR spacing.
- The LTO shall outslope these segments at the time of construction where feasible.
- The LTO shall maintain a stable operating surface at all times during operations.

MP 4.0 – The road segment beginning at this point has a design grade of 14 to 18 percent (average > 15) for approximately 880 feet.

MP 4.1 – The road segment beginning at this point has a design grade of 16 percent for approximately 140 feet.

MP 4.2 – The road segment beginning at this point has a design grade of 13 to 18 percent (average > 15) for approximately 335 feet.

MP 4.3 – The road segment beginning at this point has a design grade of 14 to 18 percent (average >15) for approximately 260 feet.

MP 4.4 – The road segment beginning at this point has a design grade of 17 percent for approximately 100 feet.

MP 4.5 – The road segment beginning at this point has a design grade of 13 to 16 percent (average >15) for approximately 420 feet.

ROAD, WATERCOURSE CROSSING AND LANDING ABANDONMENT

14 CCR 923.8 Abandonment of roads, watercourse crossings and landings shall be planned and conducted in a manner which provides for permanent maintenance-free drainage, minimizes concentration of runoff, soil erosion and slope instability, prevents unnecessary damage to soil resources, promotes regeneration, and protects the quality and beneficial uses of water. General abandonment procedures shall be applied in a manner which satisfies this standard and include the following:

(a) Blockage of roads so that standard production four wheel-drive highway vehicles cannot pass the point of closure at the time of abandonment.

(b) Stabilization of exposed soil on cuts, fills, or sidecast where deleterious quantities of eroded surface soils may be transported in a watercourse.

(c) Grading or shaping of road and landing surfaces to provide dispersal of water flow.

(d) Pulling or shaping of fills or sidecast where necessary to prevent discharge of materials into watercourses due to failure of cuts, fills, or sidecast.

(e) Removal of watercourse crossings, other drainage structures, and associated fills in accordance with 14 CCR 923.3(d). Where it is not feasible to remove drainage structures and associated fills, the fill shall be excavated to provide an overflow channel which will minimize erosion of fill and prevent diversion of overflow along the road should the drainage structure become plugged.

The Director may approve an exception to a requirement set forth in (b) through (e) above when such exceptions are explained and justified in the THP and the exception would provide for the protection of the beneficial uses of water or control erosion to a standard at least equal to that which would result from the application of the standard rule.

ITEM 24f:

Soil stabilization measures for road abandonment operations will follow specifications mentioned in Section II, Item #18 of this THP.

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Abandonment of Road 211, Road 212 and 212A involves the removal of 4 culverts and associated fill at map points 1.0, 1.5, 1.6 and 2.0 and excavation of fill at 4 un-drained watercourse crossings at map points 1.2, 2.2, 2.3 and 2.4. Other work includes installing broad rolling dips, excavation of perched fill, watercourse re-alignment and installation of erosion control structures. For all Class II and Class III watercourse crossings, work will be done meeting the requirements of an approved Stream Alteration Agreement by the Department of Fish & Game.

Depending on the time of year, water may need to be diverted around sites at Map Points 1.0, 1.6 and 2.0 to conduct work and minimize potential sediment inputs. All other road abandonment sites, including other Class II crossings, should be dry at any period during operations. If water is flowing at the time of operations, sand bags or similar material will be used to capture the flow in a hose or pipe to divert water around the site. The pipe will travel to the natural channel below the sites. Pumps may be used if needed to route the water temporarily. A 1600 permit will be obtained from the Department of Fish & Game and amended into the THP as a minor amendment prior to repairing the site.

The following mitigation measures apply to road abandonment of Road 211, Road 212 and Road 212A, that will satisfy the requirements of 14 CCR 923.8:

The existing traveled surface of Road 211, Road 212 and Road 212A is covered in vegetative litter, brush and regenerating conifers and hardwoods. To minimize disturbance to vegetation along the road prism and to allow passage of vehicles for refueling, etc., the following measures shall apply between excavation sites and installed cross drains.

- The blade of the tractor shall not be used to grade the road surface, unless needed to allow for safe passage of a standard 4 x 4 truck.
- Equipment shall use one set of tracks during ingress and egress to work sites.

Erosion control structures or “cross drains” shall be installed as part of road abandonment work. The location of each cross drain has been flagged with message flagging (pink/black stripe & yellow). The method of construction of cross drains shall conform to the following specifications:

- Cross drains shall be an oversized, deeply cut waterbar that drains the road surface and the inboard ditch (if any). The depth of the cross drain measured from the original road surface shall be at least 12 inches. The width shall be at least 3 feet and its side bank steepness shall be less than 50 percent.
- Soil from excavation shall be mounded as a berm on the downhill side of the drain to increase its overall height and to allow free, unobstructed drainage into the drain from the road surface.
- Cross drains shall break the outside berm, unimpeded by existing vegetation in order to further facilitate proper road drainage.

All excavated material and bare soil created from excavation, unless otherwise specified, shall be stabilized as described in THP Section II, Item 18

The following measures apply to Road 211:

MP 1.0 – At Map Point 1.0 the road crosses a minor Class II watercourse with 18 inch culvert. The culvert was not set to the natural grade of the stream channel with no downspout and drainage is traveling through a soil pipe below the culvert. Consequently this resulted in approximately 20 cubic yards of transported sediment from the fill slope. Approximately 5 cubic yards of the fill slope has failed along an over steepened section of side cast fill, threatening to continue transporting sediment. A future yield of sediment transport has been estimated at 64 cubic yards. The stream gradient through the crossing is approximately 30% and stream bed width of 2.5 feet.

Mitigation

The THP proposes an in-place stream crossing excavation. Fill shall be excavated through the stream crossing, re-establishing a 3.5 foot wide stream channel to the natural grade. Channel banks shall be sloped back no steeper than a 1:1 (45 degree) angle, where the grade shall extend from the channel bed to the top of the road prism. The stream channel shall be stepped, using wood material fixed within the excavated stream channel. Side cast fill material shall be excavated from the culvert outlet, 50 feet east to message flagging, where the excavated slope shall be laid back no more than a 1: 1 (45 degree) angle. Excavated material shall be evenly distributed on the road surface and outsloped to allow for immediate drainage of the road prism. Exposed mineral soil at the crossing shall be mulched or treated with slash prior to the completion of operations or October 15th of the year the crossing is excavated.

MP 1.1 – At Map Point 1.1 a gully crosses the road created by an exposed soil pipe, located at the road inboard. Drainage travels through the gully across the first 2/3 of the road surface, continuing down a soil pipe and exiting at

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the base of the fill slope. Below the base of the fill slope is a flat area, where drainage dissipates through filter strips of vegetation.

Mitigation

The THP proposes to create a broad dip, approximately 20 feet in width. The dip shall be wide enough to capture drainage from the soil pipe and oriented directly across the traveled road surface. Approximately 50 cubic yards of soil will be excavated.

MP 1.2 – At Map Point 1.2 the road crosses a minor un-drained Class III watercourse. There is little evidence of a channel through the crossing. The existing channel located at the fill slope is slightly out of alignment with the natural stream channel. Fillslope failure contributed approximately 5 cubic yards of sediment. A future yield of sediment transport has been estimated at 104 cubic yards. The stream gradient through the crossing is approximately 37% and stream bed width of 1.5 feet.

Mitigation

The THP proposes an in-place stream crossing excavation and channel re-alignment. Fill shall be excavated through the stream crossing, re-establishing a 2.5 wide stream channel to the natural grade. Channel banks shall be sloped back no steeper than a 1:1 (45 degree) angle, where the grade shall extend from the channel bed to the top of the road prism. The stream channel shall be stepped, using wood material fixed within the excavated stream channel. Excavated materials shall be evenly distributed on the road surface and outsloped to allow for immediate drainage of the road prism. Exposed mineral soil at the crossing shall be mulched or treated with slash prior to the completion of operations or October 15th of the year the crossing is excavated.

MP 1.3 – At Map Point 1.3 the road crosses a swale with 12 inch culvert. There is no channel immediately above or below crossing.

Mitigation

The THP proposes to remove culvert and create a broad dip. Approximately 70 cubic yards of soil will be excavated. Excavated materials shall be evenly distributed on the road surface and outsloped to allow for immediate drainage of the road prism.

MP 1.4 – At Map Point 1.4 the road crosses a minor un-drained Class III watercourse. The stream channel at the inboard of the road is not in alignment with the channel above. This crossing had previously been excavated and is functioning as a Class III watercourse crossing. The stream channel across the road and along the fill slope is well vegetated.

Mitigation

The THP proposes to re-align the stream channel. Exposed mineral soil at the crossing shall be mulched or treated with slash prior to the completion of operations or October 15th of the year the crossing is excavated.

MP 1.5 – At Map Point 1.5 the road crosses a Class III watercourse with 24 inch culvert, adjacent to an area of un-drained fill material above the culvert inlet. The culvert was not set at the natural grade of the stream channel with no down spout. Consequently this has resulted in approximately 45 cubic yards of transported sediment from un-drained fill material and sidecast fill slope. A future yield of sediment transport has been estimated at 60 cubic yards. The stream gradient through the crossing is approximately 25% and stream bed width 2.0 to 2.5 feet.

Mitigation

The THP proposes an in-place stream crossing excavation. Fill shall be excavated through the stream crossing beginning 17 feet downstream from a sandstone bedrock waterfall (cutbank) down to the base of the fill slope, re-establishing a 3.5 foot wide stream channel to the natural grade. From the waterfall/cutbank down to 17 feet downstream, the stream channel gradient and bed shall be left as is, only widened to 3.5 feet and banks laid back to a 1:1(45 degree) angle. Channel banks shall be sloped back no steeper than a 1: 1 (45 degree) angle, where the grade shall extend from the channel bed to the top of the road prism. The stream channel shall be stepped, using wood material fixed within the excavated stream channel. Excavated materials shall be distributed on the road surface up to the first cross drain above, with remaining excavated materials distributed below, and outsloped to allow for immediate drainage of the road prism. Exposed mineral soil at the crossing shall be mulched or treated with slash prior to the completion of operations or October 15th of the year the crossing is excavated.

MP 1.6 – At Map Point 1.6 the road crosses a Class II watercourse with 30 inch culvert. The culvert is set near the natural grade of the stream channel and positioned out of alignment at the outlet. The culvert is currently functioning with only minor scouring of the stream bank below the culvert outlet. The stream gradient through the crossing is estimated at 28% and stream width of 3.0 feet. A minor Class III watercourse intersects the Class II just above the

NOTE: This is a DRAFT THP and substantial revisions will likely occur prior to submittal.

culvert inlet.

Mitigation

The THP proposes an in-place stream crossing excavation and stream channel re-alignment. Fill shall be excavated through the stream crossing, re-establishing a 4 foot wide stream channel to the natural grade and alignment to the highest extent feasible. Channel banks shall be sloped back no steeper than a 1: 1 (45 degree) angle, where the grade shall extend from the channel bed to the top of the road prism. The stream channel shall be stepped, using wood material fixed within the excavated stream channel. Excavation of the left bank (looking downstream) of the Class III shall be incorporated into the left bank of the Class II excavation. Excavated materials shall be evenly distributed on the road surface and outsloped to allow for immediate drainage of the road prism. Exposed mineral soil at the crossing shall be mulched or treated with slash prior to the completion of operations or October 15th of the year the crossing is excavated.

The following measures apply to Road 212:

MP 2.0.1 – At Map Point 2.0.1 the road crosses a Class III watercourse with 18 inch culvert, located just outside a locked gate. The culvert is not adequate to support a 50-year flow and fill material has eroded at the culvert outlet. Pacific Gas & Electric utilizes a skid road just north and uphill from map point 2.0.1 to access facilities of a 60kV power line.

Mitigation

The culvert will either be excavated, reestablishing the stream channel or replaced with a culvert large enough to allow flow of a 100-year storm.

MP 2.0 – At Map Point 2.0 the road crosses a Class II watercourse with 30 inch culvert. The culvert was not set at the natural grade of the stream channel and drainage has undermined the culvert, resulting in approximately 25 cubic yards of transported sediment from the fill slope. A future yield of sediment transport has been estimated at 37 cubic yards. The stream gradient through the crossing is approximately 5% and stream bed width of 12 feet.

Mitigation

The THP proposes an in-place stream crossing excavation. Fill shall be excavated through the stream crossing, re-establishing a 12 foot wide stream channel to the natural grade. Channel banks shall be sloped back no steeper than a 1:1 (45 degree) angle, where the grade shall extend from the channel bed to the top of the road prism. Excavated materials shall be evenly distributed on the road surface and outsloped to allow for immediate drainage of the road prism. Exposed mineral soil at the crossing shall be mulched or treated with slash prior to the completion of operations or October 15th of the year the crossing is excavated.

MP 2.1 – At Map Point 2.1 the road crosses a minor un-drained Class III watercourse. This crossing had previously been dipped and is functioning to allow drainage to cross road. The fill slope is well vegetated.

Mitigation

The THP proposes to deepen the channel from the road surface and extend the width of the existing broad rolling dip. Approximately 35 cubic yards of soil will be excavated. Excavated materials shall be evenly distributed on the road surface and outsloped to allow for immediate drainage of the road prism. Exposed mineral soil at the crossing shall be mulched or treated with slash prior to the completion of operations or October 15th of the year the crossing is excavated.

MP 2.2 – At Map Point 2.2 the road crosses a minor un-drained Class III watercourse. There is no defined channel immediately above and through the crossing. Surface flow is evident from head cutting of fill material along outboard of road. Approximately 8 cubic yards of sediment transport occurred to due at fill slope failure. A future yield of sediment transport has been estimated at 10 cubic yards. The stream channel bed width is approximately 4 feet at the base of the fill slope.

Mitigation

The THP proposes an in-place stream crossing excavation. Fill shall be excavated to establish a channel width of 4 feet at the base of the fill slope. The excavation shall reach to the natural stream bed at the outboard of the road, decreasing in depth and increasing in channel width proceeding upstream to the road inboard. Extent of excavation at inboard of road shall be wide enough to capture drainage and match gradient immediately upstream. Channel banks shall be sloped back no steeper than a 1:1 (45 degree) angle, where the grade shall extend from the channel bed to the top of the road prism. Excavated materials shall be evenly distributed on the road surface and outsloped to allow for immediate drainage of the road prism. Exposed mineral soil at the crossing shall be mulched or treated with slash prior to the completion of operations or October 15th of the year the crossing is excavated.

NOTE: This is a DRAFT THP and substantial revisions will likely occur prior to submittal.

MP 2.3 – At Map Point 2.3 the road crosses a minor un-drained Class III watercourse. Approximately 10 cubic yards of sediment transport has occurred at the fill slope. A future yield of sediment transport has been estimated at 7 cubic yards. The stream gradient through the crossing is approximately 10% and stream bed width of 1.5 to 2.5 feet.

Mitigation

The THP proposes an in-place stream crossing excavation. Fill shall be excavated through the stream crossing, re-establishing a 3 foot wide stream channel to the natural grade. Channel banks shall be sloped back no steeper than a 1:1 (45 degree) angle, where the grade shall extend from the channel bed to the top of the road prism. Excavated materials shall be evenly distributed on the road surface and outsloped to allow for immediate drainage of the road prism. Exposed mineral soil at the crossing shall be mulched or treated with slash prior to the completion of operations or October 15th of the year the crossing is excavated.

MP 2.4 – At Map Point 2.4 an un-drained Class II watercourse transects through a landing area. It is likely that water through the crossing will be absent during operations. The existing channel meanders through the landing area showing evidence of head cutting. Approximately 65 cubic yards of sediment transport has occurred. A future yield of sediment transport has been estimated at 107 cubic yards. The stream gradient through the crossing is approximately 10% and stream bed width of 4 feet.

Mitigation

The THP proposes an in-place stream crossing excavation. Fill shall be excavated through the stream crossing, re-establishing a 5 foot wide stream channel to the natural grade. Channel banks shall be sloped back no steeper than a 1.5: 1 (66%) angle, where the grade shall extend from the channel bed to the top of the road prism. The stream channel shall be stepped, using wood material fixed within the excavated stream channel. Excavated materials shall be evenly distributed on the road surface and outsloped to allow for immediate drainage of the road prism. Exposed mineral soil at the crossing shall be mulched or treated with slash prior to the completion of operations or October 15th of the year the crossing is excavated.

The following measures apply to Road 212A:

MP 2.5

Mitigation

ITEM 24k:

Four existing landings will be abandoned on Road 211 and Road 212; one is located on Road 211 and the remaining are on WLPZ Road 212.

WATERCOURSE AND LAKE PROTECTION ZONE (WLPZ) AND DOMESTIC WATER SUPPLY PROTECTION MEASURES

- 26. a. Yes No Are there any watercourse or lakes which contain Class I through IV waters on or adjacent to the plan area? If yes, list the class, WLPZ or ELZ width, and protective measures determined from Table I and/or 14 CCR 916 (936, 956) .4 (c) of the WLPZ rules for each watercourse. Specify if Class III or IV watercourses have WLPZ, ELZ or both.
- b. Yes No Are there any watercourse crossings that require mapping per 14 CCR 1034 (x) (7)?
- c. Yes No Will tractor road watercourse crossings involve the use of a culvert? If yes state minimum diameter and length for each culvert (may be shown on map).
- d. Yes No Is this THP Review Process to be used to meet Department of Fish and Game CEQA review requirements? If yes, attach the 1603 Addendum below or at the end of this Section II; provide the background information and analysis in Section III; list instructions for LTO below for the installation, protection measures, and mitigation measures; as per THP Form Instructions or CDF Mass Mailing, 07/02/1999, "Fish and Game Code 1603 Agreements and THP Documentation".

Watercourse and Lake Protection Zone (WLPZ) Widths:

<u>Slope (%)</u>	<u>Class I WLPZ (ft)</u>	<u>Class II WLPZ (ft)</u>	<u>Seeps/Springs(ft)</u>	<u>Class III ELZ/(ft)</u>
< 30	N/A	100	50	25
30-50	N/A	100	75	50
>50	N/A	100	100*	50

*Subtract 25 feet width for cable yarding operations.

Class I Watercourse

NOTE: This is a DRAFT THP and substantial revisions will likely occur prior to submittal.

There are no Class I watercourses identified within or immediately adjacent to the plan area. Further description of the downstream Class I locations are discussed in Section III, Item 26.

There are four Class I watercourses on appurtenant roads as mapped on the General Location Map (all locations below are for drafting).

Parlin Creek Bridge: This crossing is located on paved forest road 320 near Parlin Fork Conservation Camp. The bridge is constructed of log stringers with multi-column supports and reinforced concrete abutments. The structure is 16 m long and 5.4m wide. There are no impediments to fish movement through this crossing.

- **North Fork Big River Bridge:** This crossing is located on rock forest Road 800. The bridge construction consists of concrete superstructure on reinforced concrete abutments. The structure is 11.6m long and 4.9m wide. There are no impediments to fish movement through this crossing.
- **Park Gulch Bridge:** This crossing is located on rock forest Road 200. The bridge is constructed of log stringers with reinforced concrete abutments. The structure is 10.1m long and 4.3 m wide. There are no impediments to fish movement through this crossing.
- **Chamberlain Creek Bridge:** This crossing is located on rock forest Road 200. The bridge is constructed of log stringers on reinforced concrete abutments. The structure is 9.8m long and 4.3m wide. There are no impediments to fish passage through this crossing.

Class I drafting location and guidelines

The THP may draft water out of Class I watercourses for dust abatement. JDSF is preparing a water drafting plan to obtain 1600 agreements for these drafting locations, serving other harvest plans, including the Dunlap North THP. The pertinent 1600 agreements will be amended into this THP as a minor deviation as act as the drafting plan for this THP.

Class I drafting locations:

- **WD1** is an existing drafting site on a Class I watercourse located on the South Fork of the Noyo River, in the SW quarter of the SW quarter of Section 33, T18N, R16W, MDB&M. It is located on Road 300, ¼ mile west of Parlin Fork Conservation Camp. Access can be obtained via JDSF Road 320 from Highway 20. The access road to this drafting site shall be rock prior to use of WD1 for the purpose of water drafting.
- **WD2** is an existing drafting site on a Class I watercourse located at the confluence of Chamberlain Creek and West Chamberlain Creek, in the northeast quarter of the northwest quarter of Section 5, Township 17N, Range 15W, MDB&M. It may be accessed from Highway 20 by turning north on Road 200 (at approximately the 17.3 mile marker), and proceeding for approximately 1 mile, then turn right on the rock access road to the drafting site.
- **WD3** is an existing drafting site on a Class I watercourse located on the North Fork of Big River, in the northeast quarter of the northeast quarter of Section 8, Township 17N, Range 15W, MDB&M. It is accessed from Highway 20 by turning south on JDSF Road 800 near the Little Red Schoolhouse (just east of Camp 20 at approximately the 17.4 mile marker); turn left on JDSF Road 810 after crossing the bridge, then turn left at the first road junction and proceed to the drafting site. The access road has a native surface and portions of the road within the WLPZ shall be rock with clean, competent rock to a minimum depth of 6" prior to use of WD3 for the purpose of water drafting.

Water may be drafted from Class I watercourses for dust abatement purposes. The water level and flow of Class I watercourses drafted upon, shall not be decreased downstream of the drafting intake or diversion to a point that 10% or more of the flow is diverted. Water diversion from Class I watercourses shall meet the CDF&G screening and approach velocity criteria. These criteria are summarized as follows: pump intakes shall be screened with mesh, perforated plate, or pipe with openings 3/32 inches or smaller. The velocity of water entering the intake (approach velocity) will not exceed 0.33 feet/second. Any logging road approaches within a WLPZ to the drafting location shall be rock or stabilized with suitable material providing equal or greater erosion protection than rock. Water drafting locations where overland flow could cause sediment to enter a watercourse shall have sediment containment devices such as straw waddles or straw bales as required by pertinent 1600 agreements. Water usage will be restricted in such a way so as to keep flows above critical levels. Modifications to drafting locations will minimize removal/disturbance to the stream bank, streambed, and existing vegetation.

Yearly timing of water drafting: It is anticipated that timber operations including dust abatement activity will occur between April 1st and November 15th.

Estimated total volume required for dust abatement: 500,000 gallons

Estimated filling time: 10 minutes @ 350gpm and a 3500 gallon tank

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Water drafting activity associated with other projects: Two future THPs. These THPs are planned to be active and have the same drafting location as this THP.

Estimated bypass flow: ≥ 2 CFS average

Estimated pool volume reduction: $<10\%$

Estimated diversion rate: 350 GPM for 10 minutes three times a day = 10500 gallons per day

*No drafting will occur if flows fall below 2 cfs unless operating under a 1600 agreement that allows drafting under low flow conditions.

Class II Watercourse

A watercourse and lake protection zone shall be established on Class II watercourses which shall be 100 feet in width on all slopes where cable and tractor yarding is proposed. The WLPZ will be at least as wide as described above, as flagged in the field. The WLPZ will be flagged upslope of any slide areas found in the standard WLPZ. Within the Class II WLPZ the following protection measures shall be followed:

- Class II watercourse centerlines are flagged with blue/white flagging. Pink-glo Site-Mark® “TIMBER HARVEST BOUNDARY” in black lettering may be present if the centerline is also a THP boundary.
- Class II WLPZ boundaries are identified with blue/white lettered “WLPZ” flagging.
- Within 0 to 25 feet of the watercourse and lake transition line no trees shall be harvested with the exception of trees felled for cable corridors or for safety purposes.
 - Where active sliding occurs within the WLPZ this no-cut will extend above any active scarp.
- 70% of the total canopy covering the ground shall be left in a well distributed multi-storied stand configuration composed of a diversity of species similar to that found before the start of operations Harvest trees within the WLPZ have been marked with a base mark below the cut line by the RPF, or supervised designee prior to the pre-harvest inspection.
- Native hardwoods shall not be harvested in the WLPZ except for cable corridors, incidental damage due to falling and yarding operations and safety concerns.
- Accidental depositions of soil or other debris in lakes or below the watercourse or lake transition line in waters classed II, and IV shall be removed immediately after the deposition.
- Trees cut within the WLPZ shall be felled away from the watercourse by pulling or other mechanical methods if necessary, in order to protect the residual vegetation in the WLPZ.
- No salvage logging shall occur.
- Harvesting within the Class II WLPZ will be limited to removal of codominant, intermediate, or suppressed trees to promote growth on larger diameter dominant trees and improve LWD recruitment potential.
- Trees cut within the WLPZ to accommodate cable yarding corridors may be harvested.
- The LTO shall practice full suspension of logs yarded across any Class II watercourse to the highest extent feasible.

14 CCR 916.5(e).

“B” WLPZ shall be clearly identified on the ground by an RPF, or supervised designee, with paint, flagging, or other suitable means, prior to the start of timber operations. In watersheds with threatened or impaired values, on the ground identification of the WLPZ must be completed prior to the preharvest inspection.

“E” To ensure retention of shade canopy filter strip properties and the maintenance of wildlife values described in 14 CCR 916.4(b) [936.4(b), 956.4(b)], a base mark shall be placed below the cut line of the residual or harvest trees within the zone and shall be done in advance of timber falling operations by an RPF, or supervised designee. In planning watersheds determined to contain Coho salmon, Chinook salmon, or Steelhead, tree marking must be completed prior to the preharvest inspection. Sample marking is satisfactory in those cases where the Director determines it is adequate for the plan evaluation. When sample marking has been used, all marking shall be done in advance of falling operations.

“I” To protect water temperature, filter strip properties, upslope stability, and fish and wildlife values, at least 50% of the total canopy covering the ground shall be left in a well distributed multi-storied stand configuration composed of a diversity of species similar to that found before the start of operations. The residual overstory canopy shall be composed of at least 25% of the existing overstory conifers. Due to variability in Class II watercourses these percentages and species composition may be adjusted to meet on-site conditions when agreed to by the RPF and the Director in the THP.

Timber operations within 100 feet of Class II watercourses are designed and will be conducted so that the significant objective of protection, maintenance, or restoration of the beneficial uses of water or the populations and habitat of anadromous salmonids or listed aquatic or riparian-associated species will be attained. Specific practices utilized include establishment of 100 foot WLPZs for all slopes and limiting heavy equipment use near watercourses. Shade

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canopy retention is required as specified above. Protection measures and retention elements to be applied within Class II watercourses exceed those required by the Forest Practice rules. Silviculture in the entire plan area is selection and will achieve significant upslope retention. Limiting timber operations as described above will allow for future timber production while meeting the requirements of Title 14 CCR 916.2 and Title 14CCR 916.9.1(c).

Class III Watercourse

Where timber operations occur adjacent to Class III watercourses, the LTO shall maintain an equipment limitation zone (ELZ) of at least 25 feet where sideslope steepness is less than 30% and at least 50 feet where sideslope steepness is 30% or greater.

Soil deposited during timber operations in a Class III watercourse other than at a temporary crossing shall be removed, and debris deposited during timber operations shall be removed or stabilized, before the conclusion of timber operations and no later than October 15.

- The LTO shall increase the ELZ widths as needed to prevent non-accidental deposition of soil into the watercourse.
- Heavy equipment shall not be operated within the ELZ except at truck road crossings.
- Class III watercourse centerlines are flagged with blue and white polka-dot flagging.
- ELZ boundaries within tractor operating areas and within vicinity of where heavy equipment will be operating will be identified with red and white (combined) flagging. The ELZ boundary within cable operating areas has not been flagged.
- The LTO shall increase the ELZ widths as needed to prevent non-accidental deposition of soil into the watercourse.
- Except for the necessary removal of trees for safe cable yarding operations, no harvest shall occur within the active channel zone of Class III watercourses.
- No salvage logging will occur within Class III watercourses.

14 CCR 916.5(e).

"C" In site-specific cases, the RPF may provide in the plan, or the Director may require, that the WLPZ be clearly identified on the ground with flagging or by other suitable means prior to the start of timber operations.

"F" Residual or harvest tree marking within the WLPZ may be stipulated in the THP by the RPF or required by the Director in site-specific cases to ensure retention of filter strip properties or to maintain soil stability of the zone. The RPF shall state in the THP if marking was used in these zones.

"H" At least 50% of the understory vegetation present before timber operations shall be left living and well distributed within the WLPZ to maintain soil stability. This percentage may be adjusted to meet on-site conditions when agreed to in the THP by the RPF and the Director. Unless required by the Director, this shall not be construed to prohibit broadcast burning with a project type burning permit for site preparation.

Springs and Seeps

With the exception of WLPZ width, natural springs and seeps are provided the same protections as Class II watercourses. WLPZ widths are stated in the table above. The location of springs/seeps has been mapped on the timber harvest plan map found at the end of Section II.

Wet Area

There is one wet area identified within the harvest area. WLPZ flagging for an adjacent spring surrounds the perimeter of the Wet Area, providing the Wet Area with the same protection.

14 CCR 916(b) The LTO shall not do either of the following during timber operations:

- (1) Place, discharge, or dispose of or deposit in such a manner as to permit to pass into the waters of the State, any substances or materials, including, but not limited to, soil, silt, bark, slash, sawdust, or petroleum, in quantities deleterious to fish, wildlife, beneficial functions of riparian zones, or the quality and beneficial uses of water;
- (2) Remove water, trees or large woody debris from a watercourse or lake, the adjacent riparian area, or the adjacent flood plain in quantities deleterious to fish, wildlife, beneficial functions of riparian zones, or the quality and beneficial uses of water.

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ITEM 26d:

Notification to DFG under F&G code 1611 for the purposes of a Streambed Alteration Agreement is hereby given. The proposed project involves the removal of culverts, and undrained fill crossings along Road 211 and 212. Other work includes installing broad rolling dips, excavation of perched fill, watercourse re-alignment and installation of erosion control structures. Work sites subject to a Streambed Alteration Agreement include those located at Map Points 1.0, 1.2, 1.4, 1.5, 2.0, 2.4 and 2.5. Also there will be water drafting at Class I streams in the area as part of this project.

1600 information pertaining to road map points 1.0, 1.6, 2.0, 2.4 and 2.5 for Class II watercourses and map points 1.2, 1.4, 1.5, 2.1, 2.2, 2.3 and 3.0 for Class III watercourses.

Activity/Facility Description:

a. The volume, type and equipment to be used in removing or displacing any one or combination of soil, sand, gravel, or boulders;

An estimated 1,231 cubic yards of material will be removed using the combination of a tractor dozer and excavator.

b. The volume of water, intended use, and equipment to be used in any water diversions or impoundment, if applicable;

Depending on the time of year, water may need to be diverted around the sites to conduct work. If water is flowing at the time of operations, sand bags or similar material will be used to capture the flow in a hose or pipe to divert water around the site. The pipe will travel to the natural channel below the sites. Pumps may be used if needed to route the water temporarily.

c. The equipment to be used in road or bridge construction or reconstruction;

Excavators, backhoe and/ or tractors.

d. The type and density of vegetation to be affected and an estimate of the area involved.

All excavation sites are within an existing road prism, where vegetation has regenerated from the last timber harvest in 1970. Most of this vegetation includes both native vegetation and exotic French broom. Low lying brush and plants in the immediate vicinity of the sites will be removed at crossings where improvements are proposed. Larger hardwoods and conifers that are established in fill material may also need to be removed. Removal of these trees may be necessary to prevent tree uprooting that could cause sediment delivery into the stream channel. Area involved at the sites totals approximately 9,100 square feet.

e. The THP map shall include a diagram or sketch of the location which clearly indicates the stream or other water access from a named public road, Locked gates shall be indicated. The compass direction must be shown.

The General Location Map and THP Map found at the end of Section II include this information.

f. A description of the period of time in which operations will be carried out.

Operations will occur from May 1 to October 15, during dry, rainless periods.

g. Aquatic species: Possible non-fish aquatic species that may be present within the stream channel of a Class II watercourse include may fly, caddis fly, stonefly, hellgrammite, water beetle and other forms of non-fish aquatic species. Aquatic plant species were not observed at excavation sites.

h. Riparian species: Riparian vegetation includes grasses, forbs, *Equisetum*, deer fern, *Rubus* spp. and sparse willow.

i. Changes in sediment and / or flow delivery rates, dewatered or impounded watercourse, bank destabilization, eliminated riparian vegetation, disturbance effects, and reduced canopy affects on microclimate and/or water temperature.

Significant changes in the current rate of sediment delivery are not expected as a result of work proposed at the sites. However the potential for sediment delivery resulting from crossing failure will be reduced as a result of work proposed at the sites. Temporary diversions of water are discussed above. Bank destabilization is not expected due to proposed operations. A small amount of riparian plant species will be eliminated where excavation is proposed.

NOTE: This is a DRAFT THP and substantial revisions will likely occur prior to submittal.
Significant reductions in existing canopy will not occur.

j. Detailed measures to mitigate each possible impact.

Exposed mineral soil at the crossings shall be mulched or treated with slash prior to completion of operations or October 15th, whichever is earlier, of the year the crossing is excavated. Where crossings will be removed, channel bank slopes will be laid back no steeper than a 1:1 (45 degree) angle. Detailed descriptions of work sites are provided in Item 25.

27. Are site specific practices proposed in-lieu of the following standard WLPZ practices?

- a. Yes No Prohibition of the construction or reconstruction of roads, construction or use of tractor roads or landings in Class I, II, III, or IV watercourses, WLPZs, marshes, wet meadows, and other wet areas except as follows:
(1) At prepared tractor road crossings.
(2) Crossings of Class III watercourses which are dry at time of timber operations.
(3) At existing road crossings.
(4) At new tractor and road crossings approved by Department of Fish and Game.
- b. Yes No Retention of non-commercial vegetation bordering and covering meadows and wet areas?
- c. Yes No Directional felling of trees within the WLPZ away from the watercourse or lake?
- d. Yes No Increase or Decrease of width(s) of the WLPZ(s)? (**Increase**)
- e. Yes No Protection of watercourses which conduct class IV waters?
- f. Yes No Exclusion of heavy equipment from the WLPZ except as follows:
(1) At prepared tractor road crossings.
(2) Crossings of Class III watercourses which are dry at time of timber operations.
(3) At existing road crossings.
(4) At new tractor and road crossings approved by Department of Fish and Game.
- g. Yes No Establishment of ELZ for Class III watercourses unless sideslopes are <30% and EHR is low?
- h. Yes No Retention of at least 50% of the overstory canopy in the WLPZ?
- i. Yes No Retention of at least 50% of the understory in the WLPZ?
- j. Yes No Are any additional in-lieu or any alternative practices proposed for watercourse or lake protection?

NOTE: A yes answer to any of items "a." through "j." constitutes an in-lieu practice. If any item is answered yes, refer to 14 CCR 916 (936, 956).1 and address the following for each item checked yes:

1. The RPF shall state the standard rule;
2. Explain and describe each proposed practice;
3. Explain how the proposed practice differs from the standard practice;
4. The specific location where it shall be applied, see map requirements of 14 CCR 1034 (x) (15) and (16);
5. Provide in THP Section III an explanation and justification as to how the protection provided is equal to the standard rule and provides for the protection of the beneficial uses of water, as per 14 CCR 916 (936, 956) .1 (a). Reference the in-lieu and location to the specific watercourse to which it will be applied.

ITEM 27d: An increased width for the Class II WLPZ is proposed.

- 1) The standard rule states:
"The following procedures for determining WLPZ widths and protective measures shall be followed:" (14 CCR 916.5)
"The standard protection zone width differentiated by slope classes determined in Subsection (a) are shown in Rows 4-7, Table I 14 CCR 916.5." (14 CCR 916.5(c))
"Subtract 25 feet width for cable yarding operations." (14 CCR 916.5, Table I, footnote 3)
- 2) The proposed in-lieu practice establishes the Class II WLPZ width at 100 feet for all slopes.
- 3) The proposed practice differs from the standard practice in that the affected WLPZ is 25 to 80 feet wider, depending upon slope, than if the standard practice had been applied.
- 4) The proposed practice is applied to all Class II watercourses. This does not apply to areas identified as Wet Areas, Seeps and/or Springs on the plan maps.
- 5) Explanation and justification – see Section III, Item 27d.

28. a. Yes No Are there any landowners within 1000 feet downstream of the THP boundary whose ownership adjoins or includes a class I, II, or IV watercourse(s) which receives surface drainage from the proposed timber operations? If yes, the requirements of 14 CCR 1032.10 apply. Proof of notice by letter and newspaper should be included in THP Section V. If No, "28 b." need not be answered.

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- b. Yes No Is an exemption requested of the notification requirements of 14 CCR 1032.10? If yes, an explanation and justification for the exemption must appear in THP Section III. Specify if requesting an exemption from the letter, the newspaper notice or both.
- c. Yes No Was any information received on domestic water supplies that required additional mitigation beyond that required by standard Watercourse and Lake Protection rules? If yes, list site specific measures to be implemented by the LTO.
29. Yes No Is any part of the THP area within a Sensitive Watershed as designated by the Board of Forestry and Fire Protection? If yes, identify the watershed and list any special rules, operating procedures or mitigation that will be used to protect the resources identified at risk?

HAZARD REDUCTION

30. a. Yes No Are there roads or improvements which require slash treatment adjacent to them? If yes, specify the type of improvement, treatment distance, and treatment method.

Per 14CCR 917.2(b): Within 100 feet of the edge of the traveled surface of public roads, and within 50 feet of the edge of the traveled surface of permanent private roads open for public use where permission to pass is not required, slash created and trees knocked down by road construction or timber operations shall be treated by lopping for fire hazard reduction, piling and burning, chipping, burying or removal from the zone. This shall apply to the harvest areas in the THP that are within 100 feet of Road 210, Road 213 and on the proposed seasonal roads that are not blocked or gated at completion of operations.

- b. Yes No Are any alternatives to the rules for slash treatment along roads and within 200 feet of structures requested? If yes, RPF must explain and justify how alternative provides equal fire protection. Include a description of the alternative and where it will be utilized below.
31. Yes No Will piling and burning be used for hazard reduction? See 14 CCR 917.1-.11, 937.1-.10, or 957.1-.10, for specific requirements. Note: LTO is responsible for slash disposal. This responsibility cannot be transferred.

There are no site specific hazard reduction areas within this THP, but pile burning may be used for fuel load reduction. Slash piles created by the LTO, will be provided at least a 5 ft bare mineral soil buffer surrounding the pile perimeter and material shall be kept sufficiently free of soil or other non-combustible material for effective burning. If these piles are burned, the Plan Submitter (as LTO) shall be responsible for having the piles burned per 14 CCR 917.5(b).

BIOLOGICAL AND CULTURAL RESOURCES

32. a. Yes No Are any plant or animal species, including their habitat, which are listed as rare, threatened or endangered under federal or state law, or a sensitive species by the Board, associated with the THP area? If yes, identify the species and the provisions to be taken for the protection of the species.
- b. Yes No Are there any non-listed species which will be significantly impacted by the operation? If yes, identify the species and the provisions to be taken for the protection of the species.

NOTE: See THP Form Instructions or the CDF Mass Mailing, 07/02/1999, section on "CDF Guidelines for Species Surveys and Mitigations" to complete these questions.

Status designations: FT = Federally Threatened, FE = Federally Endangered, ST = State Threatened, SE = State Endangered, Boff = Board of Forestry Sensitive, R = State Rare

The following state or federally listed species, or Board of Forestry sensitive species are known to be associated with the THP or BAA area:

NORTHERN SPOTTED OWL - FT, BoF

The plan contains habitat suitable for Northern Spotted Owl (NSO) (*Strix occidentalis caurina*). There are no known NSO activity centers within the plan area and none within 0.25 miles. There are two current NSO activity centers

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within 1.3 miles of the plan area (MEN 142 and MEN 062). See Section II for a map of the plan area and all NSO activity centers within 1.3 miles.

No timber operations shall be conducted until a valid letter of technical assistance (TA) has been obtained from the US Fish and Wildlife Service (The Service) per 14 CCR§ 919.9(e) is submitted to CAL FIRE, and is amended into the plan.

NSO surveys will be conducted in conformance with the USFWS approved NSO survey protocols (USFWS 1992). Surveys that deviate from protocol will follow the recommendations of the USFWS to ensure that sufficient data is collected for determining take avoidance.

The protection measures listed below (a-g) shall apply.

Recommended Habitat Protection Measures (these may be modified through technical assistance from USFWS):

- a. The habitat protection area for NSOs shall consist of the area within a 1000-foot radius of a tree or trees containing a nest or supporting an activity center.
- b. No timber operations shall occur within 1,000 feet of an activity center.
- c. A minimum of 500 acres of suitable NSO habitat shall be retained within an area out to 0.7 miles surrounding a tree or trees containing a nest or supporting an activity center. Less than 50 percent of the retained area may be operated in any given year, depending upon the amount of pre-harvest suitable NSO habitat present within 0.7 mile of the tree, or trees, containing a nest or supporting an activity center
- d. A minimum of 1,336 acres of suitable NSO habitat shall remain post-harvest within an area out to 1.3 miles surrounding a tree, or trees, containing a nest or supporting an activity center.

Recommended Operational Protection Measures

- e. The critical period for NSO breeding is February 1 until July 31st. During the critical period, no timber harvest operations are permitted within 0.25 miles of a known activity center.
- f. Helicopter yarding within 0.50 miles of a NSO activity center is prohibited between February 1 and July 31st.
- g. Subsequent technical assistance letters or consultations received from The Service for the proposed project shall be amended into the approved plan. No timber operations shall occur until all amendments, whether substantial deviations or minor deviations have been submitted to CALFIRE and acted on in accordance with the applicable Forest Practice Rules.

MARbled MURRELET (FT, SE)

There is no known potential marbled murrelet habitat within the plan area. Potential marbled murrelet habitat (Camp 20 Grove) is located 300 feet east of the eastern plan boundary. The Camp 20 Grove was surveyed most recently in 2005 and 2006. No murrelets were detected. DFG has reviewed the surveys and classified murrelet status at the Camp 20 Grove as “probable absence”. This status is valid for three consecutive years; 2007 through 2009. No operations shall occur within 0.25 miles of the Camp 20 Grove after 2009 unless further clearance is obtained from DFG. See Section III for more information.

FISH

The Lower North Fork Big River and Two Log Creek watersheds support spawning and rearing habitat for steelhead (FT) and Coho salmon (SE, FE). No habitat for anadromous fish exists in the plan area. Both steelhead and Coho are known to occupy the North Fork Big River downstream from the plan area and near the JDSF property line southwest of the plan area in Two Log Creek. The planning watershed is also identified as supporting Chinook salmon within the California Coast ESU. Protection measures incorporated into Items 18, 23, 25 and 26 of the plan shall protect downstream habitat for these species.

The plan area may have potential habitat for the following state or federally listed (as threatened, endangered or rare) or Board of Forestry Sensitive species that were not observed during plan preparation: northern goshawk (BoF),

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bald eagle (SE, BofF), golden eagle (BoFF), Osprey (BoFF), great blue heron (BoFF), great egret (BoFF), north coast semaphore grass (ST), Humboldt milk vetch (SE), and Roderick's fritillary (SE).

General Protection measures for listed species newly discovered during the course of operations:

1. When an occupied nest site of a listed species is discovered during timber operations the LTO shall cease timber operations. 919.2(d) shall be implemented and timber operations shall not commence until the required consultation listed under 919.2(d) has occurred and has been amended into the THP as a minor amendment.

14 CCR 919.2 (d) When an occupied nest site of a listed species is discovered during the timber operations, the timber operator shall protect the nest tree, screening trees, perch trees, and replacement trees and shall apply the provisions of subsections (b) and (c) of 919.2, and shall immediately notify the Department of Fish and Game and Department of Forestry and Fire Protection. An amendment that shall be considered a minor amendment to the timber harvesting plan shall be filed reflecting such additional protection as is agreed between the operator and the Director after consultation with the Department of Fish and Game.

2. If the LTO observes or otherwise becomes aware of a listed species (plant or animal which is threatened, endangered, or BOF species of special concern) within or adjacent to the harvest area, he/she shall cease operations and contact a JDSF representative. CAL FIRE and DFG will be consulted on any such species found during the course of the operation. Mitigation measures (if any) shall be amended into the plan.

NON-LISTED PLANTS AND ANIMALS

RAPTORS

Raptor surveys will be completed prior to the start of operations. See Section III, Item 32 for a description of the survey methodology utilized for raptor surveys.

Active Raptor Nest Protection: If an occupied nest of a non-listed raptor is discovered during timber operations, the timber operator shall immediately cease operations within 300 feet of the nest until consultation with a DFG biologist has been completed to determine appropriate protection measures.

PLANTS

Seasonally appropriate botanical surveys have been conducted (Section V). Surveys were consistent with DFG Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened and Endangered Plants and Natural Communities (2000). Timber operations shall not commence until 15 days after survey results have been submitted to CAL FIRE and DFG.

No listed (state or federal) or CNPS 1 or 2 plant species were found during botanical surveys.

Default PLANT Protection Measures: The following protection measures have been developed in the event that listed (state or federal) or CNPS 1 or 2 plant species are discovered during timber operations.

- 1) Operations shall cease within 50 feet of the occurrence and the outside buffer shall be flagged.
- 2) The responsible RPF shall be notified of the discovery.
- 3) DFG shall be notified and specific protection measures (if any) shall be developed through consultation with DFG and then submitted to CAL FIRE as a minor amendment.

See the Section III, Plan Addendum to Item 32, THP Section IV; Biological Resources, and THP Section V; Botanical Reports for more information.

33. [] Yes [X] No Are there any snags which must be felled for fire protection or safety reasons? If yes, describe which snags are going to be felled and why.

The California Logging and Sawmill Safety Orders, Title 8 CCR 6259(a), require that "all ... snags which appear to be dangerous to any operation shall be felled."

All snags within the timber harvest area shall be retained with the exception of snags that pose a fire or safety hazard, or are within the alignment of roads proposed for construction. If the LTO determines a snag to be a hazard, the LTO has the option to fall the snag for safety purposes.

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34. Yes No Are any Late Succession Forest Stands proposed for harvest? If yes, describe the measures to be implemented by the LTO that avoid long-term significant adverse effects on fish, wildlife and listed species known to be primarily associated with late succession forests.
35. Yes No Are any other provisions for wildlife protection required by the rules? If yes, describe.
36. a. Yes No Has an archaeological survey been made of the THP area?
b. Yes No Has a current archaeological records check been conducted for the THP area?

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- c. Yes No Are there any archaeological or historical sites located in the THP area? Specific site locations and protection measures are contained in the Confidential Archaeological Addendum in Section VI of the THP, which is not available for general public review.

See Confidential Archaeological Addendum

Per 14 CCR 929.6, no person, except as permitted by law, who is involved in timber operations shall excavate, collect artifacts from, vandalize or loot archaeological or historical sites located within the THP area.

Should any new archaeological or historical materials or potential sites be found during operations on the THP, operations shall cease within 100-ft of the potential site and CAL FIRE shall be immediately notified. Operations other than standard road use shall not resume within 100-ft of the potential site until CAL FIRE has evaluated the area and protective measures, if necessary, have been specified by CAL FIRE.

37. Yes No Has any inventory or growth and yield information designated "trade secret" been submitted in a separate confidential envelope in Section VI of this THP?
38. Describe any special instructions or constraints that are not listed elsewhere in Section II.

Map Point Summary:

Place Table Here

The following identifies various flagging combinations, colors, and meanings associated with it, which has been used to provide information regarding operational controls for harvesting operations. The LTO shall use these colors for any flagging done during operations.

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Dunlap North THP Flagging Code

DESIGNATED ACTIVITY	FLAGGING COLOR
Timber harvesting boundary	pink-glo Site-Mark® "TIMBER HARVEST BOUNDARY" in black lettering
Class II watercourse	blue/white stripe
Wet Area/Seep/Spring	blue/white strip & white (combined)
Class II/Spring/Seep/Wet Area WLPZ	blue/white stripe Site-Mark® "LAKE AND WATERCOURSE PROTECTION ZONE" in black lettering
Class III watercourse	blue/white polka-dot
Tractor/Cable boundary	red/white stripe
Tractor road (skid trail)	solid yellow
Proposed Road - grade & centerline	solid orange Site-Mark® "TRUCK ROAD" in black lettering
Landing at end of road	3 - solid orange (or truck road flagging)
Message flag	pink/black stripe & yellow (combination)
Survey stations, Cruise stations	red/white polka-dot
Faller Strip	solid white
Cable road	solid orange
Equipment Limitation Zone (ELZ) & Equipment Exclusion Zone (EEZ)	solid red & solid white (combined)
Culvert Work	solid orange & white (combined)
Property Line	solid red
SOD Study Plot Boundary	orange/white polka-dot

1035.3 Licensed Timber Operator Responsibilities

Each affected licensed Timber Operator shall:

(a) Sign the plan and major amendments to the plan, or sign and file with the Director a facsimile of such plan or amendments, agreeing to abide by the terms and specifications of the plan. This shall be accomplished prior to implementation of the following; which the affected LTO has responsibility for implementing:

(1) those operations listed under the plan and

(2) those operations listed under any amendments proposing substantial deviations from the plan.

(b) Inform the responsible RPF or plan submitter, whether in writing or orally, of any site conditions which in the LTO's opinion prevent implementation of the approved plan including amendments.

(c) Be responsible for the work of his or her employees and familiarize all employees with the intent and details of the operational and protection measures of the plan and amendments that apply to their work.

(d) Keep a copy of the applicable approved plan and amendments available for reference at the site of active timber operations. The LTO is not required to possess any confidential addenda to the plan such as the Confidential Archaeological Addendum, nor is the LTO required to keep a copy of such confidential plan addenda at the site of active timber operations.

(e) Comply with all provisions of the Act, Board rules and regulations, the applicable approved plan and any approved amendments to the plan.

(f) In the event that the LTO executing the plan was not available to attend the on-site meeting to discuss archaeological site protection with the RPF or supervised designee familiar with on-site conditions pursuant to Section 929.2 [949.2,969.2] (b), it shall be the responsibility of the LTO executing the plan to inquire with the plan submitter, timberland owner, or their authorized agent, RPF who wrote the plan, or the supervised designee familiar with on-site conditions, in order to determine if any mitigation measures or specific operating instructions are contained in the Confidential Archaeological Addendum or any other confidential addendum to the plan.

(g) Provide the RPF responsible for professional advice throughout the timber operations an on-site contact employee authorized by the LTO to receive RPF advice.

(h) Keep the RPF responsible for professional advice throughout the timber operations advised of the status of timber operation activity.

(1) Within five days before, and not later than the day of the start-up of a timber operation, the LTO shall notify the RPF of the start of timber operations.

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(2) Within five days before, and not later than the day of the shutdown of a timber operation, the LTO shall notify the RPF of the shutdown of timber operations.

(A) The notification of the shutdown of timber operations is not required if the period of the shutdown does not extend beyond a weekend, including a nationally designated legal holiday.

(i) Upon receipt of written notice of an RPF's decision to withdraw professional services from the plan, the LTO or on-site contact employee shall cease timber operations, except for emergencies and operations needed to protect water quality, until the LTO has received written notice from the plan submitter that another RPF has visited the plan site and accepts responsibility for providing advice regarding the plan as the RPF of record.

Conditions stated in Section V of the THP which pertain to NCRWQCB General Waste discharge requirements will not be enforced by the Department of Forestry and Fire Protection unless those same conditions are subject to the Forest Practice Act/Rules and included as enforceable provisions in Section II of the THP.

Notification of Commencement of Operations (14 CCR § 1035.4):

Each calendar year, within fifteen days before, and not later than the day of the start up of a timber operation, the Timber Harvesting Plan Submitter, unless the THP identifies another person as responsible, shall notify CAL FIRE of the start of timber operations. The notification, by telephone or by mail, shall be directed to the Mendocino Unit Headquarters, Forest Practice Inspector, or other designated personnel.

Telephone: (707)459-7440

Mail (address): 17501 North Highway 101 / Willits, CA 95490

DIRECTOR OF FORESTRY AND FIRE PROTECTION

This Timber Harvesting Plan conforms to the rules and regulations of the Board of Forestry and Fire Protection and the Forest Practice Act:

By:

(Signature)

(Date)

(Printed Name)

(Title)

NOTE: This is a DRAFT THP and substantial revisions will likely occur prior to submittal.

Insert THP maps
Operations Map
Appurtenant Roads Map
Soils
EHR Map
Geology Map
NSO activity centers within 1.3 miles

DRAFT

SECTION III

GENERAL DESCRIPTION OF PHYSICAL CONDITIONS AT THE PLAN SITE

14 CCR 1034(jj) – A general description of physical conditions at the plan site, including general soils and topography information, vegetation and stand conditions, and watershed and stream conditions.

Project Location

The of the 342 acre Dunlap North THP area is nearly equally divided between the Lower North Fork Big River Planning Watershed (173 acres) and the Two Log Creek Planning Watershed (161 acres), both tributaries to Big River. A small portion (8 acres) is within the Chamberlain Creek Planning Watershed. The THP area is located approximately 13 miles southeast of the community of Fort Bragg, California. The legal description is portions of Sections 5, 6, 7, and 8, Township 17 North, Range 15 West. Mount Diablo Base and Meridian.

General Soils

The soils mapped for the plan area by the Western Mendocino County Soil Survey consist of two soil types, the Irmulco-Tramway complex and the Vandamme loam, which comprise approximately 30 and 70 percent of the plan area, respectively.

Irmulco-Tramway complex This is a very deep to moderately deep, well drained soil on slopes 9 to 30%, 30 to 50% and 50-75% slopes. Included with these soils are small areas of Vandamme soils on 9 to 30% slopes and Vandamme, Dehaven and Hotel soils on 30-75% slopes. The calculated erosion hazard ratings are moderate and high.

Vandamme loam This is a deep, well drained soil occurring on 9-30% slopes. Included with these soils are small areas of Irmulco-Tramway soils. The calculated erosion hazard rating is moderate.

According to the Forest Soils of Mendocino County the mean 100- year redwood site index is 165 on the Irmulco and Vandamme loam soil and 141 on the Tramway soil. According to the timber site classification table (Article 4, Section 1060 Site Classification), site classes for young growth redwood within the harvest area averages Site II.

Topography

Elevations range from approximately 450 feet at the lowest southern harvest area boundary to approximately 1,000 feet near the northwest harvest boundary. The general aspect of the plan area is south, with north, east and west facing slopes within tributary drainages. Slopes range from <15% to greater than 65% with average slopes in the plan area of 20% to 45%. A prominent ridge runs along the northern sale boundary, generally following Road 210 and Road 213. Stream channels are moderately wide on the lower slopes, largely due to modification from historic logging. Watercourses vary from deeply to minimally incised on the middle and upper slopes.

Inner gorge conditions are uncommon within the plan area, with infrequent minor debris slides on some of the steeper slopes adjacent to watercourses. Many of these debris slides likely occurred shortly after the railroad logging era in the 1930's and during the last harvest using tractor yarding in 1970 (reference the Engineering Geologic Report in Section V). Many of these areas have re-vegetated and appear relatively stable.

Vegetation and Stand Conditions

The conifer stand is primarily even-aged and is dominated by coast redwood (*Sequoia sempervirens*) and Douglas-fir (*Pseudotsuga menziesii*). Also present is sparse grand fir (*Abies grandis*) with very sparse coast hemlock (*Tsuga heterophylla*) and nutmeg (*Torreya californica*). The dominant hardwood species is tanoak (*Lithocarpus densiflorus*) with sparse madrone (*Arbutus menziesii*) and golden chinquapin (*Castanopsis chrysophylla*). An occasional California laurel (*Umbellularia californica*) or willow (*Salix spp.*) can be found adjacent to watercourses or wet areas.

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Dominant and codominant conifers exhibit low live-crown ratios where competition for resources is high and vigor is relatively low. Additionally, a fair number of codominant and intermediate Douglas-fir are beginning to show signs of decline, evidenced by the presence of conks and/or thinning crowns. The understory is open throughout most of the plan area due to a dense overstory, except for a huckleberry or occasional manzanita patch. Species in the understory include evergreen huckleberry (*Vaccinium ovatum*), wax myrtle (*Myrica californica*), rhododendron (*Rhododendron macrophyllum*), wood rose (*Rosa gymnocarpa*), manzanita (*Actostaphylos spp*), ferns and other species. A minor component of conifer and hardwood regeneration is found throughout the harvest area.

Old growth trees within the plan area are sparse. Most of the old growth timber was harvested in the early 1930's with most remaining residuals harvested in 1970. No harvesting has occurred since 1970, leaving a two age stand of approximately 76 and 38 year old well-stocked commercial conifers. Some areas are poorly to moderately stocked with conifers, where hardwood species, such as tanoak, is the dominant tree species. Site occupancy by trees is near 100 percent in most areas. Hardwoods, primarily tanoak, comprise about 23 percent of the total stocking by basal area. Redwood and Douglas-fir make up almost all of the remainder. Stand data for the plan area is summarized in the table shown below, derived from the 2005 Forest Resource Inventory (FRI).

<u>Species</u>	<u>Basal Area (ft² / acre)</u>	<u>Net Volume (BdFt / acre)</u>	<u>Quadratic Mean dbh</u>
Redwood	98	14,309	18.6
Douglas-fir	118	28,791	18.4
Grand fir	1	297	17.3
Hardwoods	53		14.7

Watershed and Stream Conditions

A 1970 Report of Timber Cut mentions the use of existing skid trails, evidence that tractors were used during the initial harvest of the virgin old growth. This was some of the earliest use of tractors for yarding purposes. Early logging practices displaced soil and deposited material within the channel of many watercourses within the plan area. These activities significantly altered the stream morphology.

The plan area lies within the upper reaches of the Lower North Fork Big River and Two Log Creek Planning Watersheds. The combined watersheds make up a 16,385 acre watershed assessment area. Both the North Fork Big River and Two Log Creek are tributaries of Big River which drains into the Pacific Ocean near the town of Mendocino, California. There are no Class I fish bearing streams immediately adjacent or within the harvest area. More information regarding the Class I watercourses downstream of the plan area is found in Section III, Item 26.

The Class II tributaries within the plan area and its tributaries have several characteristics in common. Upper reaches are usually defined by a substantial increase in gradient where most summer and early fall flows are subsurface with little surface flow present. The second order Class II channels (lower reaches) typically have flatter gradients resulting in a meandering/braided channel and appear to have surface flow throughout the year, with some areas of subsurface flow during the summer and early fall. Most Class II channels are down-cutting through material that was deposited from past logging activities. In several cases, the Class III watercourses follow channels that appear to have been used and partially formed by the early logging. Class III watercourses generally do not have well developed channels and are located on steeper slopes with a high stream gradient. Several Class IIIs have been impacted by debris slides which scoured channels.

All watercourses within the plan area are exhibiting signs of recovery from past logging practices; canopy has re-developed on adjacent slopes, excess sediment continues to move through the system and larger diameter organic debris supplies increase.

PROJECT ALTERNATIVE ALAYSIS

REQUIREMENTS UNDER CEQA

NOTE: This is a DRAFT THP and substantial revisions will likely occur prior to submittal.

As a certified regulatory program under CEQA, the THP process is exempt from the requirement to prepare Environmental Impact Reports (EIRs) and related provisions of CEQA. However, a THP must include "a description of the proposed activity with alternatives to the activity, and mitigation measures to minimize any significant adverse effect on the environment of the activity." CEQA § 21080.5(d)(3)(A); 14 CCR §§15250-15253. CAL FIRE has provided RPF's guidance in preparing that analysis, based on the CEQA guidelines that control the alternatives analysis in EIRs (14 CCR § 15126.6).

CEQA does not require any fixed number of alternatives, does not require inclusion of every conceivable alternative or consideration of alternatives whose effect cannot reasonably be ascertained. Accordingly alternatives selected for examination in this THP are limited to ones that would avoid or substantially lessen significant effects of the project. Alternatives selected for examination are reviewed considering the objective of the project and feasibility of the alternative. Finally, under CEQA, the alternatives considered need only relate to the project as a whole, not to its various parts. *Big Rock Mesas Property Owners Assoc. v. Board of Supervisors (1977), 73 Cal. App. 3d 218, 227.*

In preparing this THP, the RPF has applied the prescriptive standards of the Forest Practice Rules. The Forest Practice Rules are developed and adopted by the Board of Forestry as programmatic prescriptions and best management practices designed to mitigate or avoid significant impacts of timber harvesting, road building and other timber operations as they are applied by the RPF in preparing a THP. As proposed, this THP is designed to avoid significant environmental effects or to mitigate such effects to the point where no significant effects will occur.

In addition, the RPF has adopted additional measures in the plan as necessary to mitigate or avoid potentially significant site-specific individual and cumulative effects identified during THP preparation. This project as proposed meets CEQA's objective of avoiding or substantially lessening significant environmental effects.

CONSIDERATION OF ALTERNATIVES

Purpose of and Need for the Project

The purpose and need for the proposed project is clearly presented in the Public Resources Code (PRC), and is presented as the basis for the acquisition of the State Forest. The Board of Forestry which represents the State's interest in acquisition and management of state forests is consistent with and has reaffirmed the role of the State Forest as directed by the PRC. In accordance with the PRC and Board of Forestry Policy, the purpose and need of the project as proposed is to demonstrate economical forest management by producing timber and allowing opportunities for research and demonstration purposes while giving due consideration to other inherent values of the forest.

Jackson Demonstration State Forest (JDSF) was acquired by the State of California in 1947 pursuant to legislation which authorized the purchase of managed timberland for public benefits.

As per Public Resources Code (PRC) 4631: *"It is hereby declared to be in the interest of the welfare of the people of this state and their industries and other activities involving the use of wood, lumber, poles, piling, and other forest products, that desirable cutover forest lands, including those having young and old timber growth, be made fully productive and that the holding and reforestation of such lands is a necessary measure....."*

PRC 4631(d) states that one such acquisition area was to be in the coast range and shall serve *"for the purpose of demonstration of economical forest management."*

PRC 4631.5 Gives further direction for the management of state forest: *It is further declared to be in the interest of the welfare of the people of this state that the state do all of the following: (a) Retain the existing land base of state forests in timber production for research and demonstration purposes.*

PRC 4651 further states that *"The management of state forests and the cutting and sale of timber and other forest products from state forests shall conform to regulations prepared by the director and approved by the board. These regulations shall be in conformity with forest management practices designed to achieve maximum sustained production of high-quality forest products while giving consideration to values relating to recreation, watershed, wildlife, range and forage, fisheries, and aesthetic enjoyment."*

The Board of Forestry and Fire Protection policies, Chapter 0350 – Forest Management Policies establishes direction for State Forest Management. Subchapter 0351.2 establishes the purpose of the State forest program and the priorities for land use.

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351.2 *The primary purpose of the State forest program is to conduct innovative demonstrations, experiments and education in forest management. All State forests land uses should serve this purpose in some way. In addition:*

- A. *Timber production will be the primary land use on Jackson, Latour, and Boggs Mountain State Forests. Timber production will be subordinate to recreation on Mountain Home State Forest;*
- B. *Recreation is recognized as a secondary but compatible land use on Jackson, Latour, and Boggs Mountain State Forests. Recreation is a primary use on Mountain Home State Forest as prescribed by section 4658, Public Resources Code;*
- C. *State forest lands may be used for Department administrative sites when such use will benefit State forest programs or protection;*
- D. *Special uses primarily benefiting non-forestry and/or private interest will have low priority. Such uses that conflict with State forest objectives are discouraged.*

0351.3 *The Board, consistent with PRC Section 4631, recognizes and reaffirms that the primary purpose of State forest is to conduct demonstrations, investigations, and education in forest management. The Board wishes to emphasize and expand demonstrational, experimental, and educational activities on the State forest.....*

Potential Alternatives Which Would Achieve the Objectives While Lessening Potential Significant Effects

1. Alternative Location of the Project:

Locating the proposed project on an alternative site was considered and evaluated. JDSF was purchased with the primary objective of timber production to demonstrate economic forest management while providing opportunities for research, demonstration and education in forest management. This Timber Harvest Area was carefully selected through long term planning goals while considering regulatory, silvicultural, and cumulative effect constraints. At the same time due consideration has been given to protection of other resources, including aesthetics, recreation, wildlife and watershed resources. The use of an alternate site would defer the ability to feasibly address road-related problems in this area. An alternative location would also delay meeting MSP as provisions of the plan include thinning conifer dominated areas, initiating advanced regeneration and reducing hardwood competition as necessary. These measures will result in increased growth in terms of faster radial growth on conifers an increased in-growth population. An alternative location would not meet the objective above.

CEQA recognizes that, particularly with projects involving natural resources, alternative locations may not be feasible. 14 CCR 15126(f)(2)(A)(B). Further, the key question in analyzing alternative locations is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion. In this case, the THP in this area has no unique potential impacts that would not also typically be potential impacts at other locations. Accordingly, any potential impacts associated with this THP would not be altogether avoided, but would be shifted to another location. Harvesting at other locations would require many of the same measures to avoid or substantially lessen such impacts.

Accordingly, this alternative is rejected because it is inconsistent with the project objectives and would not avoid or substantially lessen such impacts.

2. Private Acquisition

This alternative would mandate the sale of all or a portion of JDSF, with the probable result being private industrial forest use, conversion for agricultural uses other than timber, State Park receipt of donated land, or rural residential housing development. The potential environmental effects of this alternative are generally much higher than under current state ownership and management. Depending on conditions that might be made part of the sale and the objectives of the landowner, timber management activities may persist. However it is unlikely that management activities would continue to provide for research, demonstration and forest management education opportunities that are available for the public. Additionally, if maintained as private timberland, agricultural use or if developed as rural residential, the secondary objectives of providing values relating to recreation and aesthetic enjoyment would also be lost to the public. This is an inherent characteristic of private ownership as landowners have the right and responsibility to protect the land and themselves from damage and potential liabilities that may be incurred due to public ingress and egress.

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JDSF was purchased from private interests in 1947 for the purpose of providing opportunities for forest management demonstration, research, education, recreation, cultural resource protection, and fish and wildlife habitat protection. These policies are specified in PRC 4631(a) & 4651. The sale of JDSF is not a feasible alternative because it would limit or completely eliminate the ability of the state to provide these benefits on JDSF lands.

Accordingly, this alternative is rejected because it is inconsistent with the project objectives and is not feasible.

3. Alternative Land Uses:

This alternative would involve the landowner using the property for a use other than for managing timber for harvest. The number of possible uses for any parcel of land is very large. The THP area could be designated for use for any of the values specified in PRC 4651 other than timber management. This includes use for recreation, watershed, wildlife, range and forage, fisheries and aesthetic enjoyment. The general result would be similar to the no project alternative as any potential timber harvest effects would be eliminated while primary objectives of demonstrating economic timber production while providing for research opportunities and education in forest management would not be met.

Another alternative land use could be the sale of state forest land for residential, recreational, and/or agricultural activities, including timber harvesting. As with the Alternative of private acquisition this alternative would not attain most of the basic objectives of the project. An alternative land use would not allow the landowner to meet the project's objectives.

Accordingly, this alternative is rejected because it is inconsistent with the project objectives.

4. No Project Alternative

The No Project Alternative would involve not carrying out the project as proposed, and not carrying out any alternative project. Although this alternative is clearly inconsistent with the project objectives, the CEQA guidelines nevertheless require that the no project alternative be evaluated. In accordance with the CEQA Guidelines, the existing conditions have been considered, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans. 14 CCR § 15126(d)(4). The No Project Alternative would avoid potential environmental impacts that might occur in connection with proposed timber operations. For example, any individual or cumulative impacts on fish and wildlife, water quality or stand health and vigor would not occur if the THP were not carried out. Potential erosion from skid trails and roads as a result of a proposed THP would not occur if this plan did not occur.

At the same time, the No Project Alternative would potentially result in other significant adverse effects. For example, the no project alternative would not provide for maintenance of the existing road systems within the THP area, which is necessary and on going. The project also proposes correcting sources of sediment and installing erosion control structures designed for road abandonment. The project as a THP is subject to specific temporal regulatory control by CAL FIRE and Water Quality. Under the no project alternative no such continuing control would exist and water crossings and general road maintenance would be expected to be of much poorer quality. The THP process provides a funding mechanism which the State Forest can utilize to maintain and improve the road systems. Under the No Project Alternative this valuable source of funding would be forfeited which would allow the risk of a significant adverse impact to water quality from road conditions to continue or worsen. In addition, the opportunity to accelerate the development of larger trees and capture mortality would be lost. As a research and demonstration forest, it is important that timber management occurs to create a mosaic of stand conditions, providing the diverse stand conditions and habitats, thus enhancing the opportunity for future research projects.

The no project alternative would meet the State Forest's secondary objectives. The project area is currently available for use by the public for recreation and aesthetic enjoyment and would continue as such while lands are part of the state forest. However, the no project alternative would not meet the primary goals and objectives of the State Forest.

Accordingly, this alternative is rejected because it is inconsistent with the project objectives.

5. Alternative approach to harvesting in the proposed stand (silviculture, yarding methods).

The RPF selected the proposed treatments in this THP to best achieve the landowner's goals in terms of environmental, Dunlap North THP

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economic and social interests. Alternative silvicultural prescriptions would include evenaged regeneration methods, special prescriptions and other more intensive uneven-aged systems. Implementation of these silvicultural prescriptions has been constrained by current management objectives combined with interim guidelines included in the JDSF management plan. These alternative silviculture methods could also potentially generate additional adverse environmental impacts, such as temporary reduction in northern spotted owl nesting habitat or other species-specific wildlife habitat. The RPF assessed timber health, growth, regeneration, competition, stocking, soil erosion hazard rating, regulatory constraints, wildlife, plants, watershed, and cumulative effect issues. The RPF also considered the FPR's, JDSF's management plan and Option A when developing the silvicultural treatment. This alternative would involve carrying out the project as proposed, except that the stand would be managed under a different silvicultural system than the one proposed. The RPF has concluded that after considering the objectives and constraints, the proposed silvicultural treatments are the ones best suited for the proposed project.

This alternative is rejected because it is inconsistent with the project objectives and would not avoid or substantially lessen impacts.

6. Alternative Timing to the Project

This alternative would involve carrying out the project as proposed, except at a time other than that proposed. Delaying the project for 5 to 10 years would attain most of the project objectives by allowing the landowner to manage the parcel as directed by the PRC and Board of Forestry Policy. During this time, the conifer volume would increase, which may offset the costs of project implementation. Though conifer volume would increase, not harvesting would limit the opportunity for maximizing the productivity and health of this stand. The majority of the project area is forested by a densely stocked second growth stand comprised of trees which are showing signs of high competition and decreasing vigor. By not operating at this time the existing conifers could grow at a slower rate due to competition resulting in not meeting maximum sustained production for the stand.

While this alternative would avoid, at least for now, the adverse environmental effects that might be associated with the project as proposed, this alternative could potentially result in other significant effects. Specifically, the delay in making environmental improvements to the site could result in adverse effects. For example, improvements proposed in the THP for the existing roads to enhance road drainage and correct stream crossings would not be accomplished at this point in time.

Under this alternative most of the demonstration and timber management objectives could still be met for the project area, just at a latter date. However, the postponement would require proposing a similar project at an alternative location. Needs for demonstration, research and education opportunities are ongoing and need to be temporally dispersed. Also revenue needs to support State Forest infrastructure and other related forest management activities would still have to be met. Potentially significant effects on forest management due to lack of revenue could occur if the project was delayed.

Accordingly, this alternative is rejected because it is inconsistent with the project objectives and would not avoid or substantially lessen impacts.

Comparison of Project and Project Alternatives:

The project as described in the THP is preferred over the project alternatives for the following reasons:

The alternative location of the project would not avoid or substantially lessen any potential significant effects of the project but would merely shift any potential impacts. The project area has no unique potential impacts that would not also typically be potential impacts at other locations.

Private acquisition of JDSF's forest lands could potentially have much greater environmental and social effects than the project as proposed under current state ownership and management. The Forest is currently managed for a multitude of natural resources which include the following, as well as timber: fisheries, wildlife and the beneficial uses of water, in addition to recreation and research values that are generally quite limited on private land. This alternative is also inconsistent with objectives of the project.

Alternative Land uses are inconsistent with the objectives of the project and do not necessarily guarantee decreased
Dunlap North THP

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potential significant effects. Although it is speculative what the alternative use would be it follows that another land use would have other potentially significant effects.

The No Project Alternative eliminates all possible adverse impacts associated with timber harvesting. However, future potential impacts that may be caused by not addressing road maintenance and improvement needs would not be addressed. This alternative is inconsistent with the project objectives and would only cause a deviation in location of the project.

The Alternative approach to harvesting in the proposed stand does not meet the objective of management guidelines set forth by the interim guidelines currently governing JDSF's management plan. Therefore, an alternative approach to harvesting does not meet the objectives of this project.

The Timing Alternative would allow for the achievement of management objectives with some delay. Potential impacts from harvesting would also be delayed, not avoided. Additionally impacts caused by a delay in road maintenance and improvement activities may be realized during this timeframe. The project as proposed is preferred over this alternative because a delay in timing would most likely cause a shift in project location as revenue will need to be generated and opportunities for demonstration, research and education provided.

Because the THP as proposed, with all the mitigation incorporated, will not result in significant adverse effects, it is selected as the preferred alternative. Because the proposed THP meets that basic objective of CEQA, the selection of another alternative to this THP is not necessary to avoid or substantially lessen significant impacts. It is entirely consistent with CEQA and pertinent case law to approve a project that has its potential environmental impacts avoided or reduced to relative insignificance, rather than selecting a separate project alternative that would itself result in no significant adverse impacts. See Laurel Hills Homeowners Association v. City Council of the City of Los Angeles (1978) 83 Cal. App.3d 515,520; Laurel Heights Improvement Association of San Francisco, Inc. v. The Regents of the University of California (1988) 47 Cal. 3d 376, 401.

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DISCUSSION OF NUMBERED ITEMS FROM SECTION II

ITEM 14 – Silviculture – Selection Method.

14 CCR: 913.2 (a) Selection. *Under the selection regeneration method, the trees are removed individually or in small groups sized from .25 acres to 2.5 acres.*

(1) Trees to be harvested or trees to be retained shall be marked by or under the supervision of the RPF prior to felling operations. When openings greater than .25 acres will be created, the boundaries of the small group(s) may be designated in lieu of marking individual trees within the small group areas. A sample area must be marked prior to a preharvest inspection for evaluation. The sample area shall include at least 10% of the harvest area up to a maximum of 20 acres per stand type which is representative of the range of conditions present in the area.

(2) Post harvest stand stocking levels shall be stated in the THP. The level of residual stocking shall be consistent with maximum sustained production of high quality timber products. In no case shall stocking be reduced below the following standards:

(A) Selection System.

- 1. On Site I lands at least [125 Coast] [100 Northern & Southern] square feet per acre of basal area shall be retained.*
- 2. On Site II and III lands at least 75 square feet per acre of basal area shall be retained.*
- 3. On Site IV and V lands at least 50 square feet per acre of basal area shall be retained.*
- 4. Unless the plan submitter demonstrates how the proposed harvest will achieve*

MSP pursuant to 14 CCR § 913.11 [933.11, 953.11] (a) or (b), the residual stand shall contain sufficient trees to meet at least the basal area, size, and phenotypic quality of tree requirement specified under the seed tree method.

The selection method is applied to the entire THP area. The objective is to improve spacing where stocking will allow, promote timber growth and improve forest health. Trees will be marked individually throughout the stand. Dying, diseased, and damaged conifers that lack structural complexity will be harvested. Tanoak is also marked to be felled where there is crown competition with residual conifers.

Due to the pre-harvest variability in stocking levels, the minimum enforceable stocking standard for any individual plot within the selection regeneration silvicultural area shall be 75 square feet of basal area per acre, per 14 CCR 913.2(a)(2)(A)2. Throughout the plan area, the objective for minimum average stocking is 150 square feet per acre.

The prescription applied in the THP area represents implementation of Selection #1. The implementation of modeled Option A prescriptions for stratum averages will be variable, due to highly variable site conditions encountered in the field on individual THPs. The THP prescription will be appropriately planned and implemented to move stand structure towards an uneven age and size distribution roughly approximating an inverse “J”, with a high level of conifer stocking, a relatively low level of hardwood stocking, and a fairly large maximum tree size generally up to 40” inches DBH. Over time, the accumulated average pre-harvest and post-harvest stand conditions of this and other Selection #1 THP prescriptions will approach the average stand conditions for Selection #1 that was modeled in the Option A plan.

ITEM 14.f – Group B species.

While hardwood removal is not required to ensure relative conifer site occupancy, Group B species, primarily tanoak, are designated for cutting where the crowns are competing with nearby conifers.

The objective is to maintain a majority of hardwoods with a DBH of 22 inches or greater, except when removal is necessary for safety, cable yarding, road reconstruction, road and landing construction or reducing competition with nearby conifers.

ITEM 18 – 916.9.1(o) Identification of active erosion sites within the logging area.

Active erosion sites have been identified within the logging area as current or potential sediment sources where corrective action is needed. These sites are located on Road 211, Road 212 and Road 212A where remediation of these sites is proposed as part of road abandonment work. A 1600 permit will be included for sites that require a stream alteration Dunlap North THP

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agreement.

Other active erosion observed within the logging area is associated with watercourses re-establishing channels through the soil and debris deposited by historic logging. The channels are continuing to downcut through the debris towards their historic channel bed. It appears that the channels are relatively stable with flushes of sediment occurring primarily during large storm events. There are no feasible remedies for the channel erosion. However, to mitigate potential adverse impacts from this project, Class II watercourses are afforded 100-foot WLPZs with 25-foot no-cut buffers and very light harvesting within the outer 75 feet of the WLPZ. These mitigation measures as well as limited winter period operations, wet weather restrictions, erosion control measures, upslope road design, and extensive use of cable yarding are designed to minimize the risk of sediment entering a watercourse.

ITEM 24 (c) Explanation and Justification

14CCR 923.1(e) states that new logging roads shall not exceed a grade of 15% except that pitches of up to 20% shall be allowed not to exceed 500 continuous feet., New road is proposed for construction where the grade ranges from 14 to 18% (average >15%) for approximately 880 continuous feet. Refer to THP map point 4.0

This road segment is necessary to access the southwest proposed harvest area. The RPF did not observe any alternate locations for new road construction to reduce the road grade under 15% without either constructing road on steeper slopes and/or within the EEZ of a Class III watercourse. The currently location offers the benefit of reducing the length of new road and also keeping the roadway near the ridge while reducing the amount of excavation needed. Mitigations proposed to offset any impacts on road segments with a grade over 15% include the following:

- Waterbreaks shall be installed to extreme EHR spacing.
- The LTO shall outslope these segments at the time of construction where feasible.
- The LTO shall maintain a stable operating surface at all times during operations.

ITEM 24 (f) & (k) Explanation and Justification

As mentioned in Section II, Road 211, Road 212 and Road 212A are proposed for abandonment. These roads were constructed to facilitate downhill tractor yarding for the previous harvest conducted in 1970. Watercourse crossings and landings associated with these roads are also to be properly abandoned. Mitigations have been developed to protect forest resources, including removing perched fill, installing cross drains and removing watercourse crossings, re-establishing stream channels and gradients. This work complies with 14CCR 923.8 Planned Abandonment of Road, Watercourse Crossings, and Landings.

ITEM 25 – Measures to offset road construction (923.9.1(a)).

This plan includes approximately 12,000 feet of new seasonal road located on or near a ridgetop, providing access for ground based and cable logging operations in the proposed harvest area. This amount of new seasonal road is fairly evenly divided over the harvest area and is needed to provide access to important control points within the THP. The proposed road segments have been designed to minimize permanent watercourse crossings, utilize upper slope locations, and to avoid steep sideslopes to the extent feasible.

Mitigation measures minimizing the effects of road and landing construction, 923.9.1(a): Development of a ridge top road system begins the conversion of this area from a ground-lead yarding system to an uphill cable yarding system. Fewer roads and trails are required for cable logging and partial suspension of the logs during yarding reduces ground disturbance. The logging road system was designed to avoid unstable areas and the need for any new watercourse crossings. Roads will be constructed as single lane and outsloped with rolling dips where feasible. Specific erosion control measures are listed in Section II. Watercourse protection measures above the standard rules are also incorporated to minimize the potential for sediment to enter a watercourse. Road and landing abandonment of Road 211, Road 212 and Road 212A as well as road maintenance on Forest Roads 210 and 213 as described in Section II, provide additional offsetting mitigation.

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Of the 12,000 feet of proposed road for the Dunlap North THP, approximately one-fourth is located along an existing prism of a skid trail, jeep trail or possibly roads used for transport of logs during the 1970 harvest. Efforts to locate proposed roads on these features will reduce further impacts.

ITEM 26

Watercourse and Lake Protection Zone (WLPZ) Widths:

<u>Slope (%)</u>	<u>Class I WLPZ (ft)</u>	<u>Class II WLPZ (ft)</u>	<u>Seeps/Springs(ft)</u>	<u>Class III ELZ (ft)</u>
< 30	N/A	100	50	25
30-50	N/A	100	75	50
>50	N/A	100	100*	50

*Subtract 25 feet width for cable operations.

Class I watercourses

There are no Class I watercourses identified within or immediately adjacent to the plan area. The harvest plan is approximately 1,700 feet upstream from the North Fork Big River, which is a Class I fish bearing stream containing anadromous salmonids. Two Log Creek is also a Class I downstream of Jackson Demonstration State Forest. A tributary to Two Log Creek, located on Conservation Fund lands west of the harvest area is a Class I watercourse, located approximately 600 feet downstream from the plan area.

There is a natural fish barrier at the confluence of the eastern most unnamed Class II tributary and North Fork Big River (Class I), approximately 1,700 feet downstream of the plan boundary. Measured from the bank full depth of the North Fork Big River, the near vertical barrier is an approximate twenty-seven foot waterfall. There were no fish observed upstream of the barrier.

The RPF looked for the presence of fish within Two Log Creek during the spring of 2008. The section observed parallels Highway 20 from the JDSF boundary and upstream to the plan area. No fish were observed. A 1417 foot segment of Two Log Creek was inventoried by the Department of Fish & Game on private timber lands during the summer of 1997. The inventory began approximately .75 miles downstream from the JDSF property line, documenting the presence and distribution of juvenile salmonids. Three sites were electrofished, one located within the inventoried stream segment and two upstream within the JDSF ownership. The lower site yielded one Coho, approximately 1500 feet downstream (west) of the JDSF ownership. The remaining two yielded no fish, approximately 850 and 1450 feet east of the JDSF ownership boundary. Electrofishing occurred on August 26, 1997. The presence of salmonids in Two Log Creek, especially within the upper section appears highly unlikely. In addition, a culvert crossing Highway 20 has a 45 degree full round downspout, acting as a potential fish barrier, The RPF consulted with CalTrans and there is no foreseeable plan for replacement.

Other Class II watercourses within the plan area lead into a Class I watercourse downstream outside of the plan area. The transition of the Class I to a Class II watercourse is evident by the stream gradient which is too steep for fish passage

Seeps/Springs

With the exception of watercourse and lake protection zone widths, all protection measures for Class II watercourses discussed in Item 26, Section II shall apply to springs/seeps. The Seeps/Springs WLPZ width will be, pursuant to Table 1, 14 CCR 916.5. WLPZ widths shall vary from 50-100 feet.

ITEM 27.d. – Increase in Class II WLPZ width.

The width of the Class II WLPZ is increased to provide greater protection for aquatic resource values. The increased width will provide greater protection than the standard rule.

ITEM 28 – Domestic Water Supply Notification.

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There is one landowner within 1,000 feet downstream of the THP boundary where ownership adjoins a Class II watercourse, located on the west boundary of the plan area. A notice requesting the THP submitter to be advised of a surface domestic water supply use from the Class II watercourse has been sent. Publication in a newspaper of general circulation was posted. Proof of notice by letter and newspaper are included in Section V. No response was provided by any downstream landowner prior to plan submittal.

ITEM 32 – Biological Resources

Scoping Information

Species of Special Concern:

Plants:

Birds:

The current scoping list for JDSF includes Board of Forestry Sensitive Species, DFG Fully Protected Species, state and federally listed species (threatened and endangered) and candidate species as well as the recent DFG Bird Species of Special Concern list (April, 2008) that have wintering, migratory or breeding season habitat on JDSF. Species are discussed in Section IV.

Raptors - Survey methods:

During the course of fieldwork for this THP, the RPF and forestry aides spent numerous hours looking and listening for raptors as well as looking for signs of nests, plucking posts, and white wash. Field work was generally conducted between the hours of 8:30 am and 4:30 pm.

Mammals, Fish, Amphibians and Reptiles:

The current scoping list for JDSF includes state and federally listed (threatened and endangered) and candidate species, DFG Fully Protected Species, and DFG Species of Concern.

Botanical Survey Results

No listed (state or federal) or CNPS 1 or 2 plant species were found.

One location of 50 individuals of California pinefoot (*Pityopus californicus*), a CNPS List 4.2 plant (a “watch list” plant, which has a limited distribution but is still present in large enough numbers that the potential for extinction at this time is low), were observed. The pinefoot is located within the plan area, but not within a proposed road area. No protection measures are proposed.

Seven locations, totaling 324 individuals, of redwood lily (*Lilium rubescens*) (CNPS 4.2) were observed. The lilies were concentrated along the edges of Forest Road 210 where they will most likely not be impacted by road use. Approximately 22% or 59 lilies were estimated to be impacted by the construction of proposed roads. No protection measures are proposed.

Coho Salmon Timber Regulation Compliance

This harvest plan incorporates protection measures identified in 14 CCR 916.9.1 and 923.9.1 Protection Measures for watersheds Coho Salmon.

14CCR 916.9.1 (c) Any timber operations or silvicultural prescription within 150 feet of any Class I watercourse or lake transition line or 100 feet of any Class II watercourse or lake transition line shall have protection, maintenance, or restoration of the beneficial uses of water or the populations and habitat of anadromous salmonids or listed aquatic or riparian-associated species as significant objectives.

14 CCR 916.2(a) The measures used to protect each watercourse and lake in a logging area shall be determined by the presence and condition of the following values:

- (1) The existing and restorable quality and beneficial uses of water as specified by the applicable water quality control plan and as further identified and refined during preparation and review of the plan.*
- (2) The restorable uses of water for fisheries as identified and refined during preparation and review of the plan.*
- (3) Riparian habitat that provides for the biological needs of native aquatic and riparian-associated species as*

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specified in 14 CCR 916.4 (b).

(4) Sensitive conditions near watercourse and lakes as specified in 14CCR 916.4 (a). These values shall be protected from potentially significant adverse impacts from timber operations and restored to good condition, where needed, through a combination of the rules and plan-specific mitigation.

Discussion:

This timber harvest plan proposes protection of the beneficial uses of water and the populations and habitat of anadromous salmonids as a significant objective. Protection measures for Class II watercourses have been designed to provide greater protection of the resource than the standard forest practice rules. Refer to THP Item 26, Section II and III.



SECTION IV – CUMULATIVE IMPACTS ASSESSMENT

INTRODUCTION

The cumulative impacts assessment (CIA) is based on the methodology described in the Board of Forestry Technical Addendum #2, and allows for the analysis of the qualitative and quantitative observations made during the timber harvest plan preparation process. This assessment provides a descriptive report of the resource subjects in association with the proposed harvesting operations, as well as the procedures, conclusions, and any mitigation's that will allow for the prevention of significant impacts to the assessed resources. The conclusions reached by this analysis have been applied to the operational considerations reported in the previous sections of the THP, and supports the plan preparer's statement that the timber harvesting plan will not have a significant adverse impact on the resources of concern.

(1) Do the assessment area(s) of resources that may be affected by the proposed project contain any past, present, or reasonably foreseeable probable future projects?

Yes X No ___

If the answer is yes, identify the projects and effected resource subjects.

PAST, PRESENT AND FUTURE ACTIVITIES

A. Identification and description of the location of past, present and reasonably foreseeable probable future projects:

PAST PROJECTS

Historic timber harvesting:

The Caspar Lumber Company constructed a railroad system along current day Highway 20 during the 1930's and logged most of the old-growth forest from within the plan area with steam yarders and possibly early tractors. Logs were dragged downhill across the slope and down watercourses and draws to reach the railroad grade. Most of the Caspar, South & Eastern railroad had been built by this time. Approximately 1.5 miles east of the plan area, Camp 20 was opened in 1939, where the railroad grade had ended just to the north along Chamberlain Creek. The plan area was entered and harvested a second time in 1970 utilizing tractors, removing nearly all of the remaining residual old-growth trees.

The majority of the planning watershed outside the plan area was first tractor logged between 1936 and 1964, and the logging typically removed between 70 and 100 percent of the conifer volume from individual stands. Logging roads, tractor roads, and landings were typically constructed adjacent to and within watercourse channels. Few, if any, erosion control facilities or structures were installed during this time and many watercourse crossings were simply filled with dirt and channels were re-established by erosional processes. Much of the watershed assessment area was re-entered during the 1970's and early 1980's removing the majority of the remaining old-growth conifers. This harvest utilized many of the existing logging and tractor roads; however, some new roads were constructed to accommodate cable logging on steeper slopes.

These past logging practices have had a long-term impact on streams. Large troughs or gouges are still evident where logs were dragged through the soil. Following the steam donkey logging, truck roads and tractor roads were constructed along several unnamed tributaries and upslope within the plan area. These yarding practices carried slash, log chunks, and large amounts of soil into the watercourses. Additionally, removal of streamside vegetation likely raised water temperatures and removed potential sources of large woody debris. Aquatic habitat quality most likely declined significantly during this period.

Natural recovery as well as human improvements have occurred over the intervening decades. Natural revegetation of the streamside and upland areas proceeded relatively quickly because many upland and riparian species sprout. Litter and ground cover have increased with time, improving watershed function. Natural recovery of the streambed has included the downstream movement of the built up layers of sediment, gravel and debris. Sediment stored in historic

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terraces is eroded by bank erosion during flood events, but remains trapped primarily in long-term storage sites. The current productivity of aquatic habitat is certainly still much different than that which existed before the original logging. The continuation of natural recovery is being facilitated by protection measures in current forest practice regulations, improved timber harvesting technology and additional project specific mitigations.

The other obvious impact of the early logging was on wildlife habitat. Over a period of several decades, most of the original old growth forest was removed and replaced by a much younger even aged stand. This has had a negative impact on the wildlife reliant upon those stands at that time. The resulting second- growth forest stands present in this watershed today have many different characteristics resulting in a diversity of habitat types. Changes in the natural fire frequency, the introduction of domestic grazing animals and exotic plants had subtle but important effects on wildlife.

PRESENT PROJECTS

Approximately 20% (3316 acres) of the watershed assessment area is within Jackson Demonstration State Forest (JDSF). Land uses on JDSF in the WAA include timberland management and recreational activities such as hiking, hunting, biking, mushroom picking and horseback riding. Camp 20, along Highway 20, is frequently used as a rest area for travelers commuting between Fort Bragg and Willits. Land uses within the WAA outside of JDSF consist primarily of timberland management mostly conducted on large ownerships, including The Conservation Fund (5937 acres) and Mendocino Redwood Company (6486 acres). Combined, these two ownerships consist of approximately 77% (12,423 acres) of the WAA. Other small non-industrial timberlands within the WAA include consists of approximately 1% (192 acres) of the WAA. Other uses within the WAA outside of JDSF include approximately 246 acres of land zoned as rangeland. This area is located on both sides of Highway 20 in the vicinity of McGuire pond, used for rural residential, cattle crazing, and grape growing.

The following is a list of past and present timber harvest plans and the approximate acres within the Watershed Assessment Area and the Biological Assessment Area for the last ten years.

Past and Present Timber Harvest Activity 1998 to Current

Watershed Assessment Area

Calwater Name: Lower North Fork Big River Calwater Number: 1113.300304

THP Number	Ref. Num.	Yarding Method	Silviculture	Acres	Acres in WAA	Status	PLS Description
1-98-299 MEN	Non JDSF	T	CC, SW3, SEL	38	38	completed	T17N, R15W, Sec 19,20 MDBM
1-98-425 MEN	Non JDSF	T	STR	64	64	completed	T17N, R15W, Sec 17,18 MDBM
1-99-024 MEN	Non JDSF	C, T	STR	68	68	completed	T17N, R15W, Sec 19,20 MDBM
1-99-066 MEN	Non JDSF	T	AP, TR	60	60	completed	T17N, R15W, Sec 18 MDBM
1-00-325 MEN	Non JDSF	C, T	GS, SW3	187	140	completed	T17N, R15W, Sec 16,20,21,28.29 MDBM
1-01-134 MEN	Non JDSF	C, T	STR, TR	380	380	completed	T17N, R15W, Sec 17,18, 20 MDBM
1-07-08 MEN	Non JDSF	C, T	AP, VR, RW	274	274	approved	T17N, R15W, Sec 16, 17, 20 MDBM

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Calwater Name: Two Log Creek

Calwater Number: 1113.300406

THP Number	Ref. Num.	Yarding Method	Silviculture	Acres	Acres in WAA	Status	PLS Description
1-98-320 MEN	Non JDSF	C,T	SW1, SW2, SW3, SEL	131	131	completed	T17N,R15W,Sec 31, 32 MDBM
1-98-114 MEN	Non JDSF	C,T	SEL, GS, CC	193	193	completed	T17N,R16W,Sec 1,12 MDBM
1-99-065 MEN	Non JDSF	C,T	SEL, GS, STS, STR	0.145	145	completed	T17N,R15W,Sec 31 MDBM
1-99-164 MEN	Non JDSF	C,T	CC, SW3, STR, SEL, GS	298	290	completed	T17N,R116W, Sec 21,22,27,28,34 MDBM
1-99-299 MEN	Non JDSF	C,T	AP, SEL	16	16	completed	T17N,R15W,Sec 29,32 MDBM
1-99-320 MEN	Non JDSF	C,T	SEL, GS, CC	80	70	completed	T17N,R16W,Sec 16,17,20,21 MDBM
1-00-001 MEN	Non JDSF	C,T	SEL, TR	65	65	completed	T17N,R16W,Sec 23,24 MDBM
1-00-393 MEN	Non JDSF	C,T	SEL, CC, SW2, SW3	98	98	completed	T17N,R16W,Sec 25,26,30 MDBM
1-00-154 MEN	Non JDSF	C,T	SW3	144	144	completed	T17N,R16W,Sec 26,27 MDBM
1-01-092 MEN	Non JDSF	C,T	GS, CC, SW3, STR	503	450	completed	T17N,R16W, Sec 3,10,11,13,14,15 MDBM
1-01-110 MEN	Non JDSF	T	STS	25	25	completed	T17N,R16W, Sec 12 MDBM
1-01-164 MEN	Non JDSF	T	STR, AP, TR	172	172	completed	T17N,R16W,Sec 21, 22, 27, 28, 34 MDBM
1-02-020 MEN	Non JDSF	C,T	CC, CT,SEL	172	172	completed	T17N,R16W,Sec 1, 2, 11, 12, 13, 14 MDBM
1-02-146 MEN	Non JDSF	C,T	STR, AP, RW	108	108	completed	T17N,R16W,Sec 15 MDBM
1-03-021 MEN	Non JDSF	C,T	SEL, SW1, RW	247	240	completed	T17N, R16W, Sec 16, 17, 20, 21, 27, 28 MDBM
1-04-9016 NTMP MEN	Non JDSF	C,T	GS	207	100	approved	T17N, R15W, Sec 31 MDBM
1-05-096 MEN	Non JDSF	C,T	CC, STR, SEL, GS, CT	377.5	340	approved	T17N, R16W, Sec 1 ,2 ,3, 10, 11, 12 and T18N, R16W, Sec 35, 36 MDBM
1-05-206 MEN	Non JDSF	C,T	AP, SW3, GS, STR, TR	326	20	approved	T17N, R15W, Sec 33, 34 T16N, R15W, Sec 3 MDBM
1-06-083 MEN	Non JDSF	C,T	SEL, CC, SW3	106	106	approved	T17N, R16W, Sec 25, 26, 34 MDBM
1-06-142 MEN	Non JDSF	C,T	AP, VR, TR, RW	368	368	approved	T16N, R15W, Sec 4, 5 T17N, R15W, Sec 28, 33 MDBM
1-07-060 MEN	Non JDSF	C,T	SEL	441	441	approved	T17N, R16W, Sec 25 T17N, R15W, Sec 30 MDBM
1-07-083	Non JDSF	C,T	SEL, STR, AP, VR, RW	166	166	approved	T17N, R16W, Sec 11, 12, 13, 14 MDBM
1-07-193 MEN	Non JDSF	C,T	GS, AP, RW, TR, VR, RH	237	237	Pre second review	T16N, R15W, Sec 4, 5 T17N, R15W, Sec 32, 33 MDBM

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Biological Assessment Area

THP Number	Ref. Num.	Yarding Method	Silviculture	Acres	Acres in BAA	Status	PLS Description
1-98-114 MEN	Non JDSF	C,T	SEL, GS, CC	193	184	completed	T17N,R16W,Sec 1,12 MDBM
1-01-110 MEN	Non JDSF	T	STS	25	25	completed	T17N,R16W, Sec 12 MDBM
1-02-020 MEN	Non JDSF	C,T	CC, CT,SEL	172	14	completed	T17N,R16W,Sec 1, 2, 11, 12, 13, 14 MDBM
1-05-096 MEN	Non JDSF	C,T	CC, STR, SEL, GS, CT	377.5	109	approved	T17N, R16W, Sec 1 ,2 ,3, 10, 11, 12 and T18N, R16W, Sec 35, 36 MDBM
1-07-083 MEN	Non JDSF	C,T	SEL, STR, AP, VR, RW	166	68	approved	T17N, R16W, Sec 11, 12, 13, 14 MDBM

Silviculture Codes:

AP	Alternative Prescription	STR	Seed Tree Removal
CC	Clearcut	SEL	Selection
CT	Commercial Thinning	SW1	Shelterwood Prep. Step
GS	Group Selection	SW2	Shelterwood Seed Step
PCT	Pre-Commercial Thin	SW3	Shelterwood Removal
RH	Rehabilitation	TR	Transition
RW	Road Right-of-Way	NH	No Harvest
SS	Sanitation Salvage	CV	Conversion
STS	Seed Tree Seed Step		

Yarding Method Codes:

C	Cable
T	Tractor or Skidder
H	Helicopter or Balloon

FUTURE PROJECTS

Forest management activities, including timber harvesting, will continue within the watershed into the future. Almost the entirety of the WAA, including the Lower North Fork Big River and Two Log Creek watersheds consists of forestland which is zoned for timber production, with the exception of approximately 2% (246 acres) of the watershed zoned as rangeland. The intention of JDSF is to manage the ownership within the watershed for demonstration, research, timber production and recreation. Based on current regulation and JDSF standards, all present and future timber harvesting in the WAA on JDSF land will be designed to employ modern, environmentally sound harvesting methods in conjunction with research and demonstration objectives. Activities other than demonstration, research and timber production on JDSF ownership in the WAA are expected to continue; such as, hiking, biking, mushroom picking, horseback riding, hunting, road maintenance, brush control and invasive weed management.

The JDSF Management Plan has established desired future conditions throughout the ownership. The various management options are suited to meet the objectives of this plan, including a diverse set of silvicultural prescriptions. There are five different forest management areas on JDSF that are within the Watershed Assessment Area for this plan. The management descriptions and approximate acres within these areas are shown below.

Uneven-aged (single tree/cluster/group openings)	969 acres
Uneven-aged (single tree/cluster selection)	1497 acres
Uneven-aged, Variable Retention, Two-age Class, Single-age Class*	505 acres
Older Forest Structure Zone	305 acres
Old Growth Grove	78 acres

There is one future probable THP located within the WAA within the JDSF ownership likely to occur within one to three years, approximately 380 acres in size. The THP will likely be named Dunlap South, located in portions of Sections 7, 8 and 18, T17N R15W, MDB&M. Future harvest in the WAA is anticipated to most likely utilize uneven-aged and Dunlap North THP

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intermediate silvicultural prescriptions. However the actual silviculture to be implemented has not been finalized and mapping required per Technical Addendum No. 2, provided above in this section, is a best guess.

The following potential timber harvest plans have been identified on JDSF for the next five years in the Biological Assessment Area:

Sale Name	Expected Silviculture	Acres within BAA
Water Gulch #1	Selection/Commercial Thinning	294
Water Gulch #2	Selection/Commercial Thinning	382
Park Gulch	Selection/Group Selection	30
Dunlap South	Selection/Cluster Selection	309
Parlin (unit)	Selection/Commercial Thinning	<1

It is likely that privately owned timberlands in the assessment area will continue under forest resource management, which will include further harvesting of timber, related road construction, reconstruction and restoration, reforestation and timber stand improvement. Other land use activities such as grazing are expected to continue at approximately the same level as in the recent past.

B. Identification and location of known, continuing significant environmental problems caused by past projects:

Past historical logging practices are the source of continuing environmental problems affecting watershed (elevated sediment loads and water temperatures), soil productivity (mass wasting, surface erosion and fluvial erosion), and biological resources (vegetation and habitat modification). Reference "A. Historic timber harvesting" above and individual resource discussions below.

Per 916.9.1(b), it is recognized that past activities within the watershed have contributed to adverse cumulative effects on the populations and habitat of anadromous salmonids. The plan has set forth measures to effectively reduce such effects (see Section II, III and the Matrix at the beginning of this THP Section).

(2) Are there any continuing, significant adverse impacts from past land use activities that may add to the impacts of the proposed project? If the answer is yes, identify the activities and affected resource subject(s).

Yes X No

If the answer is yes, identify the projects and effected resource subjects.

The proposed project has adopted feasible protection measures and alternatives from the range provided for in the Forest Practice Rules as well as proposing additional protection measures, which will prevent any significant cumulative impacts. However, there have been past activities which have had adverse impacts.

Historic Timber Harvest Activities

Generally through the WAA, including North Fork Big River, Two Log Creek, Big River and other smaller drainages, railroad grades were constructed near the bottom of drainages requiring logs to be yarded downhill. The transportation system and associated yarding activities introduced large amounts of sediment into the fluvial system, modifying the stream channels.

At the time of the first harvest near the turn of the century, a railroad grade and trestle system was established or being built along the upper Two Log Creek and a tributary to the North Fork Big River. Tributaries to North Fork Big River and Two Log Creek within the plan area were also impacted during previous harvest entries. These drainages appear to have been used for downhill yarding utilizing steam donkeys. Gradients in these tributaries are low and swale bottoms are flat and appear to have been filled. Many areas contain soil pipes which are actively collapsing delivering sediment to lower order watercourses. These pipe failures are likely a result of the watercourses reestablishing their gradient as fill material is gradually mined by high flows and are expected to continue. Large amounts of stored fine sediment were observed in

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the watercourses and appear to be slowly moving through the system.

Big River TMDL

The Lower North Fork Big River and Two Log Creek planning watershed are a tributary watershed of Big River which drains to the Pacific Ocean. Big River has been placed on the Clean Water Act Section 303 (d) lists as impaired water quality conditions due to excessive sediment loading and temperature. A total maximum daily load (TMDL) has been developed for sediment which was finalized by the U.S. EPA on the 20th of December 2001. The TMDL for temperature has not yet been scheduled for development.

The Big River TMDL has developed load allocations and load reduction needs for sediment inputs in the watershed. These allocations are divided into management associated loads and non-management associated loads. The management associated loads consist of loads related to landsliding (including harvest, grassland, roads and skidtrails), skid trail and road surface erosion. Road-related sediment allocations (including road-related landsliding and road-related surface erosion) represent the bulk (29%) of current management related sediment inputs. The TMDL calls for a reduction of about 82% of the current estimate of loading rate for these two categories. Skid trail related sediment allocations (including skid trail related landsliding and surface erosion) are relatively small, estimated at approximately 2% of the total load allocation. Management associated loads from landslides in grasslands and harvest areas are estimated at 4% and 15% respectively. The TMDL calls for a reduction in allocation related to skid trails, harvest and grasslands by approximately 50%. (U.S. EPA Big River Sediment TMDL 2001)

Geologic Events

Timber harvesting prior to the passage of the modern Forest Practices Act, which came into effect in the mid-1970's, was largely unregulated. Prior to the establishment of Forest Practice Rules, there was no special protection afforded to unstable areas so impacts to streams and timberlands by timber harvesting activities, including timber falling, skidding logs by tractors and cable logging systems, road construction, and road maintenance was common. These historic practices combined with the geology and seismology of the north coast has created an increased chance of future instabilities.

The resources affected by geologic events include aquatic resources, water quality and timberland productivity. The THP was reviewed by a Certified Engineering Geologist during layout to help minimize the risk of mass wasting that could occur as a result of proposed harvesting activities.

Resource Impacts

Prior to the new Forest Practice Rules no special protection was afforded to riparian areas so impacts to streams by timber harvesting activities, including timber falling, skidding logs by tractors and cable logging systems, road construction, road maintenance and development of local borrow pits for road rocking materials, were common.

The early logging operations caused direct impacts to streams, watercourse channels and draws as logging practices used equipment available at the time and did not observe any protection zones around watercourses or unstable areas. Logs were skidded down watercourse channels and haul roads were commonly located near or sometimes even up and down stream channels. Impacts to watercourse channels included direct deposition of soil, slash and logging debris into the channel areas. Old roads were not always maintained and crossing facilities were designed to hold up for individual operations, rather than the long term. Crossing facilities often consisted of stumps and logs (Humboldt crossing) or in some cases, crossings on small streams consisted only of a temporary soil fill.

Because the practices prior to the modern Forest Practice Rules did not recognize the protection of stream corridors, most of the trees along streams were removed. Removal of streamside timber and vegetation removed a valuable source of large woody debris, and could result in increased water temperatures.

Modern forest management activity within the WAA has been conducted in compliance with the Forest Practices Act and Rules, and has consisted primarily of selection, group selection, shelterwood removal, seed tree removal and clearcut operations (see the list of recent management operations within the watershed assessment area).

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Resources affected by the past activities include overall water quality, fish and aquatic species, and in-stream fish and aquatic species habitats resulting from old watercourse crossings, fills, old crossings, decomposing culverts, and undersized culverts throughout the WAA. Within the WAA, evidence of past land use activities are found within the fish bearing watercourses. Activities that may have caused damage to the watercourses within the WAA include railroad logging in the early part of the 20th century and logging and road building between the mid 1920's up to the 1970's.

This THP incorporates protection measures to reduce and/or eliminate erosion sources and potential impacts to water temperature to ensure that significant cumulative adverse impacts do not occur as a result of this project. These measures are discussed in the Watershed Assessment section of the Cumulative Impact Assessment below.

(3) Will the proposed project, as presented, in combination with past, present, and reasonably foreseeable probable future projects identified in items (1) and (2) above, have a reasonable potential to cause or add to significant cumulative impacts in any of the following resource subjects?

	Yes after Mitigation (a)	No after mitigation (b)	No reasonably Potential significant effects (c)
1. Watershed	___	<u>X</u>	___
2. Soil Productivity	___	<u>X</u>	___
3. Biological	___	<u>X</u>	___
4. Recreation	___	<u>X</u>	___
5. Visual	___	<u>X</u>	___
6. Traffic	___	___	<u>X</u>
7. Other	___	___	<u>X</u>

(4) Mitigation measures selected which will substantially reduce or avoid reasonably potential significant cumulative impacts to resource subjects checked in column (b) in (3) above, except for those mitigation measures or alternatives mandated by application of the rules of the Board of Forestry:

Operational mitigations listed below are included in Section II of this THP.

Silviculture: The use of selection silviculture will result in a high level of forest cover near watercourses and a moderate to high forest cover throughout the remainder of the plan area. The maintenance of continual canopy cover provides root support, interception, and evapotranspiration resulting in reduced soil pore pressure, raindrop impact and overland flow. These measures are designed to minimize the potential for soil mass wasting and surface erosion.

Yarding: The extensive use of skyline-cable yarding on slopes exceeding 50 percent will limit ground disturbance by providing full or partial suspension of logs yarded to landings eliminating the need for tractor roads in those locations. Cable yarding also requires fewer miles of logging road than ground –based systems. These measures are designed to minimize soil disturbance thereby reducing the potential for sediment production and transport.

Soil stabilization practices: Specific treatments designed to reduce the movement of soil from tractor roads, logging roads and landings, and other disturbed areas include treatment of greater than 100 ft² of bare mineral soil within ELZ or WLPZs, restrictions on heavy equipment operations, road use, timing of installation of erosion control facilities, and year-round wet weather restrictions on timber operations. These measures are designed to minimize soil disturbance and restrict operations when soils are most susceptible to sediment production and transport.

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Winter period operations: Timber operations during the winter period are limited to road inspection and emergency maintenance activities to insure proper functioning of drainage facilities and structures, and timber falling. These measures are designed to minimize soil disturbance and restrict operations when soils are most susceptible to sediment production and transport.

Road and landings: Roads are constructed primarily on ridetops, designed to avoid steep slopes, unstable areas, and watercourse crossings. There are no new or existing watercourse crossings associated with the proposed new logging road system for this project. Providing for a hydrologically disconnected road system should minimize the potential for sediment delivery to watercourses. Approximately 5,600 feet of Road 211, 5,150 feet of Road 212 and 1,300 feet of Road 212A, is proposed for abandonment, making up a total of approximately 2 1/4 miles. Proper road abandonment, maintenance, and improvement projects are designed to reduce the potential for long term sediment delivery from those sources.

Watercourse and lake protection: Increase in WLPZ width to 100 feet for all Class II watercourses regardless of slope to provide an increased buffer to filter sediment that may be produced upslope. No-harvest in the inner 25 feet of Class II WLPZs (except for cable safety) and light thin in outer 75 feet.

Biological: Retention of snags and down logs where they do not interfere with operations or safety, providing structural diversity and habitat for wildlife. Survey for and protect populations of rare plants in conjunction with other resources. Limiting harvest within Class II WLPZ's

Recreational & Visual: The THP boundary is 200 to 300 or more feet away from Highway 20, and both forest and topographic features buffer view of the plan area. The silviculture is selection, leaving a well stocked stand, lessening potential aesthetic impacts. Harvest areas along all roads will have a light harvest with the attempt to control invasive weed populations, acting as an aesthetic buffer. The nearest campground is approximately 1/2 mile east of the plan area. Road 210 is gated and locked year round and will be closed to recreational traffic during logging operations and signs will be posted for public safety, including information defining the estimated period of closure.

(5) Description of assessment area used, and the rationale for establishing it, for each resource subject:

1. **Watershed** – The watershed assessment area (WAA) is the Lower North Fork Big River (4,953 acres) and Two Log Creek (11,432 acres) Planning Watersheds, with a combined 16,385 acres. Jackson Demonstration State Forest manages 2805 acres of the Lower North Fork Big River watershed (57% of the watershed) and 543 acres of the Two Log Creek watershed (5% of the watershed), where remaining areas in both watersheds are managed forestland under other ownerships (13,037 acres). The WAA is derived from the Department of Water Resources California Watersheds data set, Cal Water, and is the CAL FIRE designated planning watershed 1113.300304 (Lower North Fork Big River) and 1113.300406 (Two Log Creek). The WAA was chosen so that it would comprise an area where conditions could best be evaluated to determine impacts from a representation of past, present and future projects. This area is large enough that the potential effects of the proposed project could combine cumulatively with the effects of other projects. This WAA was developed and assessed as per CDF guidelines set forth in 14 CCR 912.9 Board of Forestry Technical Rule Addendum No. 2 Cumulative Impacts Assessment - Appendix Technical Rule Addendum. This area is mapped on the Cumulative Impacts Assessment Area Map.

The THP area is located in the upper Lower North Fork Big River and Two Log Creek watersheds, where portions of the north THP boundary overlap the watershed boundary and fall within the 7,868 acre Chamberlain Creek Planning Watershed (Calwater V2.2 1113.300302). This area is approximately 8 acres (.1% of Chamberlain Creek Watershed) located along a ridge paralleling Road 210. Adding the Chamberlain Creek Watershed to the WAA would include approximately a 24,253 acre assessment area. It is in the opinion of the forester that this inclusion would dwarf any impacts that could occur and that impacts within this watershed are expected to be negligible when considering the location along a ridgeline, distances from watercourses and relative size. For the purpose of this assessment only the combined Lower North Fork Big River PW and Two Log Creek PW will be used to make up the Watershed Assessment Area.

2. **Soil Productivity** – The soil productivity assessment area is the area contained within the THP boundaries (342 acres). This area was chosen because soil productivity is a generally non-mobile resource with effects that stay

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on-site. Potential cumulative soil productivity effects occur over time within a project area, but are unlikely to occur over space beyond the project area. See Soils and Operations Map, Section II.

3. **Biological** – The biological assessment area (BAA) is a 0.7 mile radius around the THP boundary, with the exception of the Northern Spotted Owl (NSO). The NSO BAA shall be the harvest area plus 1.3 miles from the harvest area boundary. These areas have been the standard used by agencies for reviewing potential effects on biological resources in and adjacent to the plan area. Movements of animals are not reflected by watershed or ownership boundaries. The area determined for the BAA is a logical assessment area to determine potential impacts to various habitats.

The BAA includes portions of the Lower North Fork Big River, Two Log Creek, Parlin Creek and Chamberlain Creek planning watersheds. The total acreage of the BAA is 2,809 acres.

4. **Recreation** – The recreation assessment area is the harvest area plus 300 feet on all sides.
5. **Visual** – The visual assessment area is the plan area and the area from which it can be viewed within a 3 mile radius of the plan as stated in Technical Rule Addendum 2, Cumulative Impacts Assessments.
6. **Traffic** – The traffic assessment area includes those roads not part of the logging area on which logging traffic must travel to transport forest products to a primary manufacturer. The following roads may be used to transport forest products:
 - State Route (SR) 20 between Fort Bragg and Willits.
 - SR 1 between SR 128 and US 101.
 - US 101 from Cloverdale to Eureka.
 - SR 128 between Cloverdale and SR 1.

Identification of Information Sources

List and briefly describe the individuals, organizations, and records consulted in the assessment of cumulative impacts for each resource subject. Records of the information used in the assessment shall be provided to the Director upon request.

See end of this section (Section IV).

APPENDIX – TECHNICAL RULE ADDENDUM #2

1. WATERSHED RESOURCES

Beneficial Uses

The primary beneficial uses for the Lower North Fork Big River and Two Log Creek waters known by the plan submitter are: spawning and rearing habitat for anadromous fishes, domestic water supply, and wildlife habitat. Additionally, the Water Quality Control Board Basin Plan for the North Coast Region lists the following beneficial uses for the Big River watershed: domestic water supply, agriculture, industrial, groundwater recharge, recreation, fishing, and wildlife habitat.

The Big River watershed is designated as sediment and temperature impaired by the State of California North Coast Regional Water Quality Control Board (NCRWQCB) in its latest (2006) Clean Water Act Section 303(d) list, approved by the U.S. Environmental Protection Agency (EPA). The Lower North Fork Big River and Two Log Creek watersheds support both coho and steelhead.

Sediment Effects - *Sediment induced cumulative watershed effects occur when earth materials transported by surface or mass wasting erosion enter a stream or stream system at separate locations and are then combined at a downstream location to produce a change in water quality or channel condition.*

Past road and railroad construction and timber operations in the assessment area (particularly prior to the 1973 Z'berg-Nejedly Forest Act) were a major source of sediment and created a legacy of accumulated channel deposits, road conditions, and erosion sites that continue to contribute sediment to streams in the assessment area. Roads constructed during this time period were often located in or adjacent to watercourses and utilized cut and fill construction that often generated significant quantities of sidecast.

Less road construction has occurred since the early 1970's, and roads since that time have been constructed further from watercourses and designed to reduce erosion potential. The proposed road system for this project is located entirely on or near ridge tops and will be outsloped to minimize the potential for sediment to reach a watercourse. In addition, the road system was designed to avoid steep topography, unstable areas, and watercourses. There are no new watercourse crossings associated with the logging road system for this project.

Road improvement, maintenance and monitoring are proposed as part of this THP. An erosion control plan (attached in Section V) has been prepared for this THP to comply with General Waste Discharge Requirements for timber harvest activities on non-federal land (Order #R1-2004-0030). Included in the erosion control plan are sites defined as controllable sediment discharge sources found in the project area including those roads used for timber harvest activities and proposed road abandonment sites. The erosion control plan in conjunction with specifications in Section II, Item 25 provide a plan for treating identified sediment sources as well as other road-related improvements. Under this THP, roads maintained with an out-slope prism, where feasible, will improve road drainage consequently minimizing road surface erosion. Road berms and perched material will be removed where feasible, minimizing the potential for road-related landsliding. Potential for failure and large sediment inputs will be reduced by removal or upgrading existing watercourse crossings to accommodate a 100-year flow event.. Limited winter operations are proposed and a winter operating plan has been included in Section II, Item 23. Additionally, year-round restrictions apply regarding wet weather operations.

The degree of soil disturbance and vegetation removal also affects sediment production. Increased protection measures for Class II watercourses and equipment exclusion zones around Class III watercourses will provide a filter strip to slow the movement of mobilized sediment. Additionally, by implementing selection throughout the plan area, high levels of vegetation retention are proposed which will provide additional slope stability and intercept rainfall upslope from areas protected by WLPZ measures. Soil stabilization measures as described in Section II, Item 18 provide mitigation to disturbed soil areas. The use of cable-skyline yarding, avoidance of unstable areas, and WLPZ protection measures should limit sediment production to minor surface erosion from seasonal roads, tractor skid trails, and other disturbed areas. This sediment is expected to be contained within erosion control facilities. Tractor skid trails and seasonal road embankments/fills will gradually re-vegetate and stabilize following disturbance.

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Combining efforts to decrease potential for sedimentation to a watercourse through road abandonment efforts, location of logging roads away from watercourses and applied mitigation measures for the proposed and future projects within the WAA, an increase in long-term deliverable sediment with this project is not anticipated.

The plan area was reviewed by California Geological Survey (CGS) Certified Engineering Geologist. The Engineering Geologic Report located in Section V of this plan describes and maps the current geologic conditions in the plan area and immediate vicinity. The purpose of the review was to evaluate the potential for the proposed project to adversely affect water quality related to fish and other aquatic habitats and downstream beneficial uses. The goal of the geologic evaluation was to characterize the impacts of past timber management activities in terms of stability and erosion and to minimize future impacts so that both natural recovery and restoration work can progress.

Potential impacts from water drafting on sediment

The drafting guidelines contain specific mitigations for limiting sedimentation from drafting. The main source for sedimentation into the watercourse is improper stabilization of the approach road to the drafting location. All approach roads are either rocked or shall be rocked prior to starting drafting operations. Sediment can also enter watercourses as a result of overland water flow from water trucks or storage tanks. Water drafting locations where overland flow could cause sediment to enter a watercourse shall have sediment containment devices such as straw wattles or straw bales as required by pertinent 1600 agreements.

Water Temperature Effects - *Water temperature related cumulative watershed effects are changes in water chemistry or biological properties caused by the combination of solar warmed water from two or more locations where natural cover has been removed.*

Canopy cover is important in reducing the net gain of solar radiation and maintaining cool air temperature adjacent to streams. Stream water temperature responds to the input of solar radiation and is directly proportional to exposed stream surface area (Brown and Krygier, 1970) and inversely proportional to discharge (Sullivan et. al., 1990). Wide stream exposures receive greater solar radiation than streams with good canopy cover and narrow solar exposure. Several studies have shown that an intact streamside forest canopy will shade streams and minimize increases in summer water temperature. Brown and Krygier (1970) found diurnal variations in a well-shaded coastal Oregon stream to be less than 1° C. Increases in stream temperatures following clearcut logging have been observed to be as high as 3.2° C. (Holtby, L.B. 1988). The optimal temperature for Pacific salmonids has been shown to range between 12 and 14 degrees Celsius (Brett, 1952), though there is considerable debate about what exactly is the optimal temperature and what it means. The National Marine Fisheries Service (1996) characterizes properly functioning conditions for all adult Pacific salmon as between 10-13.9°C and temperatures from 13.9-15.5°C as “at risk”. Temperatures lethal to salmonids have been determined in the laboratory and range from 23-29 degrees Celsius (Beschta et. al., 1987). The California Department of Fish and Game reports juvenile coho need water temperatures within the range of 45 to 60 °F (7.2 to 15.6 °C).

Stream temperature monitoring was initiated on selected streams within the JDSF ownership in 1996. From 1996 to present day, water temperatures have been collected at two locations within the Lower North Fork Big River PW in the North Fork Big River. Water temperature has been recorded during the summer months by an instream temperature data. The stream temperature monitoring locations include the North Fork Big River approximately 1.5 miles upstream from the project area, just upstream from the confluence of Chamberlain Creek and approximately 1.3 miles downstream from the project area at the JDSF/Mendocino Redwood Company (MRC) property line. The Maximum Weekly Average Temperatures (MWAT) are included in the table shown below.

MWAT is defined as the running mean of multiple daily temperatures over a seven-day consecutive period. The seven-day moving average of the daily maximum was calculated by dividing the sum of seven consecutive daily maximum temperatures by seven. The highest of all of the seven-day moving averages for the sampling period became the MWAT for a given site.

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North Fork Big River - Maximum Weekly Average Temperatures

Year	Upstream From Chamberlain Creek	JDSF/MRC Property. Line
1996	18.48 °C	17.95 °C
1997	18.47 °C	18.11 °C
1998	NA	NA
1999	17.40 °C	17.80 °C
2000	18.30 °C	17.80 °C
2001	NA	NA
2002	18.35 °C	NA
2003	NA	NA
2004	20.40 °C	20.00 °C
2005	18.46 °C	NA
2006	20.97 °C	21.01 °C
2007	18.23 °C	18.61 °C

Maximum Weekly Average Temperatures shown above generally occurred in July and others in June or August. The increase in MWAT in 2006 was likely the result of a heat wave in mid-July that resulted in MWAT's spiking during that time across the forest and most likely throughout the region.

Stream inventories along stretches of the North Fork Big River and Two Log Creek were conducted in the summer of 1997 by the Department of Fish and Game with California Conservation Corps and Watershed Stewards Project/Americorps. The stream survey for North Fork Big River was conducted from September 18 through 24, located approximately 1.5 miles upstream from the project area between the confluence of Chamberlain Creek and James Creek. The Two Log Creek survey was conducted from August 19 through 22, located approximately 0.5 miles downstream from the harvest area. Findings show recorded stream temperatures ranging 13.3 °C to 15.0 °C for the North Fork Big River and 11.1 °C to 14.4 °C for Two Log Creek.

There has been no timber management within the JDSF ownership upstream of any of the collection sites since the mid – 1980's. Therefore, any yearly variations are likely due to environmental factors such as differences in weather, air temperature and stream-flow, or possibly the placement of the temperature monitor. The potential for temperature increases arises from removal of streamside canopy. Stream side canopy data was not collected for Class II tributaries within the THP area, but spot observations place these channels in the high 80 to low 90 percent shade canopy range. A significant change in water temperature due to harvest is not expected because, only limited harvesting is proposed within the Class II WLPZs and there are no Class I WLPZs within or immediately adjacent to the project area. Existing shade canopy conditions related to water temperature will be maintained under proposed project activities and will improve over time with forest growth. With the application of mitigation measures for the proposed project and future projects within the WAA, water temperature effects which would have the potential to combine with the effects of other projects to cause a significant cumulative impact are not expected.

Potential impacts of water drafting on temperature

Water drafting activities can affect temperature by impeding the flow of watercourses, allowing waters with little canopy to rise in temperature. Water drafting restrictions contained in Section II prohibit arresting stream flow and mandate minimum bypass flow requirements. Shade canopy at drafting locations will not be reduced as road access already exists and new road construction will not be necessary. No significant adverse cumulative impact on water temperature will occur as a result of water drafting.

Organic Debris Effects - *Cumulative watershed effects produced by organic debris can occur when logs, limbs, and other organic material are introduced into a stream or lake at two or more locations. Decomposition of this debris, particularly the smaller sized and less woody material, removes dissolved oxygen from the water and can cause impacts similar to those resulting from increased water temperatures. Introduction of excessive small organic debris can also increase water acidity.*

Large organic debris is an important stabilizing agent that should be maintained in small to medium size, steep gradient channels, but the sudden introduction of large, unstable volumes of bigger debris (such as logs, chunks, and

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larger limbs produced during a logging operation) can obstruct and divert stream flow against stream banks, block fish migration, and may cause debris torrents during periods of high flow.

The sections of both Two Log Creek and North Fork Big River observed by the RPF appear to have low concentrations of small woody debris and low to moderate amounts of large woody debris (LWD). Many of the Class II watercourses within the project area contain moderate amounts of medium to large woody debris.

With the application of mitigation measures for the proposed and future projects within the WAA, organic debris effects which would have the potential to combine with the effects of other projects to cause a significant adverse cumulative impact are not expected.

Chemical Contamination Effects - *Potential sources of chemical cumulative watershed effects include run-off from roads treated with oil or other dust-retarding materials, direct application or run-off from pesticide treatments, contamination by equipment fuels and oils, and the introduction of nutrients released during slash burning or wildfire from two or more locations.*

No chemical point sources are known to currently exist within the WAA. This includes areas used by the public along the North Fork Big River channel. The last known major fire that occurred on a watershed scale within the WAA was the broadcast burning of slash that was conducted concurrently with the original harvest.

Accidental contamination from heavy equipment within the THP area is not expected due to the limited number of watercourse crossings associated with road abandonment. The balance of the road, landing and skid trail system is located away from watercourses. Broadcast burning as a site preparation measure is not proposed, piles may be burned to reduce excess accumulations of slash at landing locations.

Public use of campgrounds located along the North Fork Big River always has the potential of resulting in vehicle fuel/oil leakage. The campgrounds and access routes are situated on alluvial flats in close proximity to the river channel. If an accidental oil or fuel release into a roadside ditch should occur, the emergency response shall be to contain the material via a ditch dam until it can either be rendered chemically inert on site or transported offsite to an authorized disposal location.

Because there are currently no known chemical contamination problems within the assessment area and this project proposes no chemical use, and any future project proposing chemical use would require unique permits for that purpose and be regulated to prevent chemical contamination, no significant adverse cumulative watershed effects caused by chemical contamination are expected.

Drafting Guidelines: Any vehicle fluid leak other than tank water shall be prevented from entering the soil or any waterbody by utilizing drip pans. Water containment devices shall be installed where over-flow runoff may enter the watercourse. Approved containment devices include, but are not limited to: straw bales or waddles installed in shallow hand-dug trenches perpendicular to anticipated overland flow.

14 CCR 914.5(a) Equipment used in timber operations shall not be serviced in locations where servicing will allow grease, oil, or fuel to pass into lakes or watercourses.

Potential impacts of water drafting activities on chemical contamination: No organic debris will enter watercourses as a result of water drafting activities; therefore no elevated nutrient levels are expected to occur as a result of water drafting activities. Equipment will be cleaned of all external materials, which may be deleterious to aquatic life, wildlife, and riparian habitat prior to entering any Watercourse and Lake Protection Zone, Equipment Exclusion Zone or Equipment Limitation Zone. All heavy equipment shall be checked daily and maintained when necessary to prevent leaks of deleterious materials from entering a WLPZ of channel zone. Water truck operators are required under the water drafting plan to carry containment devices such as drip pans sufficient to contain any fluids which may emanate/leak from drafting equipment. No significant impact with regards to chemical contamination is expected to occur as a result of water drafting activities.

With the application of mitigation measures for the proposed and future projects within the WAA, chemical contamination effects which would have the potential to combine with the effects of other projects to cause a

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significant adverse cumulative impact are not expected.

Peak Flow Effects - *Cumulative watershed effects caused by management induced peak flow increases in streams during storm events are difficult to anticipate. Peak flow increases may result from management activities that reduce vegetative water use or produce openings where snow can accumulate (such as clear-cutting and site preparation) or that change the timing of flows by producing more efficient runoff routing (such as insloped roads). These increases, however, are likely to be small relative to natural peak flows from medium and large storms. Research to date on the effects of management activities on channel conditions indicates that channel changes during storm events are primarily the result of large sediment inputs.*

The reduction of vegetative cover and the opening of roads and skid trails have been shown in watershed studies to have little effect in peak flow from timber harvest areas. This is supported by research by Evans and Patric (1983), Hess (1984), Hicks and others (1991), Rice and others (1979), and Rothacher (1973), who have shown that in rain-dominated hydrologic environments, logging or forest road construction is unlikely to adversely change the low flow regime of a stream. No conclusive evidence exists in the scientific literature that harvesting and road building can significantly increase peak flows in areas that receive almost all of their precipitation in the form of rain. On the south fork of Caspar Creek, where selective tractor logging removed 65% of the stand volume, researchers found that only very small storm volumes and storm peaks were increased after road building and logging. Fifteen percent of this same watershed was compacted in roads, landings, and skid trails (Wright, et.al. 1990).

Careful attention to the installation and maintenance of erosion control structures (waterbars and rolling dips on roads and skid trails) along with retention of as much understory and ground cover vegetation as possible in combination will effectively disperse water flow and allow more filtration, minimizing increases in peak flow. The silviculture being applied under this THP is selection and will retain a significant portion of the preharvest stand. The redwood stumps will resprout forming new trees which will transpire increasing amounts of water as they grow larger. It is expected that canopy openings and open areas of disturbed soil, such as roads and skid trails, will soon be covered with leaves and needles and new in-growth canopy. These natural effects will break up rainfall impacts, spread and hold surface water, and promote infiltration. With these mitigating measures and effects, it is not anticipated that there will be a significant adverse cumulative effect in peak flow.

Domestic Water Supply

There are no known domestic water uptakes in the harvest area or within 1000 feet downstream of the harvest area. No significant adverse cumulative impact on domestic water supplies is expected to occur.

Watercourse Condition

Evaluations of conditions of stream channels in the project area are as follows:

Gravel imbedded: Gravels within the major Class II watercourses appear to be largely embedded by fine sediment. Lower stretches of these watercourses exhibit higher amounts of gravels depending on the location and gradient of the watercourse. Imbeddedness has mainly occurred from the introduction of sediment from past land use activities which used the large low gradient watercourses as downhill yarding routes.

Pools filled: Small with few moderate sized pools were observed in the Class II watercourses found in the harvest area. Some pools located in Class II watercourses are partially filled, however most do not appear to be storing sediment depending on the location and gradient. The material moving through the fluvial system appears to be largely introduced sediment. The RPF observed several locations where large soil pipes have formed in Class II watercourses that were filled for log transport. These pipes appear to be delivering sediment as they are formed and as they collapse.

Aggrading: It appears that aggrading may be occurring in several short reaches of low gradient Class II watercourses. However, it is unclear if stream channels in these areas simply have not developed since the original channel was filled for log transport during historic harvesting operations. Pools in these areas are largely absent, flow is meandering and braided channels are often present. Material in these areas is a combination of fines, gravels and cobbles. Large accumulations of fresh material were not observed. In general streams in the harvest area do not appear to be aggrading. Sediment introduced into the watercourse channel seems to be moving downstream except

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where small pools have formed allowing suspended sediments to fall out. Aggrading of the stream channel has also occurred where large woody debris has temporarily trapped material. It is expected that these trapped materials will eventually become mobile and will move through the watershed.

Bank Cutting: Stream banks that have already been formed do not appear to be experiencing bank cutting. Collapsed stream banks were observed and appear to be largely related to the reformation of the watercourse after a large scale introduction of fill material as a result from past logging practices. Streams in the harvest area are reestablishing themselves through subsurface mining which has expressed itself through the formation of soil pipes. As the streams approach the natural gradient, material on top of the stream (soil pipes) is failing which causes the overburden left on top of stream banks to fail. This process is continuing and appears to be inputting sediment to the fluvial system.

Bank mass wasting: Bank mass wasting was not observed during the field inspection. Small bank failures related to bank cutting and reformation of watercourses was observed as discussed above. However, channels with landslides directly entering the stream system were not observed during field evaluation.

Downcutting: Downcutting was not observed. Streams in the project area are reestablishing themselves and material is moving through the fluvial system as previously stated. However, this process appears to be occurring from the bottom up and not from the top down as would occur with active downcutting.

Scouring: Little scouring was observed in watercourses in the harvest areas.

Organic debris: Class II watercourses located in the harvest area have low to moderate amounts of LWD. Class III watercourses contain low amounts of woody debris, usually in a small form (branches, twigs, etc.). Generally concentrations of small organic debris were not observed in the harvest area. See Organic Debris Effects discussion above for additional information.

Stream-side vegetation: Watercourses within the harvest areas have a dense layer of vegetation covering banks and adjacent stream-side areas. The mid and overstory vegetation consists mainly of second growth Douglas-fir and redwood with moderate levels of hardwoods, primarily tanoak. Understory vegetation consists of sword fern, evergreen huckleberry and other shrub species.

Recent floods: There are no signs of recent flooding in the harvest area.

2. SOIL PRODUCTIVITY

Cumulative soil productivity impacts occur when the combined impacts of a sequence of management activities produce a significant reduction in soil biomass production. These impacts may occur as part of separate activities on the same project, as residual effects of past projects, and as the likely impacts of future projects.

Forest management activities are required to be conducted in a manner that assures "where feasible, the productivity of timberlands is restored, enhanced, and maintained". Therefore, productivity losses resulting from site disturbance in excess of that required by suitable silviculture and harvesting practices, whether conducted individually or in sequence, must be considered as significant.

Impact significance must also be considered relative to the soil productivity potential of the area in question. Losses that can be considered acceptable on highly productive lands may be unacceptable, or even exceed the productivity potential, of lower site lands.

Site factors to be addressed for cumulative soil productivity impacts include:

1. Organic matter loss.
2. Surface soil loss.
3. Soil compaction.
4. Growing space loss.

Organic Matter Loss - Loss or displacement of organic matter is primarily caused by use of heavy equipment for

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skidding and site preparation, surface erosion, and high intensity fires. Organic matter loss can cause loss of nutrients contained in the topsoil and biomass associated with the harvest area. Most of the biomass nutrients are contained in the topsoil and foliage of the existing vegetation. Cable yarding will provide increased protection of organic matter since log skidding is confined to cable roads and logs are partially or entirely suspended during skidding. Cable yarding on steeper slopes minimizes surface erosion. The use of ground based equipment under this THP is limited to slopes of less than 50% and areas where cable yarding is not appropriate due to topography. The use of ground based equipment for site preparation is not proposed under this THP. Surface erosion will also be minimized by the proper installation of waterbreaks as listed in Section II, Item 18. A winter operating plan is also included in Section II, Item 23 to minimize soil loss or displacement when soils may be more vulnerable. High intensity fires, such as those associated with broadcast burning, are considered to have significant detrimental impacts on organic matter loss. There is no broadcast burning proposed. High intensity fires as a result of the logging operations are not expected to occur. No significant adverse cumulative impacts to organic matter are expected to occur as a result of harvesting operations.

Surface Soil Loss - Loss of topsoil can significantly reduce soil productivity as the highest nutrient content is contained in the top layer of the soil. Surface soils can be lost due to erosion and displacement by heavy equipment. While displacement of some top soil and organic matter is unavoidable on haul roads the loss will be minimized by proper installation and maintenance of erosion control structures and straw mulching as specified in Section II, Item 18, of the THP. Use of cable yarding systems on steeper slopes will also minimize surface soil loss. Surface soil loss will also be minimized by employing the selection silviculture. By meeting the stocking requirements of the plan, a significant portion of the preharvest stand will be retained. Retained trees will produce leaf litter which will help protect surface soil from erosion and replace the formerly displaced organic matter. No significant adverse cumulative impact to surface soil is expected to occur as a result of harvesting operations.

Soil Compaction - Within the plan area, soil compaction is associated with the use of heavy equipment particularly during saturated conditions. Soil compaction can affect site productivity through the loss of the ability to transmit air and water and by restricting root penetration. The restrictions of the operations during the winter period as specified in Section II, Item 23, and the use of cable yarding will minimize to the greatest extent possible any potential soil compaction within the harvest units. No significant adverse cumulative impact to soil compaction is expected to occur as a result of harvesting operations.

Growing Space Loss - Loss of growing space to road and landing construction is an unavoidable factor in most harvest systems. The proposed new road construction has been designed to facilitate cable yarding on as much acreage as possible while allowing access for future Timber Harvest Plans in adjacent areas. This planning will limit the amount of future road construction and resulting road densities. Establishment of a new road system which facilitates a change in yarding method from ground based to aerial will avoid the need for construction of skid trails necessary for yarding downhill to existing WLPZ roads. The existing WLPZ road was not designed with thought to any of these elements and would require long and numerous skid trails to utilize. Growing space loss resulting from this plan is not considered a significant adverse cumulative impact.

The construction of approximately 12,000 feet of new seasonal roads is proposed under this Timber Harvest Plan. Of these 12,000 feet, approximately one-fourth is along the prism of an existing skid trail, jeep trail or possibly roads for transport of logs during the 1970 harvest, where widening and further shaping is needed. The locations of proposed roads were designed to utilize these features to the highest extent feasible, reducing impacts to growing space.

3. BIOLOGICAL RESOURCES

Cumulative impacts to biological resources may occur when the less than significant adverse effects of one or more projects in an assessment area combine to produce a significant adverse affect to a species or its habitat. When evaluating the cumulative impacts associated with these resources, the species or their habitat found in the assessment area need to be identified. The California Natural Diversity Database and the CNPS electronic inventory were screened for all species that might potentially occur in the harvest area. For the biological assessment area, all USGS quadrangles within 5 miles of the harvest area were screened for known occurrences of species of special concern. No occurrences cited in the CNDDDB database were located in or adjacent to the harvest area. One known occurrence of the Sonoma Tree Vole (*Arborimus pomo*) was identified within the BAA, located approximately 0.5 miles east of the harvest plan. Two known activity centers of the Northern Spotted Owl are located within 1.3 miles of

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the harvest area (MEN 142 and MEN 62). Species found on the database which do not have habitat or potential habitat in the BAA, are not discussed below.

The following species, with the exception of the Marbled Murrelet and Peregrine falcon, were determined to have potential habitat within the plan area.

AMPHIBIANS

Northern Red-legged Frog (*Rana aurora aurora*) The Northern Red-legged Frog is a state listed species of special concern. The species inhabits quiet pools of streams, marshes and occasionally ponds. The frog requires permanent or nearly permanent water for larval development. The CNDDDB contains two Northern red-legged frog occurrences within the search area, but outside of both the WAA and BAA. The first one was identified within Little River in Van Damme State Park and the second was found in a tributary to the South Fork Noyo River, 1.2 miles upstream of the Parlin Creek confluence. No known locations were found within the database for the BAA. Some habitat may exist within the plan area and likely exist within the assessment area. Potential habitat will be protected by the WLPZ protection measures.

Potential Impacts of Water Drafting on Embryonic Northern Red-legged Frogs

Male northern red-legged frogs assemble at breeding sites as early as mid-December in warm winters and vocalize beneath the water's surface (Nussbaum et al. 1983). Oviposition occurs early in the year, during a relatively restricted time period from January to March, in ponds and intermittent and permanent streams with slow or still water. Hatching typically occurs in 4–5 weeks at temperatures between 8° to 12°C (47° and 53°F) (Nussbaum et al. 1983). Northern red-legged frog embryos should be fully developed and functional as larvae by April 1. Water drafting activities predominantly occur after April 1, therefore the potential impacts to developing embryos is insignificant.

Potential Impacts of Water Drafting on Larval Northern Red-legged Frogs (Tadpoles)

Larval development to metamorphosis seems to require about 3.5 months after hatching (Licht 1974). Most mortality of red-legged frogs is believed to occur in the larval stage (USFWS 1996). Drafting water from ponds, Class I watercourses or Class II watercourses before larvae have metamorphosed may have impacts on larval survival. Larval northern red-legged frogs (tadpoles) cannot relocate to better habitat if a section of stream is de-watered due to their lack of appendages, and necessity for water to respire. Water drafting activities should not de-water any section of stream while larval northern red-legged frogs (tadpoles) are present.

However, the presence of larvae is restricted to sites that were used for breeding (ponds, marshes, stillwater habitats, etc). Most Class II watercourses in Mendocino County are typically steep and confined, and may not be suitable as breeding habitat for this species. Suitable breeding habitat may exist within backwater or cutoff pools along low gradient Class I watercourses. It is believed that ponds, marshes and coastal lagoons are the predominant habitat utilized for breeding in Mendocino County.

Potential Impacts of Water Drafting on Post-metamorphic Northern Red-legged Frogs

Upon metamorphosis, northern red-legged frogs respire via 'lungs' and disperse into a variety of environments. Post-metamorphic individuals have been found to inhabit dense patches of grass and shrubs, such as willow thickets and sedges with a moist substrate (Stebbins 1951, Storm 1960, Twedt 1993; all as cited in Jennings and Hayes 1994). In northwestern California, Twedt (1993) often observed red-legged frogs in dense undergrowth of ferns and sedges along streamside flats in redwood forests. Downed wood may be important as cover in upland areas (Dunlap 1955, Porter 1961, both as cited in USFWS 1980). Drafting water after larvae have metamorphosed and left the stream environment may have little or no impact on the species.

Foothill Yellow-legged Frog (*Rana boylei*) The Foothill Yellow-legged Frog is a state listed species of special concern. The highly aquatic species inhabits a variety of small to large sized streams with rocky or cobble substrate. The CNDDDB contains Foothill Yellow-legged Frog occurrences identified within Sixteen Gulch, Willits Creek (2) and North Fork of Big River. Sixteen Gulch and North Fork Big River are tributaries of Big River and Willits Creek is a tributary to the Eel River. The one occurrence found in the North Fork of Big River is within the WAA, located approximately 1 mile south of the plan area. No known occurrences were found within the BAA or drafting sites. Potential habitat will be protected by the WLPZ protection measures.

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Potential Impacts of Water Drafting on Embryonic Foothill Yellow-legged Frogs

The potential impacts of water drafting on embryonic foothill yellow-legged frogs are minimal due to rapid hatch rates. Embryos develop or hatch within 6 days of oviposition (Blaustein et al. 1995). Water drafting activities should focus on not de-watering any section of stream while egg masses are present.

Potential Impacts of Water Drafting on Larval Foothill Yellow-legged Frogs (Tadpoles)

Foothill yellow-legged frogs can be found throughout the year along stream tributaries, but they concentrate near main river channels to breed from mid-April to early May (Kupferberg 1996a). The same breeding sites are generally used each year. Eggs hatch in about five days and tadpoles metamorphose in 3–4 months. Tadpoles are not known to overwinter (Blaustein et al. 1995).

Adult Foothill Yellow-legged Frogs prefer to breed in warmer, wider, larger streams with gentle sloping banks (Kupferberg 1996a). Preferable breeding habitat most likely exists within only Class I watercourses. Breeding most likely does not occur in most Class II watercourses due to the steep and confined morphology, therefore the presence of foothill yellow-legged frog larvae in Class II watercourses is unlikely. Foothill Yellow-legged Frog larvae may only be impacted by water drafting activities in Class I watercourses. Water drafting activities will not de-water any section of stream..

Potential Impacts of Water Drafting on Post-metamorphic Foothill Yellow-legged Frogs

Upon metamorphosis, Foothill Yellow-legged Frogs no longer respire with gills and are able to leave the stream environment. Post-metamorphic frogs respire via lungs and are not dependent upon the presence of water to survive. During high winter flows, this species typically leaves the channel to find refuge in upland forests. Nussbaum et al. (1983) reports observing Foothill Yellow-legged Frogs as much as 50 m from the nearest stream. Water drafting activities conducted in Class I watercourses, Class II watercourses or ponds should have minimal impact on post-metamorphic Foothill Yellow-legged Frogs.

Western Tailed Frog (*Ascaphus truei*) – Tailed Frogs are a state listed species of special concern. Habitat characteristics may exist in the watershed and harvest area. This species is restricted to perennial streams of low temperature in steep-walled valleys with dense vegetation. Intermittent streams are unsuitable. Siltation, stream warming and reduction of habitat may have contributed to a decline in this species. While old-growth forests are not found adjacent to watercourses in the plan area, micro-habitats found in Class II watercourses may contain suitable habitat. With implementation of both WLPZ protection and soil stabilization measures, potential impacts on this species will be minimized. The CNDDDB contains Western tailed frog occurrences within Parlin Creek, Brandon Gulch, North Fork of the South Fork of Noyo River and South Fork Noyo River all of which are tributaries of Noyo River. Other occurrences were listed for Caspar Creek and West Branch of Chamberlin Creek. No known locations were found within the database for the WAA, the BAA or drafting sites.

Potential Impacts of Water Drafting on Tailed Frogs

Western Tailed Frogs have been reported to breed from May-October (Gaige, 1920; Noble and Putnam, 1931; Slater, 1931; Metter, 1964; Wernz, 1969). Eggs are deposited the following spring or summer after spring runoff (Gaige, 1920; Franz, 1970; H.A. Brown, 1975; Daugherty and Sheldon, 1982a; Adams, 1993; Karraker and Beyersdorf, 1997). Eggs have been observed to hatch in 3-6 weeks (Franz, 1970; H.A. Brown, 1989a) with tadpoles emerging in August-September (Metter, 1964; H.A. Brown, 1989). Tadpoles have been observed to metamorphose in 1-4 years depending on the cycle of the stream inhabited. Western tailed frog tadpoles require permanent water but have been observed in streams that do dry seasonally (Wallace and Diller, 1998; Waters et al., 2001). Metamorphosis has been observed in late summer and takes about 1 month but tails may not be resorbed for months (H. A. Brown, 1990; Bury and Adams, 1999). Adult frogs are aquatic but are not dependent upon water to respire. Western tailed frogs have been found in moist woods after heavy rains or dews (Nussbaum et al., 1983; Welsh and Reynolds, 1986).

Due to the dependency of embryonic and larval Western Tailed Frogs on water, drafting activities will avoid dewatering stream sections. Post-metamorphic tailed frogs although not dependent on water for respiration have been found to be vulnerable to sedimentation and warm water temperatures (Bury and Corn, 1988b; Hawkins et al., 1988; Corn and Bury, 1989a; Welsh and Ollivier, 1998, Diller and Wallace, 1999). Drafting activities should ensure that adequate flows are maintained to prevent elevated water temperatures due to water diversion when adult tailed frogs are present in the watercourse. Minimum bypass flow requirements included in Section II, Item 26 should be

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adequate to prevent dewatering of any sections of stream while maintaining sufficient flow to regulate stream temperatures. Protection measures are also included in the drafting guidelines which will prevent sediment from entering the stream as a result of drafting activities. A significant adverse cumulative impact to the Western Tailed Frog is not expected, due to the protection measures incorporated in the water drafting plan.

Southern Torrent Salamander (*Rhyacotriton variegatus*) – The Southern Torrent Salamander is a state species of special concern. Habitat characteristics exist in the watershed and the CNDDDB contains an occurrence in Chamberlain Creek, a tributary of Big River and an unnamed tributary to the South Fork of Ten Mile River. No known locations were found within the database for the WAA, BAA or drafting sites. Habitat characteristics may also exist within the harvest area. According to the Natural Diversity Database habitat includes coastal redwood, Douglas fir, mixed conifer, montane riparian and montane hardwood-conifer, and old-growth forests. Microhabitat consists of cold, well shaded, permanent streams and seeps or within splash zone or on moss-covered rocks within trickling water. They are also known to inhabit areas of gravel and cobble with permanent flowing water. While the harvest area contains streams where dark, cool habitats are present, cobbles and gravels where this species might be found are limited Class II watercourses. These microsites found in Class II watercourses may contain suitable habitat. The WLPZ protection measures proposed in this plan exceed the Forest Practice Rules and will ensure that cool, well shaded streams are at least maintained and at best enhanced.

Potential Impacts of Water Drafting on Embryonic Southern Torrent Salamanders

De-watering southern Torrent Salamander nest sites may have adverse impacts on developing embryos. Nests with developing embryos may be present in streams from September through June (based upon only one observation of a southern torrent salamander nest site by Karraker, 1999). Potential impacts to embryonic torrent salamanders will be minimized by avoiding de-watering stream sections while drafting water.

Potential Impacts of Water Drafting on Post-embryonic Southern Torrent Salamanders

Larval southern Torrent Salamanders probably hatch or emerge from nests sometime in the late spring (late February through early June). The Southern Torrent Salamander is a permanent, non-migratory resident of streams, seeps, and springs in the Pacific Northwest. *Rhyacotriton* is known to be one of the most desiccation-intolerant genera of salamanders (Ray 1958). The relatively reduced lungs of this genus may offer an explanation, as this could cause an unusually high dependence on the skin for oxygen uptake (Whitford and Hutchinson 1966). Both larvae and adults primarily live in contact with water, although during wet periods adults may use nearby moist riparian and forest microhabitats (Welsh and Lind 1996).

Water drafting activities may adversely impact all life stages of Southern Torrent Salamanders. This species is extremely sensitive to desiccation, and is highly dependent upon seeping water for survival. Water drafting activities are restricted by minimum flow requirements, so de-watering can not occur.

REPTILES

Northwestern Pond Turtle (*Actinemys marmorata marmorata*) – The Northwestern Pond Turtle is a state listed species of special concern. The CNDDDB contains an occurrence in Lake Emily, at the confluence of Willits and Dutch Henry Creek, both tributaries to the Eel River. The species has been observed in the mainstem of Big River and habitat characteristics may occur within this watershed. This species inhabits a wide range of fresh or brackish water habitats. Although adults have no specific habitat requirements, hatchlings and juveniles require very specialized habitat for survival through their first few years. Prime habitat includes low flow regions of rivers, channels and backwater areas. Deep, still water with emergent woody debris, overhanging vegetation, and rock outcrops is optimal for basking and thermoregulation. Slow-moving Class I tributaries do not occur within the plan area. Management policies for WLPZ protection areas will minimize potential impacts on the pond turtle.

FISH

Coho Salmon (*Oncorhynchus kisutch*) – Coho salmon are listed as state endangered and federally threatened. The species is known to be present in the listed watershed. The North Fork of Big River and Two Log Creek is a Class I fish bearing watercourse. The nearest Class I reaches to the harvest area is approximately 0.2 and 0.3 miles downstream from the plan area, respectively. Class II watercourses upstream within the harvest area will be protected with canopy restrictions which exceed the Forest Practice Rules. Compliance with the Coho salmon timber

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regulations is discussed in Section III, Item 32. The proposed operations are not expected to have a significant adverse cumulative impact on the species.

Potential impacts of water drafting on Coho Salmon

The Big River Watershed supports a Coho salmon population. Juvenile Coho salmon are present in the watershed when drafting operations will occur. Drafting most likely will not occur when Coho are spawning in the river system. Water drafting restrictions, such as pool volume retention, minimum riffle flow, minimum bypass flows, screen design, approach velocity and others are designed so that the drafting operations will not have a significant adverse cumulative impact on Coho. Class I water drafting guidelines are found in Section II, Item 26.

Steelhead (*Oncorhynchus mykiss*) and **Chinook Salmon** (*Oncorhynchus tshawytscha*) are federally threatened species. Steelhead are present within the listed watershed. Records of Chinook salmon presence in the North Fork of Big River and Two Log Creek were not found when researching the watershed. However Chinook have been observed in the South Fork of Noyo River a similar local watershed and can likely be present in the lower reaches of the North Fork Big River. The protection measures employed for the coho salmon will serve to protect these species as well as improvements made to roads and watercourse crossings associated with this plan. Based on these improvements and WLPZ protection measures, no impacts to fish habitat is expected.

Potential impacts of water drafting on Chinook salmon

Drafting will most likely not occur when Chinook are spawning in the river system. Juvenile Chinook outmigrate from Big River in the spring following emergence from spawning gravels when flows are generally high. Therefore, juvenile Chinook may be present (May through early June) when drafting is likely to occur. Water drafting restrictions, such as pool volume retention, minimum riffle flow, minimum bypass flows, screen design, approach velocity and others are designed so that the drafting operations will not have a significant adverse cumulative impact on Chinook. Class I water drafting guidelines are found in Section II Item 26.

Potential impacts of water drafting on Steelhead

Juvenile and adult Steelhead will be present in the Big River Watershed when drafting operations may occur. Drafting most likely will not occur when steelhead are spawning in the river system. Water drafting restrictions such as pool volume retention, minimum riffle flow, screen size, approach velocity and others are designed so that the drafting operations will not have a significant adverse cumulative impact on steelhead. Class I water drafting guidelines are found in Section II Item 26.

A coho regulations pre-consultation was conducted October 15, 2008 with Department of Fish and Game Representative John Hendrix. Following the pre-consultation the DFG representative found that the THP as proposed was unlikely to result in take of coho salmon.

River Lamprey (*Lampetra ayresii*.) River Lamprey are a state listed species of special concern. Adult river lampreys are relatively small lampreys (17 cm) that migrate from oceans to small tributary streams to spawn in gravel riffles. The ammocoetes live in salty back waters of such streams. River lampreys are anadromous and spend much of their adult life in estuaries before entering the ocean where they spend 3-4 months. In the ocean they are obligate parasites, and typically kill their host (mainly herring and salmon, 10-330cm in length). There is potential habitat for this species in the watershed. Protection measures described above for Coho is expected to provide adequate protection for lamprey habitat.

BIRDS

Northern Spotted Owl (*Strix occidentalis caurina*), The Northern Spotted Owl is federally threatened as well as a Board of Forestry sensitive species. The NSO assessment area includes the area 1.3 miles from the THP boundary. Activity center protection and habitat quantities are found in Section II and Section V.

Jackson Demonstration State Forest began spotted owl monitoring for the purpose of timber harvest planning in 1989. Since then, survey effort has varied in relation to the amount of predicted harvesting and/or available funding. The first forest-wide inventory was undertaken in 1992 (Roberts et al 1992). Thirteen pairs and one single female were located for a total of 14 territories. In 2001 and 2005, the second and third inventories were undertaken. In 2001, the inventory documented a total of 12 spotted owl territories (11 pairs and 1 single owl). In 2005, 18 territories (14

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pairs and 4 single owls) were documented. Telemetry observations at five owl territories was undertaken between 2001 and 2005 as part of a larger research effort by Irvin and Rock to study owl home ranges and resource selection.

Despite continued annual owl surveying of at least half of JDSF territories, variations in survey effort, small sample size, difficulties in determining nesting status, and natural annual oscillations in reproductive success, make it impossible to draw conclusions regarding possible trends in the average nesting success, number of young, or territory occupancy rate on the forest.

Barred owls have begun to be detected during spotted owl calling at JDSF. In 2001, a single male barred owl was detected at the southern edge of JDSF near Mendocino Woodlands State Park (Stephens 2001). By 2007, up to five territories are thought to be located near Mendocino Woodlands State Park; a pair was heard near the western edge of the forest behind Russian Gulch State Park; and a pair is thought to have established themselves in the south Caspar Creek watershed near owl territory MEN 585. The owls from MEN 585 were never located during 2008 surveys (Stephens, pers. comm.).

In 2008, the USFWS completed a Recovery Plan for the Northern Spotted Owl. It states that owl populations monitored at 13 long-term demographic study areas showed a decrease of about 3.7 percent from 1985 to 2003. However, populations in the Tyee, Klamath, South Oregon Cascades, Northwest California, and Hoopa study areas appeared to be stationary during the study. There was some evidence that the population in Northwest California study area was decreasing ($\lambda_{RJS} = 0.959$ to 1.011) (USFWS 2008). The Recovery Plan emphasizes the threat of the barred owl and outlines specific management actions to be taken by federal land managers. Barred owls compete with spotted owls for prey and habitat. Their diet is more diverse and their behavior more aggressive than spotted owls.

The Recovery Plan recommends additional specific management actions to be taken on federal lands (referred to as Managed Owl Conservation Areas, or MOCAs). MOCAs are expected to provide the major contribution to NSO recovery using a landscape approach. Non-federal lands (private, state and tribal) (referred to as Conservation Support Areas, or CSAs) are mentioned for their contributions to demographic support (pair or cluster protection) to federal lands, or their connectivity with federal lands for dispersal habitat. JDSF and nearby private timberland properties in the coastal redwood region are mapped in the Recovery Plan as CSAs. The closest MOCA to JDSF is Mendocino National Forest (approximately 75 miles east). Pair protection is provided by the CAL-FIRE no-take determination process that requires surveys to locate owls, minimum suitable owl habitat post-harvest for each owl activity center, disturbance standards, and protection of the activity center core.

The location and habitats of the spotted owls within 1.3 miles of the harvest area is well known. Due to the limited harvesting levels, suitable owl habitat will remain in the THP area post-harvest. Operations will not occur until Technical Assistance is provided by the US Fish and Wildlife Service and a "no take" determination is made by CAL FIRE. Given the high amounts of suitable habitat and continued monitoring, no significant adverse impacts are expected.

Northern Goshawk (*Accipiter gentilis*) The Northern Goshawk is listed as a Board of Forestry sensitive species and Department of Fish and Game species of special concern. This species is listed as a yearlong resident in the northern half of Mendocino County. The species uses larger diameter conifer and deciduous stands for cover and nests in the densest parts of the stand. While hunting, snags and dead-topped trees are often used for observation and prey-plucking perches. Habitat is present within the THP area and BAA.

There are two occurrences in the CNDDDB database of northern goshawk within the search area. The first was located south of Big River, 1 mile west-southwest from the confluence of Pigen Gulch, approximately 5.5 miles southeast of the plan area. The other was located along Ramsey Ridge, 6.5 miles northeast of the town of Fort Bragg.

JDSF wildlife records report two possible sightings of Northern Goshawks that occurred in the Little North Fork Big River road 70 area, approximately 3 miles west of the plan area. The first sighting was in 1992 and the second was in 1994. No nests were observed and no sightings have been reported in the area since. No occurrences of the Northern Goshawk were noted in the CNDDDB within the WAA and BAA. The RPF has walked through all portions of the harvest area looking for signs of raptors. No raptor nests were observed and no signs of any raptors in the

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harvest area have been found. Any raptor nests found in the harvest area will be protected as discussed in Section II, Item #32.

Bald Eagle (*Haliaeetus leucocephalus*) The Bald Eagle is a state endangered species, a Board of Forestry sensitive species and a DFG Fully Protected species. The range distribution map (CDF&G 1990) shows occurrence only in the winter throughout most of Mendocino County. For feeding, this species requires large bodies of water or free flowing rivers where fish are abundant, and hunting perches are available. There are no large bodies of water within the plan area or the BAA. No Bald Eagles, nest of Bald Eagles or signs of Bald Eagles were found within or adjacent to the plan area during plan preparation. Snags will be retained to the extent feasible to provide perching opportunities if this species were to utilize the area. A light harvest will occur within Class II WLPZs, leaving larger trees for future snag recruitment. Bald Eagles are only very rarely seen in coastal forests of Mendocino County. The last documented Bald Eagle was seen along the coast near Little River. It was a wing-banded juvenile from Santa Cruz island. The proposed operations are unlikely to negatively affect this species and default raptor nest protection measures (14 CCR 919.2 (d)) will protect new active raptor nests.

Golden Eagle (*Aquila chrysaetos*) The Golden Eagle is a Board of Forestry sensitive species, and a DFG Fully Protected Species. All of Mendocino County is listed as both summer and winter range for this species. Secluded cliffs with overhanging ledges and large trees are used for cover. Golden Eagles nest on cliffs and in large trees in open areas. Feeding requires open terrain for hunting which includes early successional stages of forests. Foraging habitat is not found in the plan area and is limited in the BAA. The proposed operations are unlikely to negatively affect this species and default raptor nest protection measures (14 CCR 919.2 (d)) will protect new active raptor nests.

American Peregrine Falcon (*Falco peregrinus anatum*) The Peregrine Falcon is a state endangered species, a Board of Forestry sensitive species, and a DFG Fully Protected Species. All of Mendocino County is listed as both summer and winter range for this species. Protective cliffs or ledges and water are usually the necessary elements for nesting and cover. There are no recorded occurrences of this species in the plan area or the BAA, and potential habitat does not occur within the THP. Potential habitat may be present within the WAA downstream of the BAA.

Osprey (*Pandion haliaetus*) Potential nesting structures for the Osprey are present in the watershed. The Osprey is a Board of Forestry sensitive species. Osprey hunt for fish over open clear waters such as rivers, lakes, reservoirs, bays, estuaries and ocean surf zones. The Osprey usually nest within 1,300 feet of fish producing waters on easily accessible snags, flat topped trees, cliffs, or man made structures. During the process of plan layout, no signs of this species were detected. Default raptor nest protection measures will prevent destruction of any newly discovered active nest.

White-tailed Kite (*Elanus leucurus*) The White-tailed Kite is a DFG Fully Protected species. This kite hunts over open grasslands and savannah-like habitats, hovering with vigorous wing beats while looking for prey directly below. They nest in the top-third of trees, often in oak woodland or wooded riparian habitat adjacent to their foraging area. Infrequently they have been known to nest in coniferous forest. Small mammals (voles) comprise more than 95% of their diet. During the process of plan layout, no signs of this species were detected. Default raptor nest protection measures will prevent destruction of any newly discovered active nest.

Marbled Murrelet (*Brachyramphus marmoratus*) The Marbled Murrelet is a federally threatened and a State endangered species. This seabird prefers dense mature forests of redwood and Douglas-fir for nesting, but has also been found in single or small groups of mature trees. The Pacific Seabird Group, a professional organization of seabird biologists, defines potential habitat as 1) mature (with or without an old-growth component) and old-growth coniferous forests, and 2) younger coniferous forests that have deformations or structures suitable for nesting. Hamer et.al. (1994) found that, in Washington, the presence of potential nest platforms was the best predictor of occupancy of a stand by murrelets. In addition, they found that tree size was not the best indicator of the abundance of potential nest platforms.

There is no potential murrelet habitat in the plan area. JDSF has known potential murrelet habitat within the standard disturbance buffer (0.25 miles) east of the plan boundary at the "Camp 20 Grove" (aka McGuire/Dunlap Grove). This area is located just north of Highway 20 near mile marker 17. This stand was surveyed for murrelet presence in 1992, '93, '94 and '96, with no detections. Murrelet surveys were conducted again in 2005 and 2006 by Mad River Biologists according to the Pacific Seabird Protocol in preparation for the Park Gulch THP. No murrelets were

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detected during the 2005 and 2006 surveys. DFG determined that murrelets are likely absent from the Camp 20 Grove (DFG letter, October 31, 2007). Additional scoping and consultation in preparation for the North Dunlap THP occurred in 2007 and again in 2008. Harvest history, aerial photographs and field checking were employed to locate potential habitat. Two small areas of older trees were located during scoping work by JDSF staff in 2007 and reviewed by DFG. These areas were reviewed by DFG and determined to not be potential habitat (DFG letter September 4, 2007). The Camp 20 Grove status of "Probable Absence" is valid through 2009. Murrelet surveys recommenced in 2008 and will be continued in 2009 at the Camp 20 Grove in an effort to maintain its current status. No adverse effects are expected to this species as none are present within the plan area or within the THP disturbance footprint.

Great Blue Heron (*Ardea herodias*) (rookery) The Great Blue Heron is listed as sensitive species by the Board of Forestry. The Great Blue Heron is common throughout most of California year-round (including Mendocino County). It is commonly found in fresh and saline emergent wetlands, less common along riverine and rocky marine shores, in croplands, pastures and in mountains above foothills. The Great Blue Heron feeds upon mostly fish, but also feeds upon small rodents, amphibians, snakes, lizards, insects and crustaceans. Rookeries are often located in large trees near open bodies of water. Key habitat potentially impacted by timber harvest includes rookery trees. No rookery trees were observed in the plan area and no large bodies of water are located within the plan area.

Great Egret (*Casmerodius albus*) (rookery) The Great Egret is listed as a sensitive species by the Board of Forestry and is a common resident throughout California (wintering in the west 1/3 of Mendocino County). The egret feeds in fresh and saline emergent wetlands, along the margins of estuaries, lakes, slow moving streams, on mudflats and in irrigated croplands and nests in rookeries much like the Great Blue Heron. The Egret mainly feeds upon fish, amphibians, snails, snakes, crustaceans and small mammals. Habitat may exist in the WAA during low flow conditions. No signs of the Great Egret or Great Egret rookeries were observed during plan preparation.

Sharp-shinned Hawk (*Accipiter striatus*) and **Cooper's Hawk** (*Accipiter cooperii*). These two raptors were recently removed from the Department of Fish and Game's Species of Special Concern list. Optimal habitat requirements for both species are mid-seral timber with dense canopy closure. Both species are also known to occur in more open forests, forest edges, and riparian corridors. Habitat for these species is found in the harvest area, as well as other portions of JDSF forestlands, and also in privately owned forestland in the watershed. The RPF has walked through all portions of the harvest area looking for signs of these species during the breeding season. No raptor nests were observed and no signs of any raptors in the harvest area have been found. Additional surveying for raptors will occur during tree marking. Any raptor nests found in the harvest area will be protected as discussed in Section III, Item #32.

Vaux's Swift (*Chaetura vauxi*) – The Vaux's Swift is listed as a state species of special concern. These swifts breed in coniferous forest along the central and Northern California coast. The species requires natural or artificial cavities such as burned out hollow trees for nesting. Vaux's Swifts feed aerially, catching flying insects. Vaux's Swift has been documented during early morning murrelet surveys at Camp 20 Grove. Management policies regarding WLPZ protection, retention of trees exhibiting cavities considered suitable for nesting for Vaux's Swift, and general snag retention will help to protect nesting habitat for this species.

Purple Martin (*Progne subis arboricola*) – The Purple Martin is listed as a state species of special concern. This migratory species arrives in California mid-March through May to begin its nesting season (Williams 1998). As a secondary cavity nester dependent on pre-existing cavities, martens compete with many other species for access to cavities. In urban areas European Starlings and House Sparrows are competitors for nesting cavities and have forced martens to resort to using holes in concrete bridges to nest. In woodland and forested habitats, nesting trees must have suitable nesting cavities and open access to cavity entrances. The species forages over riparian areas, forest and woodland habitat. Purple marten presence has been documented during early morning murrelet surveys at Camp 20 Grove. JDSF management policies regarding Late Seral Management Areas, retention of trees exhibiting cavities considered suitable for nesting, and Watercourse and Lake Protection Zones will minimize potential adverse impacts to this species.

Yellow Warbler (*Dendroica petechia brewsteri*) – The Yellow Warbler is listed as a state species of special concern. This species nests in medium-sized, dense riparian woodlands (willows, cottonwoods, and alders), and low shrubby openings in montane forests. In migration it is found in a variety of sparse to dense woodland and forested habitats.

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The yellow warbler is declining in many parts of its range, particularly along the southern coast and in the central valley. Although it is highly unlikely to nest within JDSF, alders along riparian corridors may provide spring and fall migration habitat. WLPZ protection measures will prevent any adverse impacts to this species.

Yellow-breasted Chat (*Icteria virens*) – The Yellow-breasted Chat is listed as a state species of special concern. This species is typically associated with early successional stages of dense, shrubby riparian habitat (willows and alders) found in floodplains and valleys. Destruction of riparian woodland habitat and parasitism by brown headed cowbirds has contributed to the decline of this species. It is highly unlikely to occupy the mature coniferous forest riparian habitat found in this plan. WLPZ protection measures will prevent any adverse impacts to this species.

Olive-sided Flycatcher (*Contopus cooperi*) The Olive-sided Flycatcher is a state species of concern. Olive-sided Flycatchers are associated with forest openings and edges occurring in mature forests and following natural and anthropogenic disturbances, such as tree fall gaps, fire, and logging (Kotliar 2007). The olive-sided flycatcher winters in mountainous areas throughout South America. Spring migrants arrive in southern California in mid-April and in northern California in early May. These flycatchers utilize tall perches above the canopy to aerially forage for flying insects. Bark beetles and bumblebees are the majority of their diet. Fire and specific management practices can increase habitat for this species. However, large stands of evenly aged saw log are detrimental (Brandy). JDSF management policies regarding the protection of Class I/II WLPZ corridors and opening the surrounding canopy should increase habitat for the Olive-sided Flycatcher within the plan area.

MAMMALS

Townsend's Big-eared Bat (*Corynorhinus townsendii*) – State species of special concern. Potential habitat for this species includes buildings, caves, abandoned mine shafts and deep rock crevices. In the plan area, potential habitat may occur as hollowed out trees. In the spring and summer, females form maternity colonies in mines, caves, or buildings, while males roost individually. No caves or mine shafts are located in or near the harvest area. Proposed operations are unlikely to negatively affect this species.

TERRESTRIAL MAMMALS

Sonoma Tree Vole (*Arborimus pomo*)– The Sonoma Tree Vole is listed as a species of special concern. The habitat for this species exists along the North coast fog belt from Sonoma County to the Oregon Border. The species occurs in Douglas-fir, redwood and montane hardwood-Conifer Forests. The Sonoma Tree Vole feeds almost exclusively on Douglas-fir needles and will occasionally take needles of grand fir, hemlock or spruce.

Habitat for the species is present in the plan area and the BAA. The CNDDDB lists three occurrences within the BAA, two in the North Fork of Big River and one in Park Gulch, both tributaries of the Big River watershed. The locations of these occurrences were non-specific as shown in the CNDDDB reports, although the polygon designated for these occurrences is located approximately 0.5 miles east from the harvest area, incorporating Park Gulch, Chamberlain Creek downstream to North Fork of Big River and approximately 1.5 miles upstream along Highway 20. The plan area was inspected for signs of this species, such as nest structures, during THP layout. No Sonoma tree vole nests were encountered. Trees will be retained in watercourse buffers that contain Douglas-fir habitat preferred by red tree voles in addition to retention of fir trees throughout the harvest area. The entire harvest area is designated for selection harvest and significant portions of the preharvest stand will be retained. No significant adverse impacts to this species are expected as a result of the THP

Pacific Fisher (*Martes pennanti pacifica*) – The Pacific Fisher is a state species of concern and a federal candidate. This species is not known to be present in the Watershed Assessment Area or the Biological Assessment Area associated with this plan. (See the text below under Humboldt marten for information surveys conducted on JDSF for carnivore presence). The habitat for this species consists of intermediate to large-tree stages of coniferous forests and deciduous riparian areas with a high percent canopy closure. Its microhabitat consists of snags, cavities, logs, and rocky areas for cover and denning. It also needs large areas of mature, dense forest (CNDDDB 2005). While snags, trees with cavities, and downed logs are proposed for retention, other habitat elements are not present in or adjacent to the harvest area. These include deciduous riparian areas and large areas of mature, dense forest. Riparian areas consist of redwood, Douglas-fir, and tanoak. No potential habitat is therefore being significantly affected by the proposed operations.

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Humboldt Martin (*Martes americana humboldtensis*) – The Humboldt Marten is a state species of concern. This species is not known to be present in the Watershed Assessment Area or the Biological Assessment Area associated with this plan. Two separate wildlife surveys for carnivores have occurred on JDSF. In 1992, Humboldt State University professor David Kitchen undertook a study for carnivores on JDSF in which 50 smoke plate stations were established throughout the forest. In 2003, DFG Environmental Scientist; T. Nelson, placed baited photo stations in the James Creek area. Neither study documented the marten or the fisher. According to the Ecology of American Martens in Coastal Northwestern California, Progress Report II, by K. Slauson, W. Zielinski, and J. Hayes, this species inhabits two major vegetation types associated with serpentine and non-serpentine soils. On serpentine soil types, this species occupies areas of rock outcrops with a moderate to heavy understory component. On non-serpentine soils, this species occupies mainly late seral and old-growth structure (dense shrub layers, large diameter trees, snags, and logs). According to the above cited study, the decline of this species is mainly due to historic trapping for its fur and loss of old-growth forests. The retention of existing downed woody debris and old-growth trees (see below) will maintain habitat elements for this species in the plan area. These stands will maintain a post harvest uneven aged structure, which will likely improve the habitat in this stand over time by creating multiple canopy layers.

BOTANICAL RESOURCES

Staff at JDSF developed a botanical scoping list of special status plant species that may or are likely to, or are known to occur within the State forest. The list was refined through consultation with Clare Golec (DFG Environmental Scientist), JDSF's botanical contractors (Fred Schuler and Michelle Balk), and by reviewing current CNDDDB lists and the CNPS electronic inventory. The list includes CNPS list 3 and 4 plants even though no special protection is normally warranted for those species. The complete scoping list can be found in the Botanical Report by M. Balk (Section V). Brief species descriptions for state or federally listed, and CNPS 1 and 2 plants from our scoping list appear below. Two CNPS list 4.2 species were found within the plan area during botanical surveys. No special protection measures are proposed.

To compliment the botanical report results, the CNDDDB was queried to find reports of special status plant occurrences that have been documented within 5 miles of the harvest area. Species which occur in habitats not found within the plan area were not reviewed.

Habitats found within the plan area are: **Broadleafed Upland Forest (BUFRs)**, **North Coast coniferous forest (NCFrs)**, **Riparian Forest (RpFRs)**, **Marsh/Swamps (MshSw)**, and **Bogs/Fens (BgFn)**.

The CNDDDB, the CNPS electronic inventory, The Jepson Manual, and A California Flora were utilized for species descriptions, habitat associations, and listing status.

Humboldt milk vetch (*Astragalus agnicidus*) - Humboldt milk vetch is state-endangered, and a CNPS list 1B.1 species plant. The plant is a perennial herb blooming from June – October. The habitat is described by Walker and CNPS as occurring in openings and disturbed habitats. There are three known occurrences within the State Forest boundary, approximately 2.5 miles northwest of the plan area, all are on upper ridge lines. None of these locations are within or adjacent to the Biological Assessment Area or the Watershed Assessment Area. No Humboldt milk vetch was observed within the plan area during botanical surveys.

Small groundcone (*Boschniakia hookeri*) - Small groundcone is a CNPS list 2.3 species. Habitat for this species is North Coast coniferous forests and the blooming period is April through August. Small groundcone is a small perennial herb which is parasitic on other plants (*Vaccinium spp.* and *Gaultheria spp.*). Habitat for this species is found throughout the harvest area.

Thurber's reed grass (*Calamagrostis crassiglumis*) - Thurber's reed grass is a CNPS list 2.1 species. The plant is a loosely clumped perennial member of the grass family (Poaceae) with dense narrow inflorescences that grow from 2.4 to 8 in. (6-20 cm) tall (Hickman 1993). Its blooming period is from May to July (CNPS 2008) and it is listed as an obligate (OBL) wetland species (USFWS 1988). This species is found in mesic areas of coastal scrub and freshwater marsh and swamp habitats usually in marshy swales surrounded by grasslands and shrubs (CNDDDB 2002) at elevations ranging from 30-135 ft (10-45 m) (CNPS 2001). As an obligate (OBL) wetland species, Thurber's reed grass has a greater than 99% likelihood of occurring in wetlands (USFWS 1988). Potential habitat for this species

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may exist in WLPZ areas and at water drafting locations. Limited operations proposed within WLPZ areas and at water drafting sites are unlikely to have a significant impact on potential habitat for this species.

Swamp harebell (*Campanula californica*) - The swamp harebell is a CNPS list 1B.2 species. Habitat consists of bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, marshes, swamps, and mesic areas within the North Coast coniferous forest. The blooming period for this species is June through October. Six reported locations identified in CNDDDB were within the selected search area, one within the boundaries of the State Forest. All reported locations identified in the CNDDDB are within 5 miles of the coast line and known to occur within mesic areas, especially near the coast. These locations are outside of the Biological Assessment Area and Watershed Assessment Area. It is unlikely that swamp harebell is located within the harvest area. No other reported occurrences of this species were found within the selected area. No sites were observed by the RPF during field preparation for this plan. Any habitat which does exist in or near the THP would likely occur in WLPZ areas where operations are limited. Habitat may also occur in seasonal wet areas, roadside depressions and water drafting locations.

Northern clustered sedge (*Carex arcta*) - Northern clustered sedge is a CNPS list 2.2 species. The plant is a cespitose perennial herb in the sedge family (Cyperaceae). It has leaf blades that are 2-4 mm wide. Inflorescences are dense and green to medium brown with 7-15 distinct spikelets. Pistillate flower bracts are white and obtuse to minutely pointed. Perigyniums are spreading, ovate, and green with reddish tips (Hickman 1993). This sedge is seen blooming from June to September (CNPS 2008) and is listed as an obligate (OBL) wetland species (USFWS 1988). Northern clustered sedge is found in bogs and fens and mesic areas within North Coast coniferous forest habitats at elevations ranging from 180-4200 ft (60-1400 m) (CNPS 2081). As an obligate (OBL) wetland species, Northern clustered sedge has a greater than 99% likelihood of occurring in wetlands (USFWS 1988). Potential habitat for this species may exist in WLPZ areas and at water drafting locations. Limited operations proposed within WLPZ areas and at water drafting sites are unlikely to have a significant impact on potential habitat for this species.

California sedge (*Carex Californica*) - California sedge is a CNPS list 2.2 species. The plant is a rhizomatous perennial herb in the sedge family (Cyperaceae). The plants reach 8-28 in. (20-70 cm) in height, with gray-green grass-like leaves; basal blades are minute. The pistillate flower bracts are purplish-brown and glandular-papillate along the midstripe (Hickman 1993). California sedge is found blooming from May to August (CNPS 2001). This species is listed as a facultative (FAC) plant species within wetlands (USFWS 1988). California sedge is found in closed-cone coniferous forest, bog and fen, coastal prairie, meadows and seeps and the margins of marsh and swamp habitats at elevations ranging from 270-1005 ft (90-335m) (CNPS 2008). As a facultative (FAC) plant species, California sedge has a 34-66% likelihood of occurring in wetlands (USFWS 1988). Three reported occurrences were identified in CNDDDB for the selected search area. The locations are reported on CNDDDB as being on JDSF, Van Damme State Park and on private land. None of the locations occur within the Biological Assessment Area or the Watershed Assessment Area. Habitat for the species may occur in WLPZ areas and at water drafting locations.

Livid sedge (*Carex livida*) - This species is a CNPS list 1A species. The plant is a perennial herb that known in California from only one collection near the town of Mendocino in 1866(CNPS 2008). This species habitat includes those areas associated with bogs and fens. This habitat may be found in the WLPZ portions of the plan area which will be protected by the incorporated WLPZ protection measures. Habitat may also be present at water drafting locations where only limited activities will occur.

Deceiving sedge (*Carex saliniformis*) - This plant is a perennial herb with a CNPS listing as 1B.2. This species is not listed as a state or federal threatened, rare, or endangered plant. Habitat consists of coastal prairie, coastal scrub, meadows, marshes and swamps (coastal salt) in mesic areas. It ranges in elevation from 3-230m. The blooming month for this species is June and it may uncommonly bloom in July (CNPS2008). Potential habitat for this species exists at water drafting locations and within the WLPZ areas where limited harvesting is proposed.

Green sedge (*Carex viridula* var. *viridula*) - Green sedge is a CNPS list 2.3 species. The plant is a perennial herb which may be found in mesic sites associated with the North Coast coniferous forest, bogs and fens marshes/swamps (CNPS 2008). This habitat is found in the WLPZ portions of the plan area which will be protected by the incorporated WLPZ protection measures. Habitat may also be present at water drafting locations where only limited activities will occur.

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Oregon goldthread (*Coptis laciniata*) - Oregon goldthread is a CNPS 2.2 list species. This species is a rhizomatous herb in the buttercup family (Ranunculaceae). It blooms in March through April, is found below 1000 m, and is listed as a facultative (FAC) and facultative-wetland (FAC-W) species (ACOE 1988). It has been recently added to JDSF's scoping list and found in one occurrence to date on the State Forest. Its habitat includes meadows and seeps (MdwsSeeps), and north-facing streambanks in North Coast coniferous forest (NCFrs/mesic). Rhizomes are yellow. Potential habitat for this species occurs along the lower banks of Big River, downstream from the project area. The WLPZ protection measures incorporated within this plan should protect habitat for this species.

Coast fawn lily (*Erythronium revolutum*) - Coast fawn lily is a CNPS list 2.2 species and is not listed as a state or federal rare, threatened or endangered plant. This plant is a perennial herb blooming from March through August. CNPS lists the habitat for this species as being bogs and fens, broad-leaved upland forest and North Coast coniferous forest (mesic/streambanks). If potential habitat exists for this species, it will be found along Class I or II areas or potential wet areas such as seeps or springs. The WLPZ protection measures incorporated within this plan should protect habitat for this species. Habitat may also occur in seasonal wet areas, roadside depressions and water drafting locations.

American manna grass (*Glyceria grandis*) - American manna grass is a CNPS list 2.3 species. This species is described by Walker and/or CNPS as occurring in riparian, streambank, lake-margin, meadow, bog/fen and edge habitats. Within the plan area this species might occur within the WLPZ areas of this plan where limited harvesting is proposed. Habitat may also be present at water drafting locations where only limited activities will occur.

Thin-lobed horkelia (*Horkelia tenuiloba*) - Thin-lobed horkelia is a CNPS list 1B.2. The plant is a loosely matted perennial herb within the rose family (Rosaceae). Plants are green to reddish in color with appressed hairy herbage. The leaves are pinnately dissected with 8-15 narrow and deeply lobed crowded leaflets per side. The inflorescence is a dense or open cyme with few-to-many white flowers (Hickman 1993) that bloom from May to July (CNPS 2008). This species is found in broadleaved upland forest, chaparral and valley and foothill grassland /mesic openings, sandy. Elevations range from 150-1500 ft (50-500m) (CNPS 2008).

Coast lily (*Lilium maritimum*) - The coast lily is a CNPS list 1B.1 species. The plant is a bulbiferous herb known from many community types and locations near the northern California coast (CNPS 2008). A California endemic, coast lily is a tall plant (~1 m) with large, showy flowers. The species primarily inhabits moist or wet habitats with a relatively sparse overstory canopy, including "coastal prairie and scrub, bogs, and gaps in closed-cone coniferous forests" (Hickman 1993). The species also occurs in roadside ditches and forest openings (CalFlora 2001) of North Coast conifer forests and has been reported from the western end of the State Forest. Habitat may also occur in seasonal wet areas, roadside depressions and water drafting locations.

Running pine (*Lycopodium clavatum*) - Running Pine is a CNPS list 2.3 species. The habitat for this species is found in freshwater wetlands in Douglas-fir forests (CalFlora Database). The habitat is further described as occurring under moist conditions in freshwater marsh habitats. CNPS list habitat for the species as lower montane coniferous forest, marshes and swamps and North Coast coniferous forest/often edges, openings and roadsides (CNPS 2008). Habitat for this species is found in WLPZ portions of the plan area which will be protected from the WLPZ protection measures incorporated within the plan. There are several occurrences of running pine within the JDSF ownership. Habitat may also occur in seasonal wet areas, roadside depressions and water drafting locations.

Northern microseris (*Microseris borealis*) - Northern microseris is a CNPS list 2.1 species. The plant is a perennial forb in the sunflower (Asteraceae) family. It is 15 to 60 cm high with only basal leaves. The compound flowers are borne in single heads comprised of all ray flowers with yellow ligules. Fruit has many brownish barbed pappus bristles. Habitats consist of bogs and fens, lower montane coniferous forest, meadows and seeps on mesic sites. If potential habitat exists for this species it will be found along Class I or II areas where limited harvesting will occur and at water drafting locations where limited operations are proposed.

Robust monardella (*Mondardella villosa* ssp. *globosa*) - Robust monardella is a CNPS list 1B.2 species. The plant is a matted to erect rhizomatous perennial herb in the mint family (Lamiaceae). Plants are greater than 20 in. (>50cm) tall arising from a woody base; they have sparse unbranched hairs on the herbage. Leaves are opposite, have entire to serrate margins, and are narrowly ovate with tapered bases. Inflorescences are single terminal heads with reflexed outer leaf-like bracts. Flowers are purple (Hickman 1993) and bloom from June to August (CNPS 2008). This species

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is found in openings within chaparral, cismontane woodland, and coastal scrub habitats, valley foothill grasslands and openings in broadleaved upland forest. Elevations range from 555-1800 ft (185-600m) (CNPS 2001).

North Coast semaphore grass (*Pleuropogon hooverianus*) - The North Coast semaphore grass is a CNPS 1B.1 species and a state threatened plant. The general habitat for this species includes broadleaved upland forest (open, moist areas in mixed evergreen hardwood forest or woodland), meadows and seeps, and open, mesic areas in North Coast coniferous forest. It has been found in vernal pool habitat with *Lasthenia burkei*. It ranges from 10 meters to 1150 meters according to the NDDDB. This species has been observed in inside ditches in inland watersheds near Ukiah (Showers 2002). There is one occurrence in the CNDDDB on the Comptche quadrangle. No potential habitat for this species was observed by the RPF during field preparation for this plan. Habitat may occur in seasonal wet areas, roadside depressions and water drafting locations.

White-flowered rein orchid (*Piperia candida*) - White-flowered rein orchid is a CNPS list 1B.2 species. The plant is a perennial herb in the family Orchidaceae (Cal Flora 2008). The blooming period for this species is May-September and habitat elevation ranges from 90-3930 feet, 30-1310m). Habitats include broadleaved upland forest, lower montane coniferous forest and North Coast coniferous forest/ sometimes serpentine (CNPS 2008).

White beaked-rush (*Rhynchospora alba*) - White beaked-rush is a CNPS list 2.2 species. Habitat communities for this species are bogs/fens, meadows/seeps and marshes/swamps. White beaked rush is a perennial herb that is native to California.

Great burnet (*Sanguisorba officinalis*) - Great burnet is a CNPS list 2.2 species. The plant is a perennial herb and has a blooming period in July through October. This species occurs in Broad-leaved upland forest, meadows, marshes and swamps (freshwater), bogs and fens, North Coast coniferous forest, and Riparian forest/often serpentine (CNPS 2008).

Seacoast ragwort (*Senecio bolanderi* var. *bolanderi*) - Seacoast ragwort is a CNPS list 2.2 species. The plant is a rhizomatous perennial herb in the sunflower family (Asteraceae) with one or more erect stems which reach 4-24 in. (10-60 cm) in height. The herbage mostly lacks hairs and the leaves are both basal and found in reduced forms along the stems. The basal leaves are thin (fleshy near coast) in texture with heart-shaped blades and long petioles. The blades are shallowly palmately lobed with the lobes each toothed or angled. The cauline leaves are similar to the basal leaves yet become smaller and more pinnately dissected as they ascend the stems. The inflorescence is a compact cyme with individual flower heads that consist of yellow disk and ray flowers (Hickman 1993) that bloom from April to July (CNPS 2008). This species is found in coastal scrub and North Coast coniferous forest habitats/sometimes roadside at elevations ranging from 98-2132 ft (30-650 m) (CNPS 2008).

Point Reyes checkerbloom (*Sidalcea calycosa* ssp. *rhizomata*) - Point Reyes checkerbloom is a CNPS list 1B.2 species. The plant is a rhizomatous perennial herb in the mallow family (Malvaceae) Plants have erect or ascending succulent stems, 3-5 dm high, and are glabrous or minutely hirsute above (Munz 1968). Basal leaves are 3-10 cm wide, shallowly incised, and cauline leaves are divided into seven to 11 broadly cuneate divisions. Plants flower from April to September (CNPS 2008). Habitats include marshes and swamps near the coast and elevations range from 3-75 meters (CNPS 2008). Although marshes and swamps are included in scoping for this THP it is unlikely that habitat for this species occurs in the plan area due to its association with coastal habitats.

Purple-stemmed checkerbloom (*Sidalcea malviflora* ssp. *purpurea*) - Purple-stemmed checkerbloom is a CNPS list 1B.2 species. The plant is a rhizomatous perennial herb in the mallow family (Malvaceae). Plants are purple tinted, especially at the base, stipules, and calyx, and are less than 6 dm with simple leaves (Hickman 1993). Plants flower from May through Jun and elevations range from 45-255 feet, 15 -85 meters (CNPS 2008). Habitat for this species includes broadleaved upland forest and coastal prairies (CNPS 2008). It is unlikely that habitat exist in area as the lower portions of the plan area at the upper reaches for elevations of species habitat and are dominated by riparian plant communities not broadleaved upland forest. Broadleaved upland forest communities in the plan area occur above the stated elevation ranges.

Long-beard lichen (*Usnea longissima*) - This species is a fruiticose lichen. It occurs in the North Coast coniferous forest, usually at low elevations. This species occupies bark and wood of other species to survive. Long-beard lichen is sensitive to air pollution and has some dispersal limitations. This species is not classified as Threatened or

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Endangered by the State of California or the Federal government and is common outside of California. This lichen is known from JDSF; along Forest Road 1000, within the Caspar Creek watershed, and near the Little North Fork Big River. Habitat for the species does exist in the plan area; however, no occurrences were observed by the RPF during plan preparation.

Oval-leaved viburnum (*Viburnum ellipticum*) - Oval-leaved viburnum is a CNPS list 2.3 species. Habitat for this species consists of chaparral, lower montane coniferous forest and cismontane woodlands. Elevations range from 215 to 1400 meters and the blooming period is May through June. No chaparral exists within the plan area.

Marsh violet (*Viola palustris*) - This species is CNPS list 2.2 species and is a rhizomatous herb. The species as described by CNPS occurs within bogs and fens and also within coastal scrub, 0-150 m. This habitat is not present within the plan area.

No adverse impacts to state or federally-listed, or CNPS 1 or 2 plant species are expected due to the fact that none were found during botanical surveys and default plant protection buffers will be established and consultation with DFG will occur (see Sec II Item 32.) if they are found during operations.

HABITAT CONDITIONS

Snags/Dens/Nest Trees - Conifer snags, den trees, and nest trees occur in a low frequency throughout the plan area and most likely on a low frequency within the BAA based on observations made during plan preparation. Inventory data for the plan area shows an estimate of 4.6 snags \geq 10 inches DBH per acre. This data is derived from sampling of the plan area and is intended as an estimate only. Snags are not proposed for harvest under this THP unless they present a hazard. Den trees will be retained if they appear to have wildlife value. Trees containing observed nests will be retained.

Down Woody Debris - There are low to moderate amounts of large woody debris (LWD) in the plan area and in the BAA. Most of this debris originated as a result of past logging operations, tree mortality and wind events. WLPZ areas contain low to moderate amounts of LWD due the historical logging and salvage logging activities. This THP will not significantly impact the existing down large woody debris. No downed logs or woody debris existing prior to the start of operations shall be removed from the harvest area. Recruitment of future LWD will be from the residual timber stand and from limited harvesting in the 100-ft WLPZ surrounding Class II watercourses where long term recruitment of LWD will be enhanced.

Multistory Canopy - For the most part, stands within the Biological Assessment area were first harvested in the early 1930's, where most old-growth conifers were harvested. The THP area was re-entered in 1970, harvesting residual old growth, where regenerating conifers resulting from the original harvest were un-merchantable and left standing. Generally, regeneration occurring from both entries resulted in a two aged stand, although, most trees in the stand are a result from the original harvest where the current canopy is more characteristic of an even-aged structure.

This proposed harvest is a selection silviculture designed to increase the spacing, growth and vigor of the residual stand of trees. There are Class II WLPZ's inside the plan area that will receive little or no harvesting activity. This will provide some variety in the canopy story throughout the plan area.

Hardwood Cover - Hardwood cover is present at moderate degrees within the plan area and BAA. Hardwoods will not be eliminated through harvest or treatments, but will, as necessary, be harvested to reduce competition with remaining conifer trees. In the proposed harvest area total hardwoods occupy approximately 53 square feet per acre. Approximately 18 square feet per acre of hardwoods will be harvested.

Road Density - Access to the road system is restricted to the public and controlled by locked gates. The existing roads are in good condition with the exception of a few mitigation sites proposed in Section II of the THP. Road construction under this THP has been designed to allow access for cable yarding in as much of the plan area as possible while allowing access for future timber harvest plans. This planning in road system layout will minimize road densities and future road construction needs necessary for future harvesting operations. As mentioned above,

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approximately one-fourth of 12,000 feet of new seasonal road construction is located within the prism of existing features created from past harvesting activities. Road prisms of Road 211, Road 212 and Road 212A appear to be stable, where abandonment efforts are expected to allow for natural drainage to occur over time. Road construction related to this THP is not expected to have a significant adverse cumulative effect on road density in the watershed.

Mature Forest Characteristics - There are no areas within the plan that have the characteristics of late succession forest stands as defined by 14CCR 895.1. Late succession forest stands is defined as stands of dominant and predominant trees that meet the criteria of WHR class 5M, 5D, or 6 and are at least 20 acres in size.

The Jackson Demonstration State Forest Management Plan includes measures to protect individual trees with old growth characteristics. During tree marking these trees shall be marked for retention or left unmarked. Because the bulk of the stands are less than 120 years old, snags, large decadent trees, and LWD are not prevalent characteristics within the stands. These elements will be preserved by the included protection measures for wildlife trees, snags and LWD (Section II). Within the BAA most stands are relatively young; however there is one 78 acre old growth grove approximately 300 feet east of the plan area. This stand is a protected preserve area. This proposed project will not have significant cumulative effects on late-seral forest characteristics.

Mature Habitat Continuity – The old growth grove mentioned above and only scattered old-growth conifers are found throughout the Watershed and Biological Assessment Areas. Scattered old-growth was observed during the field work for this plan, and are being retained. As mentioned above, there is no late seral habitat within the THP area, where continuity is not a concern.

AQUATIC AND NEAR-WATER HABITAT CONDITIONS

Pools and riffles - Class II watercourses within the plan area generally have stair-step channel profiles with infrequent small pools separated by steep gradient runs. Many of the pools are formed by remnant large debris. Although water is present in many of the Class II watercourses, the habitat for non-fish aquatic species is marginal.

In areas outside the THP area but within the WAA, the 1996 DFG Stream Inventory results indicate the segment of North Fork Big River has 37% pools, 25% riffle and the remaining flatwater based on length of stream inventoried. For the segment of Two Log Creek these figures are 13% pools, 7% riffle, 51% dry (inventories conducted from August 19 through August 22) with remaining composed of flat water.

Near-water vegetation – Most near water vegetation sites are along Class II watercourses, consisting of a moderately heavy overstory of conifers and an understory of tanoak, fern, huckleberry, manzanita, various shrubs, and forbs. A significant portion of watercourse shade is derived from understory tanoaks. Some areas have less overstory due to past harvests or the proximity of roads, but all WLPZ areas provide good shade, terrestrial habitat, forage, and migration corridors. The limitations on harvesting in the Class II WLPZs will provide for retention of existing vegetation and the long-term increase of conifer cover and large woody debris recruitment.

4. RECREATIONAL RESOURCES

The Dunlap Campground area is located approximately ½ mile east of the plan area, between the North Fork Big River and Highway 20. No designated campgrounds are within the Recreation Assessment Area.

JDSF Road 210 is the main access to the harvest area, that intersects a paved road leading to the Chamberlain Creek Conservation Camp. Portions of Road 210 and Road 213 make up the north THP boundary, for approximately 1.35 miles. Pedestrians, equestrians, and bicyclists use these routes infrequently. JDSF Road 210 is gated and locked year round (due to its proximity to the Conservation Camp) and will be closed to recreational traffic during the period of active logging operations. For public safety, signs will be posted and maintained around all areas closed to public access for timber operations. These signs will be posted at all points where roads and/or trails enter the area of timber operations and will include information defining the estimated period of closure. Generally, areas along all roads will have a light harvest with the attempt to control invasive weed populations. After operations, these areas will remain occupied with mature conifers and hardwoods, acting as an aesthetic buffer.

Recreational activities that occur infrequently within 300 feet are: walking, horse back riding, driving and mountain

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biking along the road and as well as hunting. Opportunities exist to pursue these activities on other areas of JDSF. No known recreational trails exist within the harvest area, although mushroom gatherers are known to use existing skid trails and roads throughout the plan area. Mushroom gathers were often seen during the early fall and winter months during field preparation. Since other opportunities exist and the closure is temporary, this impact is not considered significant.

5. VISUAL RESOURCES

The plan area is located just upslope from the Highway 20 corridor, where it may be viewed by significant numbers of people. The public may view the logging area from passing vehicles and stationary viewpoints at turnouts along the highway. The silvicultural prescription proposed in the harvest area is selection and will leave a well stocked stand upon completion which will lessen potential aesthetic impacts. Where the harvest area is generally visible from the highway, harvesting boundaries have been established at 300 feet away from Highway 20 and no less than 200 feet where topographic features buffer the highway from the harvest area, maintaining aesthetic quality. Equipment use within 100 feet of the Highway will be limited to ingress and egress for proposed road abandonment of JDSF Forest Roads 211 and Road 212.

Other areas where the harvest area will be visible are within the plan area and along State Forest Road 210 and Road 213. Access Road 210 is gated and locked and can only be viewed by persons on foot, horseback and bicycles. Members of the public traveling road 210 and 213 while engaging in on-forest recreational activities will see and have access to the harvest area after project is completed. Recreational use of these forest roads occurs on an infrequent basis by small numbers of people.

As mentioned above, there will be a light harvest along all roads. Downhill from Road 210 and 213 near view effects of logging will be minimal since tree harvests will be light and most landings will be outside of view. Upslope from Highway 20, the harvest boundary is above the 60kV power line (no less than 300 feet from Highway 20), where it is located north of Highway 20 and most of the remaining harvest area boundary to the west is 300 feet, with the exception of areas buffered from natural topography, where it is no less than 200 feet. Any visual evidence of any harvesting activity will be very minimal. Considering efforts to minimize impacts to visual resources, no significant impacts are expected.

6. VEHICULAR TRAFFIC IMPACTS

The traffic assessment area includes those roads not part of the logging area on which logging traffic must travel to transport forest products to a primary manufacturer. The following roads may be used to transport forest products:

- State Route (SR) 20 between Fort Bragg and Willits.
- SR 1 between SR 128 and ua 101.
- US 101 from Cloverdale to Eureka.
- SR 128 between Cloverdale and SR 1.

A significant portion of the land served by Highway 20 and routes mentioned above are zoned for timber production and frequently used as haul routes to mills located in the interior of Mendocino County. Traffic from this project will be absorbed by the normal amount of logging traffic that uses the highway each year, contributing to the annual pattern of logging traffic that is typical of western Mendocino County. The truck traffic resulting from the proposed operation is not expected to create a significant adverse cumulative impact to traffic on the public roads.

7. CULTURAL

JDSF conducted an ownership-wide survey as well as a survey specific to this plan in order to identify and protect any cultural resources present. The results of those surveys are contained in the Confidential Archaeological Addendum report in Section VI of this plan. Accordingly, this operation is not expected to create a significant adverse cumulative impact to cultural resources.

8. NOISE IMPACTS

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The Mendocino General Plan standards for exterior noise limits for residential dwellings in rural suburban communities will be used as a guide in estimating noise impacts of specific timber harvest operations. While the General Plan specifies an exterior noise limit of 50 decibels (dBA) for the hours between 7 a.m. and 7 p.m. for areas zoned rural residential, it acknowledges that “lumbering and agriculture are basic to the economy of Mendocino County and necessary noise associated with them must be tolerated.”

Dunlap North THP Noise Sources - The sources of noise associated with the THP include: activities associated with timber falling, timber yarding, log loading, log hauling, road construction, road maintenance, equipment maintenance, and crew transport. Timber falling includes the use of chainsaws. Timber will be yarded by tractors, rubber-tired skidders and by cable skyline yarders. Roads will be maintained by the use of tractors, excavators, graders and water trucks.

Of all these sources, cable yarders are likely to produce the highest decibels of noise from whistles used to communicate between choker setters and the yarder operator. This communication is necessary to conduct safe operations, allowing choker setters to inform the operator when personal are clear of logs as they become suspended and yarded to the landing.

Noise Receptors – The highest potential of noise receptors include one rural residence, campers at Dunlap Campground and public at Camp 20 recreation area. Nesting locations of sensitive bird species are also considered to be receptors of noise.

The Dunlap North THP harvest area is located a significant distance from any rural suburban community. The closest residence is located approximately 1.2 miles west (near McGuire's Pond) from the harvest area. The THP area is approximately 0.5 miles northwest of Dunlap Camp and 0.5 miles west of Camp 20 recreation area. The ambient noise level for these sites includes the sometimes heavy commercial, recreational and local traffic on adjacent State Highway 20. Topographic features and dense vegetation exist between the THP area and noise receptor sites, which will act as a buffer for ambient noise created from harvest operations. Considering the buffering features, distance to and expected number of noise receptors, noise is not considered a significant impact.

(6) List and Description of the individuals, organizations, and records consulted in the assessment of cumulative impacts:

Individuals:

Person

Issues on which consulted

Marc Jameson, Forest Manager
Pam Linstedt, Timber Sale Manager
Fred Postler, Forestry Assistant II
John Griffen, Retired Annuitant
Tina Fabula
Jackson State Demonstration Forest, CAL FIRE
802 N. Main Street
Fort Bragg, CA 95437
(707) 964-5674

General/THP Preparation
General/THP Preparation
RPF Designee
General
Biological/Botanical

Chuck Whatford
Archaeologist, CAL FIRE
135 Ridgway Avenue
Santa Rosa, CA 95402
(707) 576-2966

Archaeology

Julie Bawcom
California Geologic Survey
17501 N. Highway 101
Willits, CA 95490
(707)456-1814

Geology

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Records:

Administrative maps of Jackson Demonstration State Forest

Aerial photographs of Jackson Demonstration State Forest

Jackson Demonstration State Forest timber sale records

Bawcom, Julie. A. 2008. Engineering Geologic Report for Dunlap North Timber Sale, Memorandum dated March 12, 2003, Division of Mines and Geology, Willits, CA.

California Department of Fish & Game 2008. Natural Diversity database, Noyo Hill, Mathison Peak, Northspur, Comptche, Burbeck, Greenough Ridge. Rare Find Report.

California Department of Fish and Game. 1997. Stream inventory report, Two Log Creek and North Fork Big River.

California Board of Forestry. 2008. California Forest Practice Rules – Title 14, California Code of Regulations.

California Department of Forestry, Jackson Demonstration State Forest Management Plan, Adopted January 2008
California Department of Forestry and Fire Protection.

Flosi, Downey, Bird, Coey and Collins. 2002. Vol. II, California Salmonid Stream Habitat Restoration Manual. California Department of Fish and Game.

Graham Matthews and Associates, 2001. Sediment Source Analysis For the Big River Watershed. Report to Tetra Tech, Inc. Fairfax, Virginia.

Henry, N. 1998. Overview of the Casper Creek Watershed Study. In: Ziemer, R.R., technical coordinator. Proceedings of the conference on coastal watersheds: the Caspar Creek story, 1998 May 6; Ukiah, CA. General Tech. Rep. PSW GTR-168. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture; 1-9. <http://www.fs.fed.us/psw/publications/documents/gtr-168/01-henry.html>

Koehler, Rich D, Keith I. Kelson, and Graham Matthews, 2001. Sediment Storage and Transport in the South Fork Noyo River Watershed, Jackson Demonstration State Forest; Prepared under contract # 8CA99253, State of California Department of Forestry and Fire Protection, State Forests Program, Sacramento, CA pgs. 29.

Kilbourne. 1982. Geology and Geomorphic Features Related to Landsliding. Northspur 7.5 Minute Quadrangle, Mendocino County, California. California Division of Mines and Geology. Map.

Lewis, Jack; Mori, Sylvia R.; Keppeler, Elizabeth T.; Ziemer, Robert R. 2001. Impacts of logging on storm peak flows, flow volumes and suspended sediment loads in Caspar Creek, California. In: Mark S. Wigmosta and Steven J. Burges (eds.) Land Use and Watersheds: Human Influence on Hydrology and Geomorphology in Urban and Forest Areas. Water Science and Application Volume 2, American Geophysical Union, Washington, D.C.; 85-125.

Mayer, K.E., W.F. Laudenslayer, Jr., (Editors). 1988. A Guide to California Wildlife Habitats of California. California Department of Forestry and Fire Protection, Sacramento, CA 166pp.

Mendocino County Resource Conservation District. 1988 Mendocino Forest Soils, Erosion Hazard Guide.

SHN inc. w/NRM corp. Final Environmental Impact report for the Comprehensive Update to the Jackson Demonstration State Forest Management Plan, September 2002

Pacific Watershed Associates. 1994. Handbook for Forest and Ranch Roads. Prepared for Mendocino County Resource Conservation District in Cooperation with California Department of Forestry & Fire Protection and the U.S. Soil and Conservation Service. Mendocino Resource Conservation District, Ukiah.

Rittiman, C.A., T. Thorson. 1993. Soil Survey of Mendocino County, California, Western Part. Natural Resources

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Conservation Service.

U.S. Environmental Protection Agency, Region IX. 2001. Big River Maximum Daily Load for Sediment.

Wurm, T. 1986. Mallets on the Mendocino Coast: Caspar Lumber Company, Railroads and Steamships. Glendale, CA: Trans-Anglo Books.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White (Editors) 1990. California's Wildlife. Volume I; Amphibians and Reptiles. California Department of Fish and Game, Sacramento, CA. 272pp.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White (Editors) 1990. California's Wildlife. Volume II; Birds. California Department of Fish and Game, Sacramento, CA. 731pp.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White (Editors) 1990. California's Wildlife. Volume III; Mammals. California Department of Fish and Game, Sacramento, CA. 407pp.

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DUNLAP NORTH THP Operations Map *Entire Area is Site Class 2 and Commercial Thinning

Sections 5, 6, 7, and 8 T17N, R15W, MDBM

Map Scale: 1 inch = 750 feet; 1:9,000 Contour Interval: 40ft

T = Tractor □ = Cable



- | | | |
|----------------------------|---------------------------------|-----------------------|
| THP Boundary | Roads | Highway 20 |
| Gates | Seasonal Roads | Springs, Seeps |
| Map Points | Permanent Paved Roads | Wet Area |
| Cable Yarding Boundary | Seasonal Road Construction | Stream Class Change |
| Powerline | Seasonal Road Reconstruction | Class I Watercourse |
| JDSF Property Boundary | Seasonal Road Construction >15% | Class II Watercourse |
| EHR Rating | Seasonal Road Abandonment | Class III Watercourse |
| High | Proposed Landings | |
| Moderate (all other areas) | | |



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