2-10NTMP-001 NEV(3)

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

1. NEW3 7. RT
2. NC 8. Carr
3. WQSA 9. FG2
4. INF 10.
5. NevCP 11.
6. CGS 12.

NONINDUSTRIAL TIMBER MANAGEMENT PLAN

STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY
AND FIRE PROTECTION
RM - 68 (Rev. 08-05)

NTMP Name: Chalk Bluff 40

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

FOR ADMIN. USE ONLY

NTMP #

Dates Rec'd 6/30/10

Date Filed JUL 10 2010

Date Approved SEP 09 2011

This Non-industrial Timber Management Plan (NTMP) form, when properly completed, is designed to comply with the Forest Practice Act (FPA) and Board of Forestry and Fire Protection rules. **If financial assistance is requested to cover some of the expenses of the NTMP, contact the local CDF Forestry Assistance Specialist prior to preparation of the NTMP.** See separate instructions for information on completing this form. NOTE: The form must be printed legibly in ink, typewritten, or electronically printed. The NTMP 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 NTMP. However, if writing an electronic version, insert additional space for your answer. Distinguish answers from questions by font change, **bold** or underline.

SECTION I - GENERAL INFORMATION

This NTMP 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 SWOPE Medical Group Inc., Brent McDermott

Address 10780 Genasci Road,

City Nevada City State California Zip 95959 Phone 530-478-0545

Signature Brent McDermott Date

NOTE: The timber owner is responsible for payment of a yield tax. Timber Yield Tax information may be obtained at the Timber Tax Division, 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.

2. TIMBERLAND OWNER(S) OF RECORD: SWOPE Medical Group Inc., Brent McDermott

Address 10780 Genasci Road,

City Nevada City State California Zip 95959 Phone 530-478-0545

Signature Brent McDermott Date

3. LICENSED TIMBER OPERATOR(S): Name Helen McDermott Lic. No. C-1509

Address 10780 Genasci Road,

City Nevada City State California Zip 95959 Phone 530-478-0545

NOTE: If LTO is not known upon plan submission, submit information in a Notice of Timber Operations as per 14 CCR 1090.7.

Signature Helen C. McDermott Date 6-29-2010

2 2100 BOH

4. PLAN SUBMITTER(S): See Timberland Owner above, Item 2

5. a. If LTO is not present on-site, list person to contact on-site who is responsible for the conduct of the operation. If unknown, so state, but name must be included on each Notice of Timber Operations or amended into NTMP.

Name Brent McDermott

Address 10780 Genasci Road

City Nevada City State California Zip 95959 Phone 530-478-0545

b. [X] 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?

The State of California requires erosion control structures be maintained during and after completion of operations for a period up to three years. Maintenance generally requires keeping the waterbars operational and culverts open during the winter period to allow unrestricted flow of water. All roads and skid trails used during the harvesting operation must be waterbarred or otherwise adequately drained during the winter period.

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 proper construction, inspection, and maintenance of erosion control structures during the prescribed maintenance period until the Director as described in PRC 4585 approves the work completion report. The landowner is responsible for inspection and any needed repair and maintenance during the remainder of the maintenance period.

6. Expected date of commencement of timber operations, which in addition will require filing a Notice of Timber Operations: [X] **date of NTMP conformance**, or [ ] _____(date)

7. The timber operation will occur within the:

[ ] COAST FOREST DISTRICT
[ ] Southern Subdistrict of the Coast F.D.
[ ] SOUTHERN FOREST DISTRICT
[ ] High use subdistrict of the Southern F.D.

[X] NORTHERN FOREST DISTRICT

[ ] The Tahoe Regional Planning Authority Jurisdiction
[ ] A County with Special Regulations, identify:
[ ] Coastal Zone, no Special Treatment Area.
[ ] Special Treatment Area(s), type and identify:

[ ] Other

8. Location of the timber operation by legal description:
Base and Meridian: [X] Mount Diablo; [ ] Humboldt; [ ] San Bernardino.

Section	Township	Range	Acreage	County	Assessor's Parcel Number
3	16 North	10 East	33	Nevada	65-270-03
34	17 North	10 East	7	Nevada	

TOTAL ACREAGE 40 (Logging Area Only)

U.S. Geological Survey (USGS) Quadrangle name(s) and date(s): **Washington, 1979**

9. Planning Watershed: CALWATER 2.2, Identification Number, and Name: **5516.340304, Buckeye Ridge**

10. [ ] Yes [X] No Has a Timberland Conversion been submitted and approved? If yes, list approval date, permit number, and expiration date.

11. [ ] Yes [X] No Is there a THP or NTMP on file with CDF for any portion of the plan area for which a report of satisfactory stocking has not been issued by CDF? If yes, identify the THP or NTMP number(s):

12. [X] Yes [ ] No Is a Notice of Preparation necessary for this NTMP?
[X] Yes [ ] No If yes, was a Notice of Preparation (NOP) posted as required by 14 CCR 1090.2(g)?

13. RPF preparing the NTMP: Name Kevin Whitlock RPF Number 2436

Address P.O. Box 363

City Nevada City State CA Zip 95959 Phone 530-265-5670

a. [X] Yes [ ] No I have notified the plan submitter(s), in writing, of their responsibilities pursuant to Title 14 CCR 1090.9 -10 of the Forest Practice Rules, of their responsibilities for compliance with the Forest Practice Act and Board rules, and where applicable, Board rules regarding site preparation, stocking, and maintenance of roads, landings, and erosion control facilities. **See Section V**

b. [X] Yes [ ] No 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 1090.11.

c. [X] Yes [ ] No I will provide the LTO with a copy of the approved NTMP and Notice of Timber Operations (NTO) as per 14 CCR 1090.9(e) and (g). If no, who will provide the LTO a copy of the approved NTMP, subsequent amendments, and NTO?

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

As the supervising RPF, I am responsible for the preparation of this NTMP through approval, the accuracy and completeness of the contents of this plan with the authority to amend the NTMP for the Plan Submitter. In addition, I have been retained as the RPF to supervise the Timber/Timberland Owners in marking the timber to be harvested, to be available to provide professional advice to the licensed timber operator and timberland owner upon request throughout the active timber operations regarding; the plan, the forest practice rules, and any other associated regulations pertaining to timber operations.

The RPF will be present during the pre-harvest inspection. Additionally, the RPF will have an on-site meeting with the LTO and logging crew before the start of operations to address mitigations incorporated into the plan. The RPF or his supervised designee will be present, on the logging area at a sufficient frequency to know the progress of the operations and advise the LTO and timberland owner.

e. Additional required work requiring an RPF, which I do not have the authority or responsibility to perform: **None**

f. After considering the rules of the Board of Forestry and Fire Protection and the mitigation measures incorporated in this NTMP, 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 NTMP area, and this plan complies with the Forest Practice Act, the Forest Practice Rules and the Professional Foresters Law.

Signature Kevin W Whitlock Date 6/29/10

SECTION II - PLAN OF TIMBER OPERATIONS

NOTE: If a provision of this NTMP is proposed that is different than the standard rule, the explanation and justification required must be included in Section III of the NTMP

14. a. Check the Silvicultural methods or treatments allowed by the rules that are to be applied under this NTMP. Specify the option chosen to demonstrate Maximum Sustained Production (MSP) according to 14 CCR 913[933, 953].11. If more than one method or treatment will be used show boundaries on map and list approximate acreage for each.

[X] Selection 40 ac. [ ] Group Selection _____ac. [ ] Transition _____ac.

[ ] Commercial Thinning _____ac. [ ] Road Right of Way _____ac. [ ] Sanitation Salvage _____ac.

[ ] Special Treatment Area____ ac. [ ] Rehab of Understocked Area____ac. [ ] Fuelbreak _____ac.

[ ] Alternative _____ac. [ ] Conversion _____ac. [ ] Non Timberland area _____ac.

Total acreage 40 ac.: Explain if total is different than in Item 8. MSP option chosen: (b) [ ] (c) [X]

b. If Selection, Group Selection, Commercial Thinning, Sanitation Salvage or Alternative methods are selected, the post harvest stand stocking levels (differentiated by site if applicable) must be stated in the NTMP. Note mapping requirements of 14 CCR 1090.5 (w)(12).

In this NTMP, pursuant to 14 CCR 933.11 (c)(2), MSP is achieved by complying with the seed tree retention standards pursuant to 14 CCR 933.1(c)(1)(A), meeting minimum stocking and basal area standards for the selected silvicultural methods as contained in these rules only with group A species, and protecting the soil, air, fish and wildlife, water resources and other public trust resources through the application of these rules.

Selection Method –(40 Ac): **Unevenaged management is utilized to establish and maintain an unevenaged stand structure. Unevenaged management attributes include the establishment and/or maintenance of a multi-aged, balanced stand structure, promotion of growth on leave trees throughout a broad range of diameter classes, and encouragement of natural reproduction.**

Under the selection regeneration method, the trees are removed individually. Trees to be harvested shall be marked by or under the supervision of the RPF. Stocking standards for the Selection silvicultural method will be met immediately after harvesting operations are completed for each entry.

Per 14 CCR 933.2(a)(2)(A)(1) On Site I lands at least 100 square feet per acre of basal area shall be retained. In addition, 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 14 CCR 933.1 (c)(1)(A).

Per 14 CCR 933.1 (c)(1)(A) Retention of at least fifteen (15) square feet basal area on site I, II and III lands of seed trees per acre which are 18 inches dbh or greater.

The seed trees must be of full crown, capable of seed production and representative of the best phenotypes available in the preharvest stand.

c. Trees to be harvested or retained must be marked by or marked under the supervision of the RPF. Specify how the trees will be marked/designated:

All trees to be harvested will be marked above and below the cut line with paint under the supervision of an RPF.

[ ] Yes [X] 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 more than one silvicultural method or Group Selection is to be used, how will LTO determine boundaries of different methods or groups?

d. Forest Products to be harvested: **saw logs, posts, poles, and fuel wood.**

e. [ ] Yes [X] No Are group B species proposed for management?
[ ] Yes [X] No Are group B or non-indigenous A species to be used to meet stocking standards?
[ ] Yes [X] 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 is to be expected to maintain relative site occupancy of A species. Explain when a licensed Pest Control Advisor shall be involved in this process.

Hardwoods will only be cut to facilitate conifer falling, or if damaged from falling and skidding operations.

f. Other instructions to LTO concerning felling operations.

All hardwoods shall be retained within the WLPZ, except for those damaged due to conifer removal – and these shall not be removed from the WLPZ, but shall be left on site as downed wood for wildlife.

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.

g. [ ] Yes [X] No Will artificial regeneration be required to meet stocking standards?

h. [ ] Yes [X] 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].

i. If the rehabilitation method is chosen, provide a regeneration plan as required by 14 CCR 913[933, 953].4(b). **NA**

PESTS

15. a. [ ] Yes [X] No Is this NTMP within an area that the Board of Forestry and Fire Protection has declared a Zone of Infestation or Infection pursuant to PRC 4716? 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).

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

To improve the health, vigor, and productivity of the stand, the silvicultural practice calls for removing those trees, which exhibit signs of insect, disease or pest problems. Please see Section III, Item 15 for a description of insect(s) and disease(s) found throughout the stand. In addition to the silvicultural practice, the following slash treatment will be required.

Pine Brood Material: To minimize the build-up of destructive insect populations the following measures shall be conducted to mitigate potential adverse impacts from timber operations. All pine brood material shall be treated. The following treatment is acceptable, provided it is completed as soon after brood material creation as is practical. The specific treatments to be applied to pine brood material are as follows:

a. **All pine slash will be treated within one week after it has been created. Pine slash will be**

lopped and scattered, chipped or removed.

b. **Lop all pine branches from sides and tops of those portions of main stems, which are 3" or more in diameter and cut into short segments. Branches shall be scattered so that stems have maximum exposure to solar radiation.**

c. **Do not pile pine slash unless it has dried for at least 4 weeks.**

HARVESTING PRACTICES

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

GROUND BASED*	CABLE	SPECIAL
a. [X] Tractor, including end/long lining	d. [ ] Cable, ground lead	g. [X] Animal
b. [X] Rubber tired skidder, Forwarder	e. [ ] Cable, high lead	h. [ ] Helicopter
c. [X] Feller buncher	f. [ ] Cable, Skyline	i. [ ] Other

* All tractor operations restrictions apply to ground based equipment.

17. Erosion Hazard Rating: Indicate Erosion Hazard Ratings present on NTMP. (Must match EHR worksheets) **(See Section V - EHR Worksheet**

Low [ ] **Moderate [X]** High [ ] Extreme [ ]

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

Upon completion of timber operations the LTO and RPF shall evaluate the WLPZ, skid trails, roads and landings for sites where sediment could potentially be transported into watercourses. If any are found, the following soil stabilization procedures apply:

a) All landings will be sloped and ditched to prevent water from accumulating on the landing, and properly drained so that landing and road drainage flows cannot transport erosive material to the WLPZ. If necessary to prevent drainage flows from carrying erosive materials into the WLPZ, drainage lead-outs shall be treated by mulching with logging slash to a depth of 2 inches over all the exposed mineral soil. If insufficient slash is available, straw mulch as specified above may be substituted.

b) Landings shall be seeded with a mix of ephemeral cereal grass seed at a rate of not less than 40 lbs/acre prior to 15 October if operations are completed by 30 September or within 10 days after 15 October if operations are delayed into October.

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, as per requirements of 14 CCR 916.7[936.7, 956.7], 923.2 [943.2, 963.2](m), and 923.5[943.5, 963.5](f).

The following standards are applicable to the construction of all waterbreaks or erosion control facilities:

1. **Distances between waterbreaks shall not exceed the standards listed per 14 CCR 934.6(c);**

EHR	Slopes < 10%	Slopes 11-25%	Slopes 26-50%	Slopes > 50%
Moderate	200 feet	150 feet	100 feet	75 feet

- **The use of logging roads, tractor roads or landing is prohibited where saturated soil conditions exist, or when visibly turbid water from road, landing, or skid trail surface may reach a watercourse.**

Per 14 CCR 895, Saturated soil conditions means that soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur. Indicators of saturated soil conditions may include, but are not limited to:

(1) areas of ponded water,

(2) pumping of fines from the soil or road surfacing material during timber operations,
(3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts,
(4) spinning or churning of wheels or tracks that produces a wet slurry, or
(5) inadequate traction without blading wet soil or surfacing materials.

Per 14 CCR 895, Stable Operating Surface means a road or landing surface that can support vehicular traffic and that routes water off of the road surface or into drainage facilities without concentrating flow in ruts (tire tracks), pumping of the road bed, or ponding flow in depressions. A stable operating surface shall include a structurally sound road base appropriate for the intended use. The number, placement, and design of drainage facilities or drainage structures on a stable operating surface prevents the transport of fine-grained materials from the road or landing surface into watercourses in quantities deleterious to the beneficial uses of water.

- All waterbreaks shall be installed no later than the beginning of the winter period of the current year of timber operation. 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.

- Waterbreaks shall be constructed immediately upon conclusion of use of tractor roads, roads, and landings which do not have permanent and adequate drainage facilities, or drainage structures.

- 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. Where waterbreaks cannot effectively disperse surface runoff, including where waterbreaks on roads and skid trail cause surface run-off to be concentrated on downslopes, roads or skid trails, other erosion controls shall be installed as needed to comply with Title 14 CCR 914 934.

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

- Waterbreaks or any other erosion controls on skid trails, shall be maintained during the prescribed maintenance period and during timber operations as defined in PRC Sections 4527 and 4551.5 so that they continue to function in a manner which minimizes soil erosions and slope instability and which prevents degradation of the quality and beneficial uses of water. The method and timing of waterbreak repair and other erosion control maintenance shall be selected with due consideration given to the protection of residual trees and reproduction and the intent of 14 CCR 914 934.

- The prescribed maintenance period for waterbreaks and any other erosion control facilities on skid trails shall be at least one year. The Director may prescribe a maintenance period extending as much as three years after filing of the work completion report in accordance with 14 CCR 1050.

2. Rolling dips shall be installed on all seasonal haul roads. Rolling dips shall be placed along the road per the minimum waterbreak standards and sufficiently close enough together to minimize rill erosion. All surface drains on roads shall be built broad enough to permit uninterrupted passage of standard vehicles.

3. Road surface drainage shall be accomplished by outsloping or crowning existing roadbed.

4. Upon completion of timber operations or before the start of each winter period after operations commence, which ever is first, the LTO shall break down the berm on the outside edge of all main roads (haul or skid) to allow drainage to freely move off the road running surface.

5. **Summer hauling shall be accompanied by dust control and watering to maintain road surface stability.** Water will be obtained from private sources; No DFG 1600 agreement is required.

Upon the conclusion of operations, all landings shall be ditched and outsloped for proper drainage to prevent water from accumulating. All landings shall be seeded with an NRCS approved grass seed utilizing a local mix of native grasses and forbs such as: California Brome, Elymus glaucus-Blue wildrye, Deer Grass, Purple Needle Grass, Poa secunda-Pine bluegrass, White yarrow, and California poppy at the appropriate application rate.

19. [ ] Yes [**X**] No — Are tractor or skidder constructed layouts to be used? If yes, specify the location and extent of use:

20. [ ] Yes [**X**] 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).

21. Within the NTMP 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 restricted to the limits described in 14 CCR 914[934, 954].2(f)(2)(i) or (ii)?
e. [ ] Yes [X] 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 and provide explanation and justification in Section III as required per 14 CCR 914[934, 954].2(d). CDF 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.

22. [ ] Yes [**X**] No — Are any alternative practices to the standard harvesting or erosion control rules proposed for this plan? If yes, provide all of the information as required in 14 CCR 914.9 (934.9, 954.9) and 1090.5 (dd) in Section III. List specific instructions to the LTO below.

WINTER OPERATIONS

23. a. [ ] Yes [**X**] No — Will timber operations occur during the winter period? If yes, complete "b.", and then "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) and 1090.5(bb). 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) and 1090.5(bb).

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 operation. (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.

ROADS AND LANDINGS

24. Will any roads be constructed? [ ] Yes [**X**] No, or reconstructed? [ ] Yes [**X**] No. If yes, check items a through g.
Will any landings be constructed? [ ] Yes [**X**] No, or reconstructed? [ ] Yes [**X**] 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.
d.	[ ] Yes [ ] No	Are roads to be constructed or reconstructed, other than crossings, within the WLPZ of a watercourse? If yes, completion of NTMP Item 27 a. will satisfy required documentation.
e.	[ ] Yes [ ] No	Will roads longer than 100 feet in length be located 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 is answered yes, specify site-specific measures to reduce adverse impacts and list anyadditional 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 [Article 11. Northern] and 1090.5(q, bb, ee, gg, and hh). Include required explanation and justification in NTMP Section III.

Note: If mechanized skidding is utilized, than skidding operations will be limited to existing skid roads unless identified and flagged by an RPF or his supervised designee prior to use. In no case, will the construction of skid trail be on slopes over 40%.

It is anticipated that horses will be used for skidding and the logs will be loaded using a self-loading log truck. In this case, landings will be small, utilizing open areas along the roads.

Existing Road Maintenance

(1) All roads will be outsloped where feasible and outside berms will be removed.
(2) There are no watercourse crossings.
(3) Minor cut bank slumps or failures on roads, where the road prism remains largely intact, are road maintenance activities.
(5) Spoils from road maintenance activities shall not be pushed into stream protection zones, drainages, swales, and/or over the slope at the discharge sites for any of the erosion control structures. Most, if not all of, such spoils shall be stabilized by incorporating into the road surface; any spoils not incorporated into the road surface shall be stabilized where transport to a drainage or watercourse is unlikely.
(6) The LTO shall take any other action deemed necessary to prevent concentration of water and overland flow on the road surface and to prevent the erosion of road cut banks and fills.

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

26. a. [**X**] 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.

typically seasonal no aquatic life

There is only one Class III watercourse and a small, failed pond within the project area. The watercourse and pond/wet area are shown on project area map and have a WLPZ designated.

The protection measures inherent in the WLPZ designation is expected to provide sufficient safeguards for water quality and any potential habitat.

The following protection measures for watercourses and wet area within the project area.

	Class III	
% slope	Width	Protection
<30	25 feet	CFH
30-50	50 feet	CFH
>50	50 feet	CFH

Per 14 CCR 936.5 (e) the letter designation under protection corresponds to the following:

"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 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.

For Class III Protection: The class III watercourse and failed pond is within a Watercourse Lake Protection Zone (WLPZ) that is 25 feet in width where the side slopes are less than 30%; and 50 feet in width where the side slopes are greater than 30%.

- The WLPZ is identified on the ground with flagging or by other suitable means on both sides of the channel and will be reviewed prior to the start of timber operations.
- Skidding equipment is not allowed in the WLPZ.
- All trees to be harvested from within the class III WLPZ will be marked in advance of timber falling operations by an RPF or supervised designee.
- Trees marked within the WLPZ shall be fell away from the watercourse by pulling or other mechanical methods if necessary, in order to protect the residual vegetation.
- No trees shall be marked for harvest within the channel zone and which show visible indicators of providing bank or bed stability.
- 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 that found before the start of operations.
- The residual overstory canopy shall be composed of at least 25% of the existing overstory conifers. All Class III crossing will be dry at the time of timber operations.
- An RPF shall inspect the WLPZ and protective buffer zone flagging immediately prior to operations and also during periodic site visits. If necessary during site visits, the RPF shall re-flag watercourses and WLPZs to ensure the LTO can locate watercourse-protected areas.

The failed pond has a 50-foot wide protective buffer that coincides with the class III WLPZ to protect any potential habitat that may exist.

b. [ ] Yes [**X**] No Are there any watercourse crossings that require mapping per 14 CCR 1090.5(w)(7)?

c. [ ] Yes [**X**] 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 [**X**] No Is this NTMP Review Process to be used to meet Department of Fish and Game CEQA review requirements? If yes, attach the 1611 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; see CDF Mass Mailing, 07/02/1999, "Fish and Game Code 1603 Agreements and THP Documentation".

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

a. [ ] Yes [**X**] 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 [**X**] No Retention of non-commercial vegetation bordering and covering meadows and wet areas?

c. [ ] Yes [**X**] No Directional felling of trees within the WLPZ away from the watercourse or lake?

d. [ ] Yes [**X**] No Decrease of width(s) of the WLPZ(s)?

e. [ ] Yes [**X**] No Protection of watercourses which conduct class IV waters?

f. [ ] Yes [**X**] 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 [**X**] No Establishment of ELZ for Class III watercourses unless sideslopes are <30% and EHR is low?

h. [ ] Yes [**X**] No Retention of at least 50% of the overstory canopy in the WLPZ?

i. [ ] Yes [**X**] No Retention of at least 50% of the understory in the WLPZ?

j. [ ] Yes [**X**] No Are any additional in-lieu 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 916.1 [936.1, 956.1] and 1090.5(cc), 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;
5. Provide in NTMP 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 per 14 CCR 916[936, 956].1(a). Reference the in-lieu and location to the specific watercourse to which it will be applied.

28. a. [**X**] Yes [ ] No Are there any landowners within 1000 feet downstream of the NTMP 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 must be enclosed in NTMP Section V. If No, Item 28 b. need not be answered. **See Section V.**

b. [ ] Yes [**X**] No Is an exemption requested of the notification requirements of 14 CCR 1032.10? If yes, explanation and justification for the exemption must be included. Specify if requesting an exemption from the letter, the newspaper notice, or both.

c. [ ] Yes [**X**] 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 [X] No — Is any part of the NTMP 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. [X] 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.

b. [ ] Yes [X] 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.

The project is located along a public seasonal road. In addition, there is a 60Kv electric line running along the east property line. In accordance with 14 CCR 937.2, the following standards shall apply to the treatment of slash created by timber operations within the plan area and on roads adjacent to the plan area, but excluding appurtenant roads.

(a) Within 100 ft. of the edge of the traveled surface of public roads, and within 50 ft. 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 piling and burning, chipping, burying or removal from the zone.

(b) Lopping for fire hazard reduction shall be accomplished by severing and spreading logging slash so that no part of it generally remains more than 30 inches above the ground.

31. [X] Yes [ ] No — Will piling and burning be used for hazard reduction? See 14 CCR 917.2-7 and 9, 937.2-3, 5-7 and 9 or 957.2-7 and 9 for specific requirements. Note: LTO is responsible for slash disposal. This responsibility cannot be transferred.

Mastication and or chipping of the logging slash is the preferred method of slash disposal. Every attempt will be made to minimize the logging slash throughout the project area by utilizing hand crews, chippers, and mastication. In the event piling and burning is used to dispose of slash, the following is required:

- **Slash to be treated by piling and burning shall be treated not later than April 1 of the year following its creation, or within 30 days following climatic access, or as justified in the plan.**
- **Notification of Burning - The local representative of the Director shall be notified in advance of the time and place of any burning of logging slash. Any burning shall be done in the manner provided by Law.** ~~not a req~~ Burn Permit is adequate
- **Protection of Residual Trees - Slash burning operations and fire hazard abatement operations shall be conducted in a manner which will not damage residual trees and reproduction to the extent that they will not qualify to meet the silvicultural and stocking requirements of the rules.**
- **Piles and concentrations shall be sufficiently free of soil and other noncombustible material for effective burning.**
- **The piles and concentrations shall be burned at a safe time during the first wet fall or winter weather or other safe period following piling and according to laws and regulations. Piles and concentrations that fail to burn sufficiently to remove the fire hazard shall be further treated to eliminate that hazard. All necessary precautions shall be taken to confine such burning to the piled slash.**

Rick Carr

BIOLOGICAL AND CULTURAL RESOURCES

32. a. [X] 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 NTMP area? If yes, identify the species and the provisions to be taken for the protection of the species.

b. [ ] Yes [X] 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.

Item 32 (a) 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 NTMP area?

FT - Federally listed, Threatened
FPE – Candidate for federal listing as Endangered
FSC – USFWS, Species of Concern, Sensitive
MNB – USFWS Migratory Nongame Birds of Management Concern
BLM – Bureau of Land Management, Sensitive Species
FS – USFS, Sensitive Species
CE – California listed, Endangered
CT – California listed, Threatened
CCR – Calif. Code of Reg. Title 14, Fully Protected Species
CFP – DF&G Code, Fully Protected Species (3511, 4700, 5050)
CSC – DF&G, Species of Special Concern
CDF – Dept. of Forestry, Sensitive Species
1B – CNPS, Rare or Endangered in CA
2 - CNPS, Rare or Endangered in CA, common elsewhere
CNDDB – DF&G Database list

Scientific name Common name Status	Habitat *(Critical Period)*	Analysis	Potential Impacts	Recommendation
Strix occidentalis **California Spotted Owl** **CNDDB, CSC, MNB, FS, FSC**	Large old trees and snags, high basal area of trees and snags, dense canopies(>70) canopy closure, multiple canopy layers, and downed woody debris (Verner et al. 1992a) **March 15 – September 15**	No suitable habitat for nesting. **Suitable habitat may be present for foraging.**	**Increase in foraging habitat from marginal to moderate.**	Review of the site will be conducted within 10 days of the onset of operations by the RPF responsible for marking timber. If discovered, DFG will be contacted.
Accipiter gentilis **Northern Goshawk** **CNDDB, CSC, MNB, FS, FSC, CDF**	Found in coniferous forest habitats; usually nests on north facing slopes, near water sources. High tree canopy closure for nest stands. **March 15 - August 15**	**Marginal habitat for nesting.** **Suitable habitat may be present for foraging.**	**No impact to nesting habitat.** **Increase in foraging habitat from marginal to moderate**	Review of the site will be conducted within 10 days of the onset of operations by the RPF responsible for marking timber. If discovered, DFG will be contacted.
Strix nebulosa **Great Grey Owl** **FS, CE, CDF**	Found in or near meadows. During the breeding season nesting takes place in the broken tops of snags or large conifer trees, 35 feet or more from the ground. **February - September**	No suitable habitat for nesting. **Suitable habitat may be present for foraging.**	**Increase in foraging habitat from marginal to moderate**	Review of the site will be conducted within 10 days of the onset of operations by the RPF responsible for marking timber. If discovered, DFG will be contacted.
Accipiter striatus **Sharp-shinned hawk** **CSC**	Typically nests in dense, relatively young-even aged conifer stands, situated on steep north-facing slopes, near water. **March - June**	No suitable habitat for nesting. **Suitable habitat may be present for foraging.**	**Increase in foraging habitat from marginal to moderate**	Review of the site will be conducted within 10 days of the onset of operations by the RPF responsible for marking timber. If discovered, DFG will be contacted.
Accipiter cooperii **Cooper's Hawk** **CSC**	This species nests in dense second growth stands with moderate crown density. Seldom found in areas without dense tree stands, and uses cover to hide, attack, and approach prey. **March - June**	No suitable habitat for nesting. **Suitable habitat may be present for foraging.**	**Increase in foraging habitat from marginal to moderate**	Review of the site will be conducted within 10 days of the onset of operations by the RPF responsible for marking timber. If discovered, DFG will be contacted.

Item 32 (a) Continued				
Martes pennati pacifica **Pacific fisher** **CSC, FS, BLM, FPE**	Breeding, resting, and foraging habitat usually consists of old-growth or late successional coniferous forests with greater than 50% canopy closure (Zeiner et al. 1990b). Uses cavities in trees, snags and logs **March 1 – July 31**	No suitable breeding habitat, but **Suitable habitat may be present for foraging-however, very unlikely.** Project located within the historic range.	**Increase in foraging habitat from marginal to moderate**	Report any sightings to CAL FIRE & DFG; Leave den sites and habitat components undisturbed, stop operations with .25 mile
Gulo guio luteus **California Wolverine** **CT, CFP, CSC, FS**	Inhabits a variety of habitat types within an elevation range between 1,600 feet and 14,200 feet. Prefers areas of low human disturbance. Uses caves, hollows in cliffs, logs, and burrow for cover, generally in denser forest stages. Breeding: **May-July** Birth: **January - April**	**Suitable habitat may be present for foraging-very unlikely.**	**Increase in foraging habitat from marginal to moderate**	Report any sightings to CAL FIRE & DFG; Leave den sites and habitat components undisturbed, stop operations with .25 mile
Vulpes vulpes necator **Sierra Nevada Red Fox** **CT, FS**	Preferred habitat appears to be red fir and lodgepole pine forests in the subalpine zone and alpine fell-fields of the Sierra Nevada between 4,000 and 12,000 feet. Hunts in forest openings and meadows, and barren rocky areas. **February - July**	No suitable habitat, but project located within the historic range	Not applicable	Report any sightings to CAL FIRE & DFG; Leave den sites and habitat components undisturbed, stop operations with .25 mile
Antrozous pallidus **Pallid Bat** **CNDDB, CSC**	Most common in open, dry habitats with rocky areas for roosting. Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings **April - August**	**No suitable breeding habitat** **Marginal day roosting habitat, suitable habitat present for foraging**	No change in habitat structure. **Note:** Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly.	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise.
Lasiurus blossevillii **Western Red Bat** **CNDDB, FS, CSC**	Habitat includes forests and woodlands from sea level up through mixed conifer forests. Roosts in trees, found in wooded, riparian, and edge habitats adjacent to streams, fields, or urban areas. **April - August**	No suitable habitat, usually found at lower elevations associated with agriculture lands.	Not applicable	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise.
Corynorhinus townsedii **Townsend's big-eared bat** **CSC, FS, BLM, FSC**	Suitable roosting sites are restricted to caves and cave-like structures such as tunnels, mines, and bridges. **April - August**	No suitable habitat, not usually found east of the coast range.	Not applicable	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise.

Item 32 (a) Continued				
Myotis *yumanensis* **Yuma myotis** **CNDDB, CSC, BLM, FSC**	Suitable roosting sites are restricted to caves and cave-like structures such as tunnels, mines, and bridges. Found in open forests and woodlands and is almost always associated with water. **May - July**	No suitable habitat.	Not applicable	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise.
Myotis evotis **Long-eared myotis** **CNDDB, BLM, FSC**	Found in brush, woodland and forests habitats up to 9,000 feet , possibly preferring coniferous woodlands and forests, found using rock outcroppings, crevices, mines, caves, loose bark on trees and snags **May - July**	**Suitable habitat may be present**	**Potential Impacts mitigated to negligible**	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise.
			Note: Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly.	
Euderma maculatum **Spotted bat** **CNDDB, CSC, BLM,FSC**	Found in brush, woodland and forests habitats. Horizontal rock crevices provide the optimal roost sites (Watkins 1977) although they may occasionally use caves and buildings as well. **May - July**	**Suitable habitat may be present**	**Potential Impacts mitigated to negligible**	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise.
			Note: Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly.	
Myotis *thysanodes* **Fringed myotis** **CNDDB, BLM**	Found in brush, woodland and forests habitats. Suitable roosting sites are restricted to caves and cave-like structures such as tunnels, mines, and bridges. **April - August**	**Suitable habitat may be present**	**Potential Impacts mitigated to negligible**	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise.
			Note: Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly.	
Myotis ciliolabrum **Small-footed myotis** **BLM**	Found in arid wooded and brushy uplands near water. Suitable roosting sites are caves, buildings, mines, crevices, and occasionally under bridges and under bark. **May -June**	**Suitable habitat may be present**	**Potential Impacts mitigated to negligible**	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise.
			Note: Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly.	
Rana sierrae **Sierra Nevada Yellow-Legged Frog** **CNDDB, FS, FPE,CSC**	Inhabits lakes, ponds, meadow streams, isolated pools, and sunny riverbanks in the Sierra Nevada Mountains. Waters that do not freeze to the bottom are required. **May - August**	No suitable aquatic or foraging habitat.	Not applicable	No measures required. To protect any potential habitat that may exists, a WLPZ has been applied to the Class III watercourse.

Item 32 (a) Continued				
Rana aurora draytonii **California Red-Legged Frog** **CNDDB, FT, CSC**	Aquatic habitat of low gradiant waterbodies, ponds,and calm slack water areas that are at least 20 inches deep below 4,200 feet. **May - August**	No suitable aquatic or foraging habitat.	Not applicable	No measures required. To protect any potential habitat that may exists, a WLPZ has been applied to the Class III watercourse.
Clemmys marmorata marmorata **Western Pond Turtle** **CNDDB, CSC,FS, BLM**	Favors the same type of aquatic habitat that supports Foothill Yellow Legged frog. Ponds, slow moving water with logs or rocks for basking sites. **April - September**	No suitable aquatic habitat.	Not applicable	No measures required. To protect any potential habitat that may exists, a WLPZ has been applied to the Class III watercourse.
Cypripedium fasciculatuim ***Clustered lady's-slipper*** ***CNPS List 4.2***	Lower montane coniferous forest, North Coast coniferous forest /usually seeps and streambanks Mar - Aug	**Suitable habitat may be present**	Tractor/dozer/ mastication work, slash pile development and burning;	Avoid mechanical disturbance within openings, existing landings and along the edge of roadways. If found, establish a Special Treatment Area (no operations) around plants.
Cypripedium montanum ***Mountain lady's-slipper*** ***CNPS List 4.2***	Broad-leafed upland forest, Cismontane woodland, Lower montane coniferous forest, North Coast coniferous forest Mar - Aug	**Suitable habitat may be present**	Tractor/dozer/ mastication work, slash pile development and burning;	Avoid mechanical disturbance within openings, existing landings and along the edge of roadways. If found, establish a Special Treatment Area (no operations) around plants.
Lupinus dalesiae ***Quincy lupine*** ***CNPS List 4.2***	Chaparral, Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest /openings, often in disturbed areas May - Aug	**Suitable habitat may be present**	Tractor/dozer/ mastication work, slash pile development and burning;	Avoid mechanical disturbance within openings, existing landings and along the edge of roadways. If found, establish a Special Treatment Area (no operations) around plants.

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

The project area is within the range and has the potential suitable reproductive or foraging habitat for several listed, special status, and potentially sensitive species. See Section III, Item 32 and Section IV, Biological, page 51 for detailed discussion of the scoping process and species identified.

The scoping process in combination with the past field visits has identified no listed species or their associated habitat within the plan area. Based on information gathered during the scoping process combined with the past and future field visits, the contents of the proposed project, the Forest Practice Rules, and the magnitude of impacts and mitigation measures identified throughout this plan, the proposed project will not produce significant adverse impacts to non-listed or listed species and their associated habitat.

See Item 38, below for special instructions regarding these species.

33. [X] Yes [] 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.

As per 14 CCR 939.1(a) through (f) within the logging area all snags shall be retained to provide wildlife habitat with the following exceptions. Snags over 20 feet in height and 16 inches DBH shall be fell in the following locations:

1) For hazard reduction within 100 feet of all public roads, permanent roads, seasonal roads and landings.
2) As per State and Federal safety laws.
3) Insect and disease control.

34. [ ] Yes [X] 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 [X] No — Are any other provisions for wildlife protection required by the rules? If yes, describe.

36. a. [X] Yes [ ] No — Has an archaeological survey been made of the NTMP area?
b. [X] Yes [ ] No — Has an archaeological records check been conducted for the NTMP area?
c. [X] Yes [ ] No — Are there any archaeological or historical sites located in the NTMP area? Specific site locations and protection measures are contained in the Confidential Archaeological Addendum in Section VI of the NTMP, which is not available for general public review.

37. [ ] Yes [X] No — Has any inventory or growth and yield information designated "trade secret" been submitted in a separate confidential envelope in Section VI of this NTMP?

38. Describe any special instructions or constraints that are not listed elsewhere in Section II, and specify their location in the NTMP if not listed immediately below:

(A) Prior to submitting each Notice of Timber Operations (NTO), the RPF shall:

(1) Inspect the plan area and identify any physical changes to the site. Any physical changes, such as landslides shall be shown on the NTO map.
(2) Update the scoping for species of concern or their habitat for any changes in listing status for species that may occur on the project area.

(B) Logging – Should any archeological sites, threatened or endangered wildlife, or species of special concern be discovered at any time during the life of this plan, the site and/or species and the associated habitat will be protected under *all* the provisions of 14CCR Article 12, 949.2, 949.3(c), 949.6, Article 9, 939.2(d), 939.3, Article 6, 936.2.

1. If any rare, threatened or endangered species den sites or nest sites are discovered, CAL FIRE and DF&G shall be notified, and the NTMP shall be amended to disclose the occurrence and to describe and additional protection measures if necessary.
2. If any additional archeological sites, features or artifacts are discovered during timber operations:

   a. The person who made the discovery shall immediately notify the Director, LTO, RPF, or timberland owner of record.
   b. The person first notified in (a.) shall immediately notify the remaining parties in (a.).
   c. No timber operations shall occur within 100 feet of the identified boundaries of the new site until the plan submitter proposes, and the Director agrees to, protection measures pursuant to 14 CCR 949.2.

3. If a bird of prey, its nest, or eggs are discovered in the plan area, timber harvesting operations within ¼ mile will be stopped, and DFG will be contacted to initiate a consultation to determine an adequate buffer until: 1) the young are capable of sustained flight and can take prey independently; 2) August 15; or 3) the nest has failed after June 1 as determined by a wildlife biologist familiar with raptor biology.

4. If sensitive plants are found, a minimum 50-foot no operations buffer shall be flagged or marked around a sensitive plant population until site-specific and species-specific measures can be developed in consultation with the DFG.

5. The Pacific Fisher (*Martes pennanti*) has been recognized as a candidate species for listing under the California Endanger Species Act (CESA). The emergency regulations approved by the Office of Administrative Law regarding incidental take has expired, DF&G still recommend the same mitigation measures.

   The critical period for Pacific Fisher (*Martes pennanti*) is March 1 through July 31, where reproduction and caring for young occurs and when the highest potential for disturbance exists. During timber operations, if a fisher den or a female with young is observed, operations shall cease with .25 miles. CAL FIRE and DFG shall be notified immediately as a means to evaluate proposed protection measures and the plan shall be amended to illustrate the den location and describe any additional protection measures prior to operations in the affected area.

6. Bats – As a precaution prior to felling, any tree with a hollow, or opening, which could support wildlife, the fallers will hit the tree with their falling ax to make noise and inspect the tree for possible occupancy.

   Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), if a maternity bat roost is discovered in a tree marked for harvest, the marked roost tree shall remain as habitat, unless the tree is determined to be a hazard. If the tree is determined to be a hazard, the tree shall remain until after the critical period (June-July), when young bats are able to fly.

7. If mechanized skidding is utilized, than skidding operations will be limited to existing skid roads unless identified and flagged by the RPF or his supervised designee prior to use. In no case will the construction of skid trail be on slopes over 40%.

8. The county road, Banner Quaker Hill Road, shall remain open and passable during all timber operations. However, for the safety of the public, traffic may be temporarily stopped during falling and/or skidding operations and for the removal of road side trees.

9. The use of Jake (engine) Brakes shall be avoided while hauling within ½ mile of Cascade Shores Subdivision.

   (C) Notification of commencement of operations to the Cal Fire, pursuant to 14 CCR 1035.4 shall be the responsibility of the LTO and shall be provided to the local Cal Fire Forest Practice Inspector or the following contact:

   Cal Fire – Forest Practice Coordinator
   13760 Lincoln Way
   Auburn, CA 95603
   530-889-0111

39. Describe present and proposed plan area uses other than timber production, include in Section III, as per 14 CCR 1090.5(f).

    See Section III, for Items 39 through 43

40. Provide a description by management unit(s) of the timber stand characteristics including the items listed below, in Section III. Such description shall provide the basis for the information provided in the NTMP, as per 14 CCR 1090.5(g):

a. Species composition;
b. age classes;
c. projected growth;
d. present stocking level;
e. present volume per acre;
f. size class distribution;
g. stand management history;
h. potential pest or protection problems.

41. Provide a description by management unit(s) of the proposed management objectives, including a discussion of projected timber volumes and sizes available for timber harvesting in Section III, as per 14 CCR 1090.5(h).

42. Provide a description by management unit(s) of proposed activities to achieve the management objectives, include in Section III, as per 14 CCR 1090.5(i):
a. projected frequencies of harvest;
b. silvicultural prescriptions for harvesting;
c. type of yarding systems to be used for each area/unit;
d. anticipated interim management activities which may result in rule compliance questions (i.e., erosion control maintenance).

43. Provide the period of time over which growth will be balanced with harvest in Section III, as per 14 CCR 1090.5(j).

44. Provide a description of the cumulative effects analysis with supporting information, including impact of projected harvesting over the life of the NTMP, per 14 CCR 1090.5(u).

See Section IV, Cumulative Impacts Assessment

45. Maps and drawings. Include as per 14 CCR 1090.5(w) and as needed; insert in Sections II and/or III, as appropriate.

See Section II, Pages 17 & 18

46. [X] Yes [ ] No — A copy of the forest practice regulations in effect at the time of submission is enclosed, as per 14 CCR 1090.5(v). If no, the plan is incomplete: an explanation of how a copy of the regulations will be maintained by the timberland owner must be included.

A copy of the 2010 forest practice regulations is provided on an attached CD. The landowner will retain a copy of this CD containing the 2010 forest practice regulations with their copy of the approved SWOPE – Chalk Bluff 40 NTMP.

47. a. [X] Yes [ ] No — This NTMP will be used for one or more of the forestry assistance programs for non-industrial forest landowners. If yes, answer b., below.
b. [ ] Yes [X] No — If yes, this NTMP has the additional information as an Addendum in Section III. If no, the information will be amended into the plan at a later time.

Note: The NTMP when expanded with additional information can meet the requirements to participate in state and federal cost-share programs. It is even possible for these programs to help offset the cost of preparing the NTMP. Contact your local Forestry Assistance Specialist (FAS) for further information concerning these programs; call toll free 1-800-783-TREE.

Should forestry assistance funds be available and the landowner requires forestry assistance to improve the condition of the forest on the property above those responsibilities required of them under the forest practice regulations, the landowner will apply for forestry assistance.

DIRECTOR OF FORESTRY AND FIRE PROTECTION

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

By: Michael J. Bacca
(Signature)

SEP - 9 2010
(Date)

MICHAEL J BACCA RPF #2236
(Printed Name)

Forester III, Cascade, Sierra & Southern Regions Forest Practice Manager
(Title)

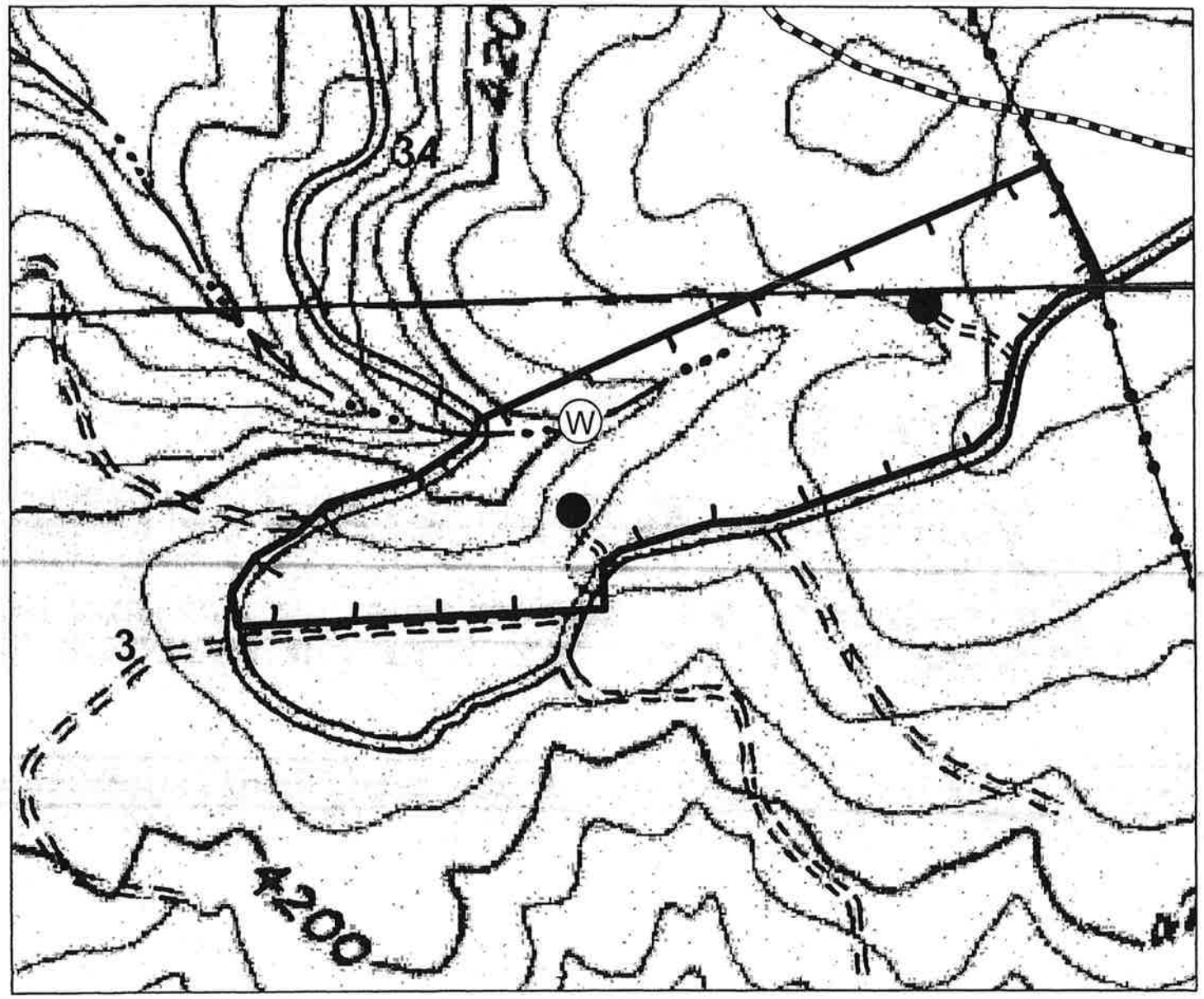
PART OF PLAN

SWOPE Chalk Bluff 40 NTMP
Project Area Map
Portions of N1/2, Section 3, T16N, R10E, and portions of S1/2, Section 34, T17N, R10E, MDBM
Washington 7.5' Quadrangle
Scale 1: 6,000
40' Contour Interval

N
W E
S

T17N, R10E

Banner Quaker Hill Road

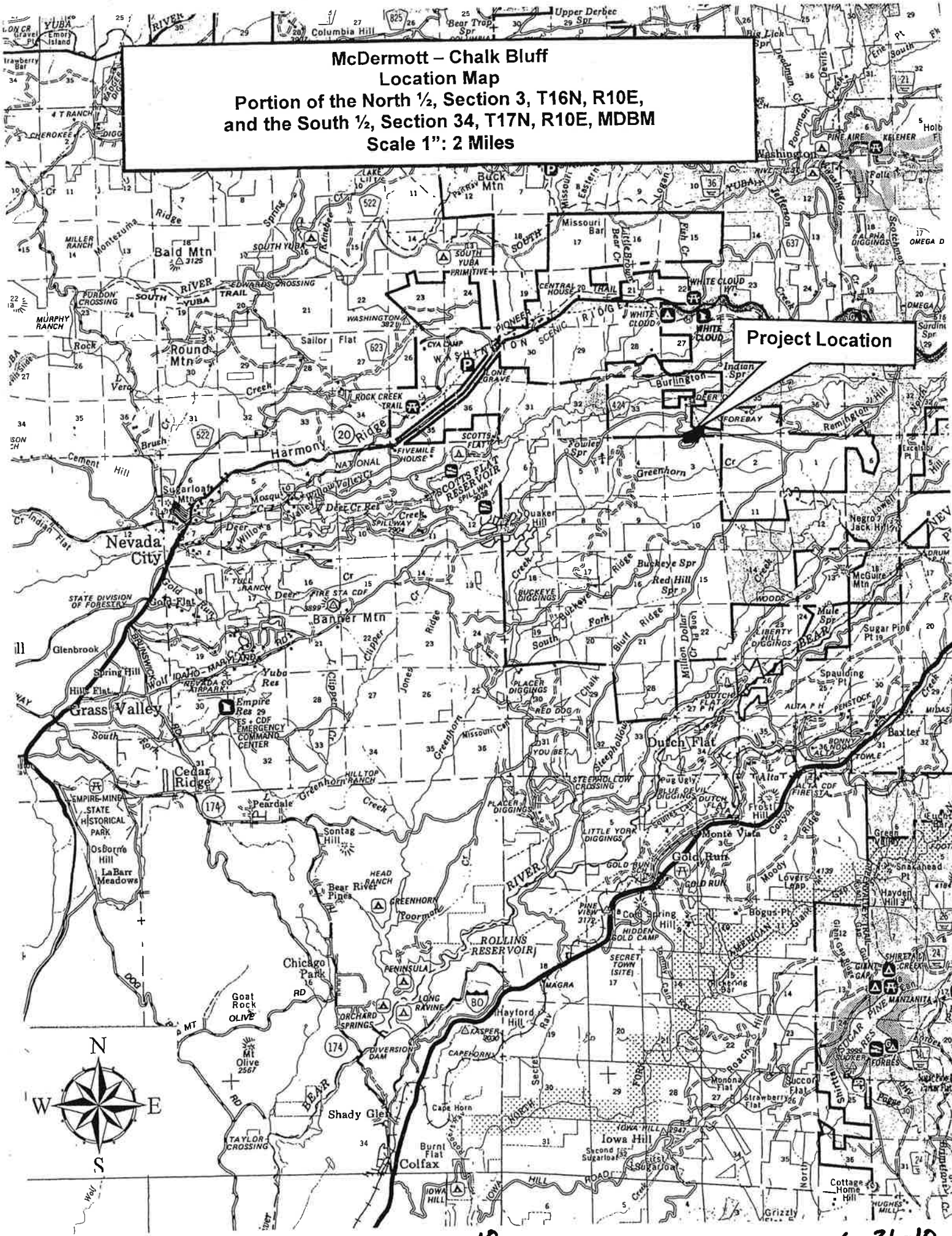


T16N, R10E

Legend

Project Boundary:
Silviculture: Selection - Site Class I
Erosion Hazard Rating: Moderate
Seasonal Private Road:
Seasonal County Road:
Existing Landings:
Class III Watercourse:
Small Failed Pond: (W)
Powerline:
Harvesting Method: (Tractor/Animal)
Watershed Assessment Area Boundary

Revised 7-21-10


McDermott – Chalk Bluff
Location Map
Portion of the North ½, Section 3, T16N, R10E,
and the South ½, Section 34, T17N, R10E, MDBM
Scale 1": 2 Miles
Project Location
N
W
E
S

6-21-10

SECTION III – Supporting Documentation

Provide a general description of physical conditions of the plan site [14 CCR 1034 (jj)].

GENERAL DESCRIPTION

The general description of physical conditions of the plan site describes the current environment and resources in the proposed project area. The environment and resources include topography, soils, vegetation, stand conditions, watershed and stream conditions. Familiarity with the current environment and resources is important to understanding the potential environmental consequences from the proposed actions described in Section 2.

The SWOPE property consists of approximately 40 acres located in a rural area of Nevada County, approximately eight miles east of Nevada City [37°17'16.1"N; 120°50' 31.3" W]. The legal description is a portion of the North ½, Sections 3, T16N, R10E, and a portion of the South ½, Section 34, T17N, R10E, MDB&M. The property is accessed via the Banner-Quaker Hill Road.

The most common land use category in the vicinity of the project is private non-industrial forest land, industrial forest land, national forest land, and rural residences. Most of the lands within the planning watershed are used for timber production, agriculture, rural residency, and recreation.

The planning watershed encompasses approximately 10,670 acres based on the (CALWATER 2.2 Version, Buckeye Ridge, 5517.340304; USGS Washington, Dutch Flat, Chicago Park, and North Bloomfield Quadrangle, 7.5-Minute Series. The planning watershed in split into three distinct areas of ownership; private industrial forestland is approximately 27% or 2800 acres, Public ownership including the national forestland is approximately 33% or 3570 acres, and other private non-industrial forestland is approximately 40% or 4,300 acres.

The primary forest was initially harvested in the late in 1800's to facilitate the gold rush. The overstory trees are typically comprised of 120 to 140 year old trees, which regenerated after the site was logged. Low intensity fire frequented the area, burning and clearing the understory. Since the turn of the century, fires have been suppressed and over the last 100 years the clean forest understory has become overgrown with shade tolerate conifers and brush.

The long-term management of the property is for the maximum sustained production of high quality timber.

TOPOGRAPHY & SOILS INFORMATION

The project area has primarily a west facing slope, located on the ridge between the Greenhorn Creek and the Deer Creek drainage. The project elevation is between 4200 – 4360 feet with slopes ranging from 0% to 30% as identified on the USGS Washington Quadrangle, 7.5-minute series, photo-revised edition 1979.

The annual rainfall ranges from 50 to 70 inches. The average annual air temperature is 56° C to 58° F, and the frost-free season ranges from 140 to 230 days. The calculated erosion hazard rating **(EHR)** for the entire project area is **Moderate.**

According the 1994 "Soil Survey Tahoe National Forest Area" published by the U.S.D.A., the project area contains two soil types, the Crozier-Cohasset (CSE) complex and the McCarthy-Ledmount-Crozier (MCG) complex is described in the following text.

Crozier - Cohasset Complex

The Crozier-Cohasset complex consists of moderately deep, well-drained soils on rounded ridge tops and mountainsides. These soils formed in residuum weathered from andesitic mudflows. Slope ranges from 2 to 30 percents. The native vegetation is mainly dense stands of mixed conifers and hardwoods, consisting of Douglas fir, ponderosa, white fir, incense cedar, sugar pine, or black oak.

In a representative profile, the surface layer is 12 to 15 inches of brown loam with a moderate granular structure. Reaction is slightly acid. The subsoil ranges from 38 to 61 inches of yellowish-red clay and gravelly clay loam with a weak sub-angular and angular structure. Reaction in the subsoil is slightly acid. The substratum is a mix of weathered andesite tuff breccia and andesitic conglomerate ranging from 38 to 61 inches.

Permeability is moderately slow. Available water holding capacity is moderate, runoff is medium, and the erosion potential is moderate. Effective rooting depth is 20 to 40 inches or more.

McCarthy-Ledmount-Crozier Complex

The McCarthy-Ledmount-Crozier complex consists of moderately deep, well-drained soils on tops and sides of flat volcanic ridges. These soils formed in residuum weathered from andesitic mudflows and contain a high amount of rock fragments. Slope ranges from 2 to 75 percent. The native vegetation is mainly mixed conifer and hardwoods, consisting of white fir, ponderosa pine, and black oak with an understory of manzanita and mountain whitethorn.

In a representative profile, the surface layer is 15 to 18 inches of brown gravelly sandy loam with a moderate granular structure. Reaction is slightly acid. The subsoil ranges from 15 to 38 inches with a mix of brown very gravelly sandy loam and yellowish-red gravelly clay loam with a weak sub-angular. Reaction in the subsoil is slightly acid. The substratum is a mix of weathered andesite tuff breccia ranging from 18 to 38 inches.

Permeability is moderately slow. Available water holdingcapacity is moderate, runoff is medium, and the erosion potential is high. Effective rooting depth is 20 to 40 inches or more.

GENERAL WATERSHED & STREAM CONDITIONS

The project is located within the hydrological boundary (CALWATER 2.2 Version, Buckeye Ridge, 5516.340304). This watershed is associated with Greenhorn Creek, a tributary to the Upper Bear River watershed, a listed 303(d) water body.

The Upper Bear River watershed is that portion of the river above Rollins Reservoir. The stressor identified in the Basin Plan from this river is Mercury and is the result of historic, large scale, hydraulic gold mining. The project area eventually drains into the Bear River via Greenhorn Creek, via the Class III watercourse within the project area.

There are no identified mines within the project area. The watercourse channel contains no open portholes, or areas of past hydraulic mining. The only potential impact to the watershed with respect to the 303(d) listing for mercury would be the downstream mobilization of mercury due to a potential increase in run-off/peak flow as a result of timber harvesting. The potential for increased run-off from long-term timber harvesting is considered negligible in comparison to the total run-off from the entire watershed. **See Section IV, Peak Flow & Chemical Contamination for addition discussion.**

Greenhorn Creek flows southwest into the Bear River at Rollins Lake. The headwaters of this creek are located at the northeast end of Chalk Bluff Ridge. The headwaters receive considerable amounts of snow as the watershed bridges the snow-line. This zone general does not maintain a consistent snow pack due to the wide verity of precipitation; rain, snow with rapid melting, and rain on snow events. This zone provides for a consistent winter run-off with less intense run-off periods as compared to spring run-off events in the higher elevations.

Historically, like many of the watercourses within the local area, past mining and logging activities have impacted the watershed. There is one Class III watercourse within the project area. This watercourse is one of several that makeup the headwaters of the Greenhorn Creek.

The Class III is a low gradient, 1st order watercourse with traditional bed, bank, and channel characteristics. The watercourse appears to be in excellent condition with the exception of the failed pond that was developed from past illegal agricultural activities. Some large woody debris exists within the channel. In general, the channel migration zone in the upper reaches is 3 to 10 feet wide, and narrows as slope increases. The watercourse transition line is 6 to 12 inches deep with a small amount of medium sized cobbles, and moderate amounts of gravel and fine gavel.

VEGETATION & STAND INFORMATION

There is a one-forest vegetation type found within the property.

Sierran Mixed Conifer – As a general description, the Sierran mixed conifer habitat is an assemblage of conifer and hardwood species that forms a multi-layered forest. These stands form closed, multi-layered canopies with nearly 100 percent overlapping cover towards the end of the successional cycle. Four conifers and two hardwoods typify the mixed conifer forest.

The project area has equal amounts of Ponderosa pine, Sugar Pine, White fir, Douglas fir, and Incense cedar exist as the dominant species in the overstory stand structure with approximately 15% crown closure. California black oak is the dominate hardwood species. The understory consists of madrone, ceanothus, dogwood, and manzanita.

The area was heavily logged during the height of the gold rush. The overstory trees are typically comprised of 120-140 year old trees, which regenerated the site after logging. The understory is comprised of suppressed shade tolerant species, mostly white fir and incense cedar with approximately 30% crown closure. The WHR classification does not reach WHR 6, with size class 5, trees with dbh greater than 24" over a distinct layer of size class 4 or 3, with a total tree canopy exceeding 60% closure. In addition, the site is lacking the functional characteristics of large decadent trees, snags, and large down logs to be considered a Late Succession Forest Stand as defined in 14 CCR 895.1. The landowners' long-term goal is to move the forest stand structure closer to a WHR 6.

Site information suggests Site Class II (Dunning 1942), Site Index 65 at 50 years (Krumland & Eng 2005); however given the history of multiple harvest entries, soil and site characteristics, the project area is considered Site Class I for stocking requirements. Growth projections were run using Site index 65.

Item 14, Silviculture

The following proposed silvicultural system takes into consideration the landowners' long-term goals, ecological characteristics of the stand, physical features of the terrain, and possible public concerns. The discussions below provide a summary of activities proposed.

Selection Method: Under the selection regeneration method, individual trees of all ages are to be removed to create mosaic stands of all aged groups. This prescription is used to meet the silvicultural and visual management objectives of the timberland owner. Selective harvests are designed to create or maintain uneven-aged stands. Un-even aged management attributes include the establishment and/or maintenance of a multi-aged, balanced stand structure, promotion of growth on leave trees throughout a broad range of diameter classes, and encouragement of natural reproduction.

In general, the project area is located on slopes less than 30%. The stand within the project area is characterized by scattered medium to large sized trees with a moderately dense understory. The primary objective of this silvicultural method is to reduce the fire hazard, promote a healthy forest by reducing inner tree competition, and create small openings for natural regeneration. Guidelines for tree selection include removing the understory fuel ladder, marking high-risk, diseased trees, thinning from below, and spacing of future crop trees. This silvicultural method will consist of removing individual trees in all size classes (classic inverse "J" curve) to create a balanced uneven-aged stand structure. This method will promote the establishment of a multi-aged stand structure of healthy trees, increased growth throughout a broad range of diameter classes, and reduce the fire hazard.

Stocking standards for the Selection silvicultural method will be met immediately after each harvesting operation is complete.

See Items 40 – 43 for a complete description of timber stand characteristics, management objectives, and growth over time.

Item 15, Pest

Although the project area is not within a Board of Forestry declared Zone of Infestation, several insect and disease can be found within the project area. Trees showing signs of infection or attack are targeted for removal.

To improve the health, vigor, and productivity of the stand, the silvicultural practice calls for removing those trees, which exhibit signs of insect, or disease. The following is a description of insect(s) and disease(s) found throughout the stand.

Cytospora canker (caused by *Cytospora abietis)* is a canker-causing fungus that infects true firs throughout their range. In California, white fir and red fir are the species most commonly attacked. It is a weak parasite that attacks trees weakened by disease, drought, fire, insects or human disturbance. It is most commonly associated with dwarf mistletoe infection and sometimes attacks as many as a quarter of the mistletoe-bearing branches killing many each year. The bright red flags of recently-killed branches on dwarf mistletoe-infected red firs are almost always the result of lethal *Cytospora* infections. C. *abietis* occasionally reaches especially damaging proportions in certain years and may attack trees of any age, sometimes killing in top kill or whole tree mortality of young trees.

No direct control of Cytospora canker is known, but certain measures can be under taken to reduce damage from this disease. Avoid activities that weaken or damage trees. Take all measures possible to reduce damage to residual trees during any management activities. Open wounds provide vectors for infection and the additional weakening of the trees through scarring, root damage, and soil compaction predispose them to attack by *Cytospora.* Avoid sudden exposure of understory true firs to strong light and high temperature. Weakening of trees from sudden exposure in addition to wounding can lead to severe buildup of this disease. Removal of dwarf mistletoe-infected trees can reduce the buildup of both dwarf mistletoe *and* C. *abietis* infection in surrounding trees.

Cytospora canker is a parasitic fungus that causes cankers and dieback of true firs in the western United States. *Cytospora* attacks trees of all ages. Branch and top killing are very common, and small seedlings and samplings are often girdled and killed. Development of the fruiting bodies takes place in the dead bark tissues. Spore production occurs in the spring and summer, usually during periods of rain or high moisture. Infection is by the spores produced from the fruiting bodies imbedded in the bark of an infected branch. The spores are waterborne and spread during rains. Bark beetles and other insects may also transmit the spores. Infection takes place through wounds and other openings in living branch tissues. Following infection, the fungus grows into and kills the cambium and inner bark. Elongated cankers are often produced as growth of the fungus is about twice as fast longitudinally along a branch as it is around the branch circumference. The fungus girdles and kills most branches in about 6 months to 2 years. Large branches and boles are girdled more slowly.

The most notable symptom of infection is dieback or flagging of branches, tops and small trees. Foliage is initially brick red in late spring and early summer and turns to light brown later in the summer and fall. Dead foliage may remain on the branches for 2 to 3 years. Flagging is particularly noticeable in stands infected with dwarf mistletoe. This disease often forms cankers.

Sunken cankers are common, but cankers showing little sunken tissues do occur. Cutting the bark away from the suspected infection often will show the margin between living tissue and the canker. Some branches, usually small ones, are girdled and killed by the fungus with no canker development. On small trees infection of the bole may occur through side branches.

Branches infected by Cytospora often exude resin or "pitch". Resin exudation usually appears near the margin of the living and dead tissues. Old infections, generally on large branches and trunks, show a noticeable amount of resin accumulation on the dead bark surface as well as near the canker margin. Small branches or seedlings killed quickly by *Cytospora* may show no resin exudation. The fruiting bodies are small, blister-like structures imbedded in the bark of a dead branch or in the dead tissue of a canker. They are quite small and abundant and give the bark portion of the branch where they occur a warty appearance. When fruiting bodies mature, they produce spores in great abundance. These usually occur in "spore horns", which look like small, curly, yellow threads arising from the blisters and consist of many spores held together by a sticky material. When spore horns are wet, the spores are dispersed in water.

Generally, *Cytospora* is a weak parasite, but it can assume epidemic proportions when trees are injured, weakened, or predisposed by adverse conditions to attack. Dwarf mistletoe also commonly predisposes both red and white fir to attack by *Cytospora.* Dwarf mistletoe swellings provide openings in the bark for infection, and a favorable environment for growth and development of the fungus. (Smith, USFS)

Fir engraver (Scolytus ventralis) attacks red and white fir in California. Fir engraver adults and developing broods kill true firs by mining the cambium, phloem and outer sapwood of the bole, thereby girdling the tree. Trees greater that 4" in diameter are attacked and often killed in a single season. Many trees weakened through successive attacks die slowly over a period of years. Others may survive attack as evidenced by old spike-topped fir and trees with individual branch mortality. Although many other species of bark beetles cannot develop successful broods without first killing the tree, the fir engraver beetle is able to attack and establish broods when only a portion of the cambium area has been killed.

Fir engravers bore into any member of the host species on which they land, but establish successful galleries only in those, which have little or no resistance to attack. Populations of less aggressive species like fir engraver are likely to wax and wane in direct relationship to the stresses of their hosts. Diseases, especially Annosus root disease, drought conditions, and overstocking play a significant role in weakening trees to the point of successful attacks by the fir engraver beetle. Maintenance of tree health and vigor is the best defense against fir engraver attacks.

Fir engravers bore entrance holes along the main stem, usually in areas that are greater than 4" in diameter. Reddish-brown or white boring dust may be seen along the trunk in bark crevices and in spider webs. Some pitch streamers may be indicative of fir engraver attacks. However, true firs are known to stream pitch for various reasons and there is not clear evidence that pitch streamers indicate successful attacks or subsequent tree mortality. Resin canals and pockets in the cortex of the bark are part of the trees defense mechanism. Beetle galleries that contact these structures almost always fail to produce larval galleries as the adults invariably abandon the attack. Pitch tubes that are often formed when bark beetles attack pine are not produced on firs.

Adults excavate horizontal galleries that engrave the sapwood; the larval galleries extend at right angles along the grain. Attacks in the crown may girdle branches resulting in individual branch mortality or "flagging". Numerous attacks over part or all of the bole may kill the upper portion of the crown or the entire tree. A healthy tree can recover if sufficient areas of cambium remain and top-killed trees can produce new leaders. The fir engraver is frequently associated with the round-headed fir borer and the fir flat-headed borer.

In the summer, adults emerge and attack new host trees. The female enters the tree first followed by the male. Eggs are laid in niches on either side of the gallery. Adult beetles carry a brown staining fungi (*Trichosporium symbioticum*) into the tree that causes a yellowish-brown discoloration around the gallery. The larvae mine straight up and down, perpendicular to the egg gallery. Winter is commonly spent in the larval stage with pupation occurring in early spring. In most locations, the fir engraver completes its life cycle in 1 year. However, at higher elevations 2 years may be required.

Fir engravers bore into any member of the host species on which they land but establish successful galleries only in those which have little or no resistance to attack. Populations of less aggressive species like fir engraver are likely to wax and wane in direct relationship to the stresses of their hosts. Drought conditions often result in widespread fir mortality particularly in areas of low annual average precipitation. Lowered resistance of trees appears to be a contributing factor. Overstocking and the increased presence of fir on sites that were once occupied by pine species may also contribute to higher than normal levels of fir mortality. Several insect predators, parasites and woodpeckers are commonly associated with the fir engraver and may help in control of populations at endemic levels. (Smith, USFS)

Pine engraver ***(Ips pini* (Say), *I. latidens* (LeConte), *I. paraconfusus Lanier*, and *I. emarginatus* (LeConte))** are most easily recognized by the rows of spines on the posterior ends of their wing covers. Size of adults is variable, ranging from about 3mm (about 1/8 in) in length for *I. pini* and *I. latidens* to 9mm (about 2/5 in) in length for *I. emarginatus*.

Since the males are polygamous, there may be several female galleries associated with each attacking male. These egg galleries extend from a main nuptial chamber located beneath the bark and are etched slightly into the wood. They often have tuning fork or star-like shapes. *Ips pini, I. latidens*, and *I. paraconfusis* are usually associated with slash, small-diameter standing trees, and the tops of larger trees. *Ips emarginatus* is usually found in large ponderosa pines attacked by western pine beetles and smaller pines infested by either western or mountain pine beetles. *Ips emarginatus* galleries resemble those of mountain pine beetles but are not packed with frass, and each contains a nuptial chamber.

Pine engravers are especially common on ponderosa, lodgepole, knobcone, sugar, and western white pines.

Most *Ips* beetles are associated with logging slash and wind thrown material. On occasion, beetles can spread from this down material into standing trees and can cause significant tree mortality, especially in thickets and in young recently thinned stands. Tops of large trees may also be killed. *Ips emarginatus* attacks and occasionally aids in killing large trees, is considerably less common than other *Ips*, and is usually secondary to mountain or western pine beetles.

Ips beetles help to accelerate the recycling of woody material by introducing wood decay fungi into host sapwood. Pine engravers also create gaps and introduce diversity into dense stands when they kill groups of young pines. As important causes of top-kill in large ponderosa pines, pine engravers create special habitat for certain wildlife species.

Ips beetles can complete several generations in one year depending on the temperature. Typically in the Pacific Northwest, adults emerge from their over wintering sites in late April and fly in search of fresh slash or wind thrown material. The males initiate attacks and produce attractants that draw other males and then females onto the same host material. In the case of *I. pini*, the males are joined by as many as four females and after mating in a nuptial chamber created beneath the bark by the male, each female constructs an individual egg gallery. Eggs are laid in these galleries, and larvae develop quickly and transform into pupae by mid-June. New adults are ready to emerge and fly by the end of July. If this second generation does not find fresh slash or wind thrown material, it is likely to infest standing trees. The second generation is completed by mid- to late-September. Some of the new adults over winter beneath the bark of their host while others emerge and fly off to hibernate in the forest duff.

Pine engravers are most commonly associated with stressed or wounded trees and down material, particularly of smaller diameters. Any activity or event that generates abundant amounts of slash or that stresses trees is likely to lead to elevated engraver populations. Pine slash produced from stand thinning activities between January and July is particularly favorable host habitat for pine engravers, especially if the material is piled and not allowed to dry before beetle flights take place in the spring. These effects are most dramatic on the driest sites, and during abnormally dry years. In a year of "normal" precipitation, pine engravers are generally confined to down or severely stressed hosts and do not kill healthy trees.

Management activities designed to minimize engraver populations are generally only necessary on extremely dry pine sites and during drier-than-normal years. Under these conditions, the management of slash is critical. Thinning activities should be concentrated between the months of August and December so that slash will dry out and will no longer be suitable for the first generation of beetles flying in April. Slash generated between January and July will be colonized and this may lead to a large second generation that is the one capable of killing trees. If slash must be generated between January and July, it should be scattered or crushed in order to hasten drying and reduce its suitability as beetle habitat. An alternative approach is to generate enough additional fresh slash in mid-summer to absorb the emerging second generation and provide the beetles with an alternative to standing trees (this is called the "green chain" approach). Slash smaller than 7.5 cm (3 in) in diameter is of little consequence in terms of brood production for *Ips.* spp. (USFS)

White pine blister rust ***(Cronartium ribicola)*** is the most serious damaging agent of white pines. This rust was introduced into this country at the turn of the century from infected seedlings imported from nurseries in France. White pine blister rust is caused by an obligate parasite that attacks all five-needle pines and several species of *Ribes*. The fungus needs the two alternate hosts to survive, spending part of its life on 5-needled pines and the other on *Ribes*. The disease occurs throughout the range of sugar pine and western white pine.

The spores germinate on the needles and use the stomatal openings as entry courts into needles. Infection of pines results in cankers on branches and main stems, branch mortality, top kill, and tree mortality. Spores (aeciospores) produced by the fungus in the spring on pine bole or branch cankers are wind-disseminated to *Ribes* where they infect the leaves. Spores (urediospores) produced in orange pustules on the underside of the leaves re-infect other *Ribes* throughout the summer, resulting in an intensification of the rust. A telial spore stage forms on *Ribes* leaves in the fall. Teliospores germinate in place to produce spores (sporida), which are wind-disseminated to pines and infect current year needles. Following infection, the fungus grows from the needle into the branch and forms a canker.

After 2 or 3 years, spores are produced on the cankers and are spread to *Ribes* to continue the cycle. Although blister rust may spread hundreds of miles from pines to *Ribes* its spread from *Ribes* back to pines is usually limited to a few hundred feet. Branch cankers continue to enlarge as the fungus invades additional tissues and moves toward the bole. Branch cankers within 24 inches of the bole will eventually form bole cankers (these are called lethal cankers). Bole cankers result in girdling and death of the tree above the canker. Cankers whose closest margins are more than 24 inches from the main bole are unlikely to reach the bole and only branch flagging will result (these are called non-lethal cankers).

Environmental conditions are critical for successful infection and limit the disease in most years. Moisture and low temperatures favor infection of both hosts and must coincide with spore dispersal for infection to occur. In California, these conditions occur only infrequently, usually in cool moist sites such as stream bottoms or around meadows. In so called "wave years" when favorable conditions occur, high levels of infection can result. Wave years in California have occurred at approximately ten-year intervals in the past. As one moves from sites most favorable for rust to less favorable sites, the frequency of wave years decreases. Selection of naturally rust-resistant trees for seed sources for natural regeneration and planting rust-resistant nursery stock may keep future damage from blister rust minimal. (Smith, USFS)

Mistletoes (*Arceuthobium spp. & Phoradendron spp.)* are a diverse group in the order Santales of shrubby, usually aerial, parasitic plants with fruits possessing a viscid layer. They are widely distributed geographically and as a group have a broad host range on conifers and other woody plants. Many types of mistletoe are specially adapted for avian pollination and dispersal, and several avian species make extensive use of these resources. The mistletoes are damaging pathogens of trees; and in many parts of the world are serious forest pests. (Hawksworth)

From an economic perspective, the effects of mistletoe infestation are described by Hawksworth. Relevant to timber production, mistletoes reduce growth, yield, and quality and increase operation and protection costs for planning, harvesting, regeneration, and fuel management.

A prevailing objective on public forests in the 20th century was sustained economic production of timber. Foresters knew that dwarf mistletoes were obligate parasites that died when the host tree was cut and had limited capability of spread. The preferred control technique was clearcutting in large blocks to remove the mistletoe and retard re-infestation. Where employed, it worked. A challenge to forest pathologists arose when objectives were expanded to include wildlife and aesthetic values, and treatments required or produced infrequent, selective removal that left infected trees. (Hawksworth)

Assessment and monitoring are essential elements of a strategy for managing mistletoes. Mistletoe infestations initially develop slowly but accelerate rapidly and cause significant departure from typical stand development. These facts suggest that early intervention provides greater flexibility.

Branch death or "flagging" by the fungus *Cytospora abietis* is one of the most conspicuous field symptoms for infection by this dwarf mistletoe.

All dwarf mistletoes are parasites that extract water, nutrients, and carbohydrates from the infected host; they are also pathogens that alter host physiology and morphology. Disease or direct effects are reductions in diameter and height increment, survival, reproduction, and quality; witches' brooms are formed in many pathosystems. Where dwarf mistletoe populations develop significant, long-term infestations, cumulative tree damages have various ecological and evolutionary effects. (Hawksworth)

The pathological results of dwarf mistletoe infection are seen as reductions in reproduction, growth, longevity, and quality. The nature and magnitude of these effects are determined by the mistletoe and host species involved, infestation severity, and vigor of the host. These factors are in turn affected by age, history, and the influences of insects, other disease agents, competition, site quality, and climate. (Hawksworth) From a management perspective of mitigating these effects, the important considerations are time and opportunity.

Both mistletoe intensification and damage are progressive and cumulative; they begin at a slow rate, with little effect, but increase exponentially, accumulating to a large effect. Damage first becomes evident when the crown of the host tree is about half infected and becomes increasingly severe as the infection intensifies to its culmination when the entire crown is infected and the tree dies.

Mistletoe not only kills small trees but in time, a severe infection can even kill a mature, large tree. A severe infestation with many seriously infected trees can generate a high mortality rate. Mortality rates are determined from either re-examining a plot after a known period of time (dependable) or estimating which trees had died within the reference period (undependable). The effect of mistletoe on tree survival can also be expressed in terms of tree longevity, the period of time over which a fraction (usually 50 percent) of trees are expected die. Because tree mortality is infrequent and then occasionally synchronous with events such as droughts longevity studies over a long period with frequent observations are especially useful. (Hawksworth)

Like growth effects, mortality is related to a number of interacting factors; the most important are species, size, infection severity, and other mortality agents. Hawksworth and Wiens identify 17 mistletoe species that are especially lethal for certain hosts and locations.

These hosts include many important forest species such as *Abies magnifica*, *Larix occidentalis*, *Picea mariana*, *Pinus contorta*, *P. ponderosa*, and *Pseudotsuga menziesii.* One study demonstrates the interacting (and nonlinear) effects of tree size (diameter) and infection severity on the longevity of mistletoe-infected pine. The expected longevity for 50 percent of trees with a severe infection is less than 10 years for smaller trees (less than 9 inches diameter) and more than 10 years for larger trees. Over 40 years, however, many of the larger, severely infected trees died. During this time, some of the originally moderately infected trees became severely infected and died at a rate greater than that for uninfected trees. (Hawksworth)

Drought may increase mortality of mistletoe-infected trees more than four times that of uninfected trees. The attraction of bark beetles to mistletoe-infected trees depends on the species combination (mistletoe-tree-insect) and severity of infection. Hawksworth and Wiens review the combinations for which mistletoe infection appears to increase, decrease, or be unrelated to bark beetle attack. For example, several studies discuss mistletoe as a predisposing factor for mountain pine beetle.

An intermediate hypothesis to explain aggressive bark beetle (for example, mountain pine beetle) attraction to infected trees suggests that there would be no difference in beetle attack between similar sized trees that are uninfected or lightly infected, greater attack for moderately infected trees, and reduced attack for severely infected trees. This hypothesis requires testing in various situations.

Mountain Pine Beetle, ***Dendroctonus ponderosae*** attacks the bole of ponderosa, lodgepole, sugar and western white pines larger than about 8 inches dbh. Extensive infestations have occurred in mature lodgepole pine forests. Group killing often occurs in mature forests and young overstocked stands of ponderosa, sugar and western white pines.

The first sign of beetle-caused mortality is generally discolored foliage. The mountain pine beetle begins attacking most pine species on the lower 15 feet of the bole. Examination of infested trees usually reveals the presence of pitch tubes. Pitch tubes on successfully infested trees are pink to dark red masses of resin mixed with boring dust. Creamy, white pitch tubes indicate that the tree was able to "pitch out" the beetle and the attack was not successful. Besides having pitch tubes, successfully infested trees may have dry boring dust in the bark crevices and around the base of the tree. Infested trees can also have boring dust, but not pitch tubes. This may be common in drought years when trees produce little pitch. Attacking beetles transmit spores of blue stain fungi. As the fungi develop and spread throughout the sapwood it interrupts the flow of water to the crown. The fungi also reduces the flow of pitch in the tree, thus aiding the beetles in overcoming the tree. The combined action of both beetles and fungi causes the needles to discolor and the tree to die.

The food supply regulates populations of the beetle. In pine, it appears that the beetles select larger trees with think phloem, however the relationship between beetle populations and phloem thickness in other hosts has not been established. A copious pitch flow from pine trees can prevent successful attack. The number of beetles, the characteristics of the tree, and the weather affect the tree's ability to produce enough resin to resist attack. Other factors affecting the abundance of the mountain pine beetle include low winter temperatures, nematodes, woodpeckers and predaceous and parasitic insects. As stand susceptibility to the beetle increases because of age, overstocking, diseases or drought, the effectiveness of natural control decreases and mortality increases.

Western gall rust ***(Endocronartium herknessii)*** is probably the most commonly observed disease of two and three needled pines. Severe infections cause stem malformations, breakage, and tree killing.

Small to large globose to pear shaped galls appear on branches or stems; galls on the main stem may continue to grow for years, forming very large, hard burls or may partially girdle the stem and die, developing into cankers. Inconspicuous white or colorless ooze (pycnia) may appear between bark fissures in the spring; yellow-orange spore pustules (aecia) are produced in cracks on galls in spring and early summer.

Aecia are produced each spring as long as the fungus is alive in the host; spores are windborne and infect other pines, no alternative host is required; moist conditions stimulate spore release and favor infection; symptoms may develop the same year. The fastest growing trees are more susceptible than suppressed trees.

Trees exhibiting numerous galls, especially stem galls should be selectively removed, favoring uninfected or lightly infected trees during harvesting operations. Trees with deeply indented cankers on the upper stem should be removed.

Item 24, Roads and Landings

The existing roads and landings within the property are of native surface. The roads and landings are in need of minor maintenance, in the form of vegetation removal. No new roads are proposed for use. All roads within the property are private roads maintained by the property owner.

Landing Locations: There are two existing landing. The LTO and RPF shall identify any additional landing location before the start of operations. No special considerations are necessary for the use of the existing landings.

Skidding operations will be limited to existing skid roads unless identified and flagged by an RPF or supervised designee prior to use. In no case, will the construction of skid trail be on slopes over 40%.

Item 26, Watercourse and Lake Protection Zone (WLPZ)

The RPF conducted the required field examination, analysis and mapping of the project area watercourse and failed pond. The watercourse is classified as a Class III and is shown on the project map.

The analysis of the watercourse identified a small amount of riparian habitat around the failed pond. A Giant Sequia (*Sequoiadendron giganteum*), was planted near the pond and is approximately 6 inches in diameter and 35 feet tall.

The pond potential is approximately 20 feet wide and 30 feet long, with a depth of 6 feet. Currently, the pond does not hold water year round, and is dry throughout much of the year. In late winter (February 2010), after a week of heavy rain, starting with a rain on snow event, the pond was 5 feet wide and eight feet long, with a depth of 18 inches. There was a small 15 feet section of watercourse showing overland flow entering the pond at this time.

There are no sites along the watercourse where erosion and sediment production are ongoing and pose a significant risk to the beneficial uses of water. No new facilities are proposed within the WLPZ of the Class III watercourse.

The protection measures inherent in the WLPZ designation are expected to provide sufficient safeguards for any potential habitat and water quality.

Item 28, Downstream Notification

The RPF provided a notice by letter to all landowners within 1,000 feet downstream of the proposed project boundary whose ownership adjoined or included a Class I, II, or IV watercourse(s), which receives surface drainage from the proposed timber operations. In addition to the letters, The RPF published an Affidavit of Publication with The Union newspaper. **See Section V, for a sample of the letter and copy of the legal notice.**

There was no response from the private landowners, and the USFS responded by phone, stating that "there are no domestic water supplies on federal land".

Item 32, Biological

The scoping process to identify species (Avian, Mammals, Aquatic, and Plants) and habitats (e.g. wetlands, vernal pools, serpentine outcrops) includes; an on-site inspection at various times throughout the preparation of the NTMP; CNDDB records check for listed species and associated habitats; review of the CNPS Inventory of Rare and Endangered Plants of California database; Tahoe National Forest Sensitive Plant Program Standard & Guidelines; personal communication with landowners, foresters and wildlife biologists; professional experience; reconnaissance–level field surveys over a 6 month period, which identified and reviewed micro site conditions within and adjacent to the project area for species that may occur on those sites under limiting conditions, and published research as cited in Section IV, Cumulative Impacts Assessment, Item 2, Records Examined.

During the scoping process, the California Department of Fish and Game Natural Diversity Data Base (CNDDB) was reviewed (March 1, 2010) for the Washington Quadrangle and the surrounding nine quad area **(See Section V; to reduce the amount of paper, the CNDDB text printouts are on file with the RPF.**

According to the CNDDB reports, there are no reported occurrences of rare, threatened, endangered, or sensitive plant / animal species within / or adjacent (1 mile) to the NTMP area. California Spotted Owl (Strix occidentalis) were recorded in the 1990's one-half mile south of the project area on SPI land within the THP 2-08-020-NEV(3).

In March 30, a review of the CNPS Inventory of Rare and Endangered Plants of California database was conducted using the nine quad method. In addition, a response from the USFS Botanist/Plant Ecologist/Noxious Weed Coordinator for the Yuba River Ranger District identified several Sensitive and Watchlist Species that have the potential to exist within the project area.

The project area is within the range and has the potential suitable reproductive or foraging habitat for several listed, special status, and potentially sensitive species. The following list identifies those species. See Section IV, Biological Assessment for detailed description of the species identified. All mitigations are described below and are also found in Section II, Item 38, and Section IV, Biological Assessment.

Species List Identifier

FT - Federally listed, Threatened
FPE – Candidate for federal listing as Endangered
FSC – USFWS, Species of Concern, Sensitive
MNB – USFWS Migratory Nongame Birds of Management Concern
BLM – Bureau of Land Management, Sensitive Species
FS – USFS, Sensitive Species
CE – California listed, endangered
CT – California listed, threatened
CCR – Calif. Code of Reg. Title 14, Fully Protected Species
CFP – DF&G Code, Fully Protected Species (3511, 4700, 5050)
CSC – DF&G, Species of Special Concern
CDF – Dept. of Forestry, Sensitive Species
1B – CNPS, Rare or Endangered in CA and elsewhere
2 - CNPS, Rare or Endangered in CA, common elsewhere
3 – CNPS, Plants that need more information
CNDDB – DF&G Database list

Species List (AVIAN, MAMMALS, AQUATIC, PLANTS)

AVIAN	
California Spotted Owl *(Strix accidentalis accidentalis)*	**CNDDB, CSC, MNB, FS, FSC**
Northern Goshawk *(Accipiter gentiles)*	**CNDDB, CSC, MNB, FS, FSC, CDF**
Bald Eagle *(Haliaeetus leucocephalus)*	**CE, CDF, CFP**
Great Grey Owl *(Strix nebulosa)*	**FS, CE, CDF**
Sharp-shinned hawk *(Accipiter striatus)*	**CSC**
Cooper's Hawk *(Accipiter cooperii)*	**CSC**
Willow flycatcher *(Empidonax traillii)*	**CE, FS, CDF, FSC**
MAMMALS	
Pacific Fisher *(Martes pennanti)*	**CSC, FS, BLM, FPE**
Marten *(Martes Americana)*	**CNDDB, FS, CSC**
California Wolverine *(Gulo gulo luteus)*	**CT, CFP, CSC, FS**
Sierra Nevada Red Fox *(Vulpes vulpes necator)*	**CT, FS**
Pallid Bat (Antrozous pallidus)	**CNDDB, CSC**
Western Red Bat (*Lasiurus blossevillii)*	**CNDDB, FS, CSC**
Townsend's big-eared bat *(Corynorhinus townsedii)*	**CSC, FS, BLM, FSC**
Yuma myotis (myotis *yumanensis),*	**CNDDB, CSC, BLM, FSC**
Long-eared myotis (myotis evotis)	**CNDDB, BLM, FSC**
Spotted bat (euderma maculatum),	**CNDDB, CSC, BLM, FSC**
California mastiff bat (Eumops perotis californicus)	**CSC, BLM**
Fringed myotis (myotis *thysanodes)*	**CNDDB, BLM**
Small-footed myotis (myotis ciliolabrum)	**BLM**
AQUATIC	
Foothill Yellow-Legged Frog *(Rana boylii)*	**CNDDB, FS, CSC**
Sierra Nevada Yellow-Legged Frog *(Rana sierrae)*	**CNDDB, FS, FPE,CSC**
California Red-Legged Frog *(Rana aurora draytonii)*	**CNDDB, FT, CSC**
Western Pond Turtle *(Clemmys marmorata)*	**CNDDB, CSC,FS, BLM**
PLANTS	
Bog club-moss (*Lycopodiella inundata)*	**CNPS 2.2, FS**
Brandegee's clarkia (*Clarkia biloba ssp. brandegeeae)*	**CNPS 1B.2, FS**
Brownish beaked-rush (*Rhynchospora capitellata)*	**CNPS 2.2**
Cantelow's lewisia (*Lewisia cantelovii)*	**CNPS 1B.2, FS**
Closed-throated beardtongue *(Penstemon personatus)*	**CNPS 1B.2**
Elongate copper-moss *(Mielichhoferia elongate)*	**CNPS 2.2**
Green spleenwort *(Asplenium trichomanes ramosum)*	**CNPS 2.3**
Hutchisons lewisia *(Lewisia kelloggii ssp. hutchisonii)*	**CNPS 3.3**
Stebbins' phacelia *(Phacelia stebbinsii)*	**CNPS 1B.2, FS**
Butte County Fritillary *(Fritillaria eastwoodiae)*	**CNPS 3.2, FS**
Slender-leaved pondweed *(Potamogeton filiformis)*	**CNPS 2.2**
Green-flowed wintergreen *(Pyrol chlorantha)*	**CNPS 1A**
Howell's tauschia *(Tauschia howellii)*	**CNPS 1B.3**
Siskiyou Mountains huckleberry *(Vaccineum coccineum)*	**CNPS 3.3**
Clustered lady's-slipper (Cypripedium fasciculatuim)	**CNPS 4.2**
Mountain lady's-slipper *(Cypripedium montanum)*	**CNPS 4.2**
Quincy lupine *(Lupinus dalesiae)*	**CNPS 4.2**
Sheldon's sedge *(Carex sheldonii)*	**CNPS 2.2**
Norris' beard moss *(Didymodon norrisii)i*	**CNPS 2.2**
Northern adder's tongue *(Ophioglossum pusillum)*	**CNPS 2.2**
Red Hills Soaproot *(Chlorogalum grandiflorum)*	**CNPS 1B.2**

Twelve field visits from January 2010 to June 2010, totaling over 40 hours, while preparing the NTMP, and archaeological survey, which include early morning and late evenings reconnaissance surveys have been conducted by the RPF. During this time, there have been no sightings of rare, threatened, or endangered species within the project boundary or surrounding area.

See Section IV, Biological Assessment for a detailed discussion of the species identified, and their potential use of the project area.

To comply with Fish and Game Code Section 3503.5, logging operations during the raptor-nesting season (February through July) will be preceded by pre-operations review of the site by an RPF. Review of the site will be conducted within 10 days of the onset of operations. The review will be conducted by an RPF responsible for marking the timber to be fell. Trees targeted for removal within the harvest area will be reviewed during the survey period which may be in conjunction with the mandatory on the ground, pre-operations meeting with the LTO.

During the life of the NTMP:

- Prior to submitting each Notice of Timber Operations (NTO), the RPF shall:
  (1) Inspect the plan area and identify any physical changes to the site. Any physical changes, such as landslides shall be shown on the NTO map.
  (2) Update the scoping for species of concern or their habitat for any changes in listing status for species that may occur on the project area.

- If a bird of prey, its nest, or eggs are discovered in the plan area, timber harvesting operations within ¼ mile will be stopped, and DFG will be contacted to initiate a consultation to determine an adequate buffer until: 1) the young are capable of sustained flight and can take prey independently; 2) August 15; or 3) the nest has failed after June 1 as determined by a wildlife biologist familiar with raptor biology.

- If sensitive plants are found, a minimum 50-foot no operations buffer shall be flagged or marked around a sensitive plant population until site-specific and species-specific measures can be developed in consultation with the DFG.

- The Pacific Fisher (*Martes pennanti*) has been recognized as a candidate species for listing under the California Endanger Species Act (CESA). The emergency regulations approved by the Office of Administrative Law regarding incidental take has expired, DF&G still recommend the same mitigation measures.

  The critical period for Pacific Fisher (*Martes pennanti*) is March 1 through July 31, where reproduction and caring for young occurs and when the highest potential for disturbance exists. During timber operations, if a fisher den or a female with young is observed, operations shall cease with .25 miles. CAL FIRE and DFG shall be notified immediately as a means to evaluate proposed protection measures and the plan shall be amended to illustrate the den location and describe any additional protection measures prior to operations in the affected area.

- If a species of special concern, including key habitat, associated with the plan area, is discovered at any time during the life of this plan, the species and the associated habitat will be protected under the provisions of 14 CCR, Article 9, Wildlife Protection Practices, Section 939.

- Bats - Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly.

Item 39. Describe present and proposed plan area uses other than timber production, include in Section III, as per 14 CCR 1090.5(f). This property was purchase as a part of a long-term, retirement fund. The sole purpose for this property is the sustained production of high quality timber. The landowner is relying on the periodic harvesting of growth over time to provide the necessary cash flow during the retirement period.

Item 40. Provide a description by management unit(s) of the timber stand characteristics including the items listed below, in Section III.

Such description shall provide the basis for the information provided in the NTMP, as per 14 CCR 1090.5(g):

Currently, there is a 1038 (b) Exemption filed on the property. After the End of Public Comment Period, and prior to the approval by the Director's representative, the 1038 (b) Exemption will be withdraw.

The entire property is a single management unit. The timber within the project area was cruised starting from a random point using a variable plot method utilizing a 40 BAF and 20 BAF prisms with a 1/100th acre reforestation plots nested at plot centers. Twenty plots were measured. Within the variable plots, trees equal to and greater than 12" dbh were tallied and measured for species, diameter, total height, live crown ratio and form. At least one tree per plot was measured for five and ten year growth, and total age. Within the fixed, nested sub-plot, trees less than 12" dbh were tallied and measured for species, diameter, total height, and live crown ratio. The tree detail information measured and recorded in the field was entered into the **SUPER A.C.E.** cruise program to precipitate the species and volume information used in this report.

The stand information was entered into the Forest Stand Evaluator (FORSEE v2). FORSEE is a Windows based software owned and licensed by the California Growth and Yield Modeling Co-operative (CAGYM). This program was used to compare the volume, growth, and regeneration projections of conifers with known yield tables (Technical Bulletin 354, USDA (Dunning & Reineke 1933)), and the sampled site tree growth calculations based on the past five and ten year growth periods. Hardwood projections are not included in this evaluation as they are not part of the income stream valuation. All inventory information and calculations are on file with the RPF.

a. Species composition; White fir makes up about 31 percent of the entire stand composition. The remaining species mix is comprised of Ponderosa pine (27%), Sugar Pine (1%), Douglas fir (22%), and Incense cedar (15%). The black oak and pacific madrone are generally found as individuals within the overall stand structure and make up less than five percent of the stand.

b. Age classes; The timber stand on the property is a mix of saw-timber-size young growth that are dominated by 120-140 year old trees that naturally regenerated after the primary forest was logged during the gold rush era. These trees are the residual trees left from successive harvest during the last 60 years.

The average age of the dominant trees is 130 years with an average height of 120 feet. The dominant overstory is scattered Ponderosa pine, Sugar Pine, White fir, Douglas fir, and Incense cedar that are 20-30" dbh, ranging from 95 to 120 feet tall with an overstory canopy closure ranging from 15 to 20 percent.

The understory is comprised of suppressed shade tolerant species, mostly white fir and incense cedar with approximately 30% crown closure. The WHR classification does not reach WHR 6, with size class 5, trees with dbh greater than 24" over a distinct layer of size class 4 or 3, with a total tree canopy exceeding 60% closure. In addition, the site is lacking the functional characteristics of large decadent trees, snags, and large down logs to be considered a Late Succession Forest Stand as defined in 14 CCR 895.1. The landowners' long-term goal is to move the forest stand structure closer to a WHR 6.

The basal area is variable, ranging from 240 to 460 sq. ft. per acre. The current average basal area per acre is approximately 330 square feet. Regeneration is dense in most areas.

c. Projected growth; Growth projections from FORSEE v2 (CAGYM 2009), Technical Bulletin 354, USDA (Dunning & Reineke 1933), and Site tree projections show that current basal area stand growth ranges between 2.6 and 3.5 ft²/acre/yr, which is equivalent to a range of roughly 740 to 890 board feet/acre/yr Scribner short-log scale based on the average stand diameter and trees per acre.

wildlife Habitat Relation class
24" DBH 60% crown closure

d. Present stocking level; All values are on a per acre basis.

	Tree /Acre	Basal Area	Net Bf/Ac
White fir	172	122	15,852
P. Pine	68	80	11,972
Inc. Cedar	133	58	4,662
Douglas fir	109	71	8,954
Sugar Pine	13	2	74
Total Conifer	**495**	**333**	**41,514**
Hardwoods	**14**	**12**	

Sample size: 20 plots
# of trees sampled: 197

Trees / Acre – S.E. ± 6%
Basal Area / Acre – S.E. ± 8%
Net Bf / Acre – S.E. ± 8.1%

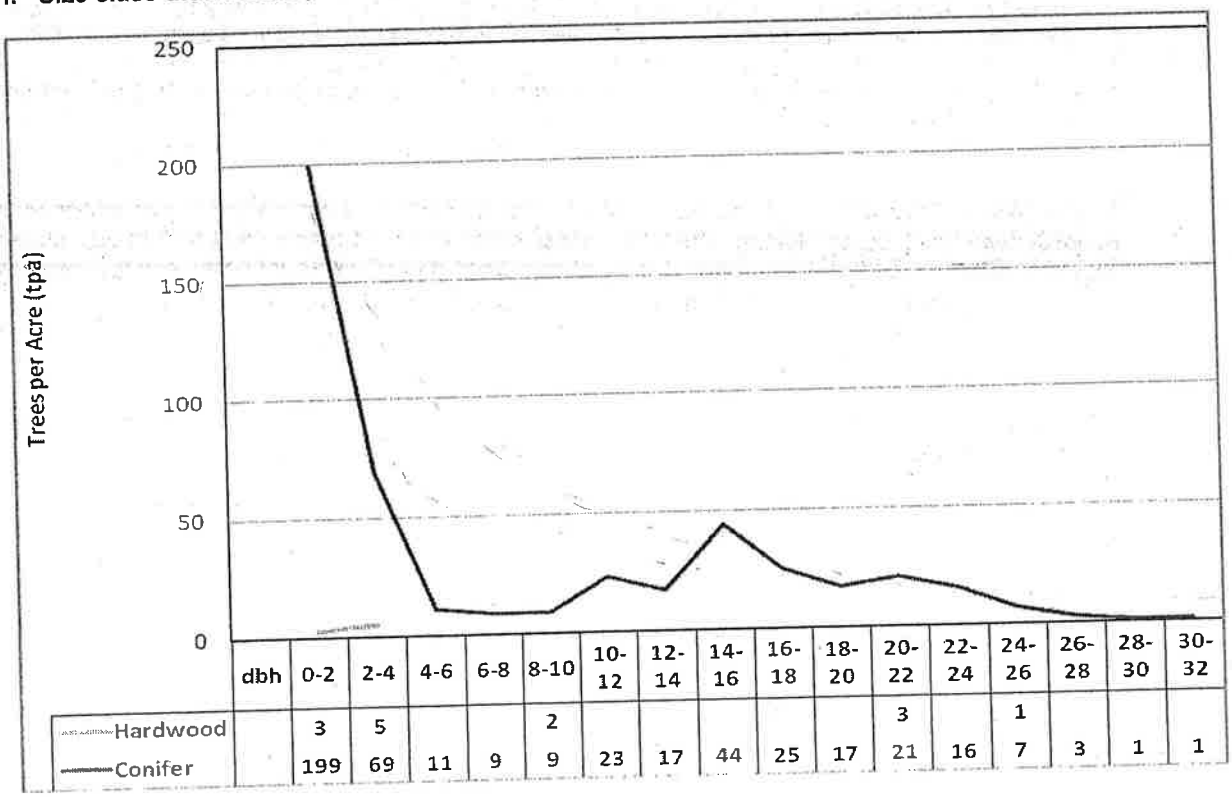
e. Present volume per acre; The current volume per acre Scribner short-log scale is approximately 41,514 board feet per acre.

The Exemption mark and tally has been subtracted from the stand table and tree list used in the FORSEE projection. Approximately 2,700 Bf/Ac has been marked under the 1038 (b) Exemption.

All values represent the present stocking level after the completion of the 1038 (b) Exemption.

	Tree /Acre	Basal Area	Net Bf/Ac
White fir	169	102	14,543
P. Pine	63	68	11,791
Inc. Cedar	126	54	3,894
Douglas fir	104	64	8,518
Sugar Pine	13	2	74
Total Conifer	**475**	**290**	**38,821**
Hardwoods	**14**	**12**	

f. Size class distribution;



g. **Stand management history;** The area was heavily logged during the height of the gold rush. The primary forest was harvested prior to 1900, by ground-based and high-lead logging methods common at the time. After removal of the old-growth timber, the area vigorously regenerated to young timber and brush. At various times since then, the property has been used for recreation, timber, water production, and placer mining.

Low intensity fire frequented the area, burning and clearing the understory. Since the turn of the century, fires have been suppressed and over the last 100 years the clean forest understory has become overgrown with shade tolerate conifer species and brush.

h. **Potential pest or protection problems;** Although the project area is not within a Board of Forestry declared Zone of Infestation, the project area has the presence of several insect and diseases. Trees showing signs of infection or attack are targeted for removal.

To improve the health, vigor, and productivity of the stand, the silvicultural practice calls for removing those trees, which exhibit signs of insect, or disease. **See Item 15 for detailed description of insect and disease**.

Along the east property line, there is a 60 Kv electric line. Hazard reduction standards are identified in Section II, Item 30.

Item 41. Provide a description by management unit(s) of the proposed management objectives, including a discussion of projected timber volumes and sizes available for timber harvesting in Section III, as per 14 CCR 1090.5(h).

The entire property is a single management unit. The management objectives of the Chalk Bluff 40 is periodic timber harvesting designed to provide an intermittent stream of income from the property, while maintaining the character of the native forest, the productivity of the soil and protecting the beneficial uses of the watershed. Under the selection silvicultural method, the full range of commercial timber sizes (from poles and split products to large saw timber) will be available for harvest. At each harvest entry, harvest yields from between 6 to 9 Mbf/ac can be realized in addition to meeting the retention requirements of 14 CCR 933.1 (c)(1)(A.

Item 42. Provide a description by management unit(s) of proposed activities to achieve the management objectives, include in Section III, as per 14 CCR 1090.5(i):

The RPF shall monitor the condition of the forest on the Chalk Bluff 40 and provide the Landowners with advice on:

- Amount of timber available for harvest.
- Progress of stand establishment and growth throughout the property, and will make recommendations regarding timber stand improvement (TSI), or pre-commercial thinning work as necessary.
- Need and opportunity for salvaging diseased and injured timber.
- Appropriate time for inventory re-measurement.
- Opportunities for state and federal cost-share programs to improve the timber stand and watershed conditions on the Forest.

Updated inventory and growth estimate shall be taken after the completion of the 2nd and before the 3rd harvest cycle. This information will be used to adjust available harvest to new growth estimates reflective of any changes in stand structure.

a. **Projected frequencies of harvest;** Under the selection silvicultural method harvests occur on a cutting cycle of between 11 to 15 years.

b. **Silvicultural prescriptions for harvesting;** The selection silvicultural method will be used. The timber stand shall be marked by an RPF, or RPF supervised designee, to create stands with optimum spacing for each size of native species to provide for natural regeneration, and to protect the watershed. Marking will remove trees across the full range of tree sizes, with an emphasis on targeting denser stands, while retaining both snags and damaged green trees to provide for wildlife habitat needs.

c. **Type of yarding systems to be used for each area/unit;** Animals and ground based (tractor, skidder, forwarder) systems.

d. **Anticipated interim management activities, which may result in rule compliance questions (i.e., erosion control maintenance).** There are no anticipated interim management activities that may result in rule compliance questions.

Item 43. **Provide the period of time over which growth will be balanced with harvest in Section III, as per 14 CCR 1090.5(j).**

Using a two percent annual growth rate, the cutting cycle lengths will be 11 to 15 years targeting between 6 to 9 Mbf/Ac of commercial conifers (poles and split products to large saw timber). Stand growth is currently balanced with harvest. Harvest will not exceed growth in any rolling 10-year average.

Current growth projections based on site tree information provides for a three percent annual growth rate. The site tree rate is roughly .4 percent high than the FORSEE estimate (2.6 percent, 890 bf.ft/ac/yr), and .9 percent higher than Technical Bulletin 354 (2.1 percent, 710 bd.ft/ac/yr).

In a standard growth model projection, several assumptions must be made; the question is "are these assumptions reasonable?"

The Chalk Bluff 40 projection is based on Site index 65, and assumes a two percent growth over time, including in-growth and mortality. The results of the projection show that the stocking and stand growth is balanced with harvest and that the current diameter gap (4" to 12") disappears after 40 years without timber stand improvement (TSI), or pre-commercial thinning (PCT) work.

Additional measures to ensure compliance with the rules of the Board of Forestry and the management objectives of the landowner include:

- An RPF shall provide the Landowner with an updated inventory and growth estimate after the completion of the 2nd harvest cycle and prior to the 3rd harvest cycle. This information will be used to adjust available harvest to new growth estimates reflective of the changing stand structure.

Notice of operation is filed in Redding

SECTION IV

Board of Forestry
Technical Rule Addendum No.2
CUMULATIVE IMPACTS ASSESSMENT

(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 XX No _____

If the answer is yes, identify the project(s) and affected resource subject(s).

(2) Are there any continuing, significant adverse impacts from past land use activities that may add to the impacts of the proposed project?

Yes XX No _____

If the answer is yes, identify the activities, describe their location, impacts and affected resource subject(s).

303 (d) The project is located within the hydrological boundary (CALWATER 2.2 Version, Buckeye Ridge, 5516.340304). This watershed is associated with Greenhorn Creek, a tributary to the Upper Bear River watershed, a listed 303(d) water body.

The Upper Bear River watershed is that portion of the river above Rollins Reservoir. The stressor identified in the Basin Plan from this river is Mercury and is the result of historic, large scale, hydraulic gold mining. The project area eventually drains into the Bear River via Greenhorn Creek, via the Class III watercourse within the project area.

There are no identified mines within the project area. The watercourse channel contains no open portholes, or areas of past hydraulic mining. The only potential impact to the watershed with respect to the 303(d) listing for mercury would be the downstream mobilization of mercury due to a potential increase in run-off/peak flow as a result of timber harvesting. The potential for increased run-off from long-term timber harvesting is considered negligible in comparison to the total run-off from the entire watershed. No further consideration is necessary.

(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	_____	XX	_____
2. Soil Productivity	_____	_____	XX
3. Biological	_____	XX	_____
4. Recreation	_____	_____	XX
5. Visual	_____	_____	XX
6. Traffic	_____	_____	XX
7. Other - GHG	_____	_____	XX

a) Yes, means that potential significant adverse cumulative impacts are left after application of the forest practice rules and mitigation or alternatives proposed by the plan submitter.

b) No after mitigation means that any potential for the proposed timber operations to cause or add to significant adverse cumulative impacts by itself or in conjunction with other projects has been reduced to insignificance or avoided by mitigation measures or alternatives proposed in the NTMP and application of the forest practice rules.

c) No reasonably potential significant cumulative effects means that the operations proposed under the NTMP do not have a reasonable potential to join with the impacts of any other projects to cause, add to, or constitute significant adverse cumulative impacts.

(4) If column (a) is checked in (3) above described why the expected impacts cannot be feasibly mitigated or avoided and what mitigation measures or alternatives were considered to reach these determination impacts. If column (b) is checked in (3) above describe what mitigation measures have been selected which will substantially reduce or avoid reasonably potential significant cumulative impacts except for those mitigation measures or alternatives mandated by application of rules of the Board of Forestry.

* (5) Provide a brief description of the assessment area used for each resource subject.

* (6) 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.

Note: * Items 4 through 6 can be found in the following Cumulative Impacts Assessment Addendum.

BOARD OF FORESTRY TECHNICAL RULE ADDENDUM NO. 2
CUMULATIVE IMPACTS ASSESSMENT

Introduction

The purpose of this addendum is to guide the assessment of cumulative impacts as required in 14 CCR 898 and 1034 that may occur as a result of proposed timber operations. In the process of preparing this NTMP, the RPF has distinguished between on-site impacts that are mitigated by application of the Forest Practice Rules and the interactions of proposed activities (which may not be significant when considered alone) with impacts of past and reasonably foreseeable future projects.

Information used in the assessment of cumulative impacts maybe supplemented during the NTMP review period, agencies participating in the plan review may provide input into the cumulative impacts assessment based on their area of expertise. Agencies should support their recommendations with documentation. The information gathered and used in the assessment of cumulative impacts for this NTMP are listed below under the heading, Identification of Information Sources

Identification of Resource Areas

A combination of map and written description for each of the resource assessment areas is provided for in the Appendix.

Identification of Information Sources

1. Consultation with Experts and Organizations:

Department of Fish & Game
California Natural Diversity Database
Wildlife & Habitat Data Analysis Branch
1807 13th Street, Suite 202
Sacramento, CA 95814

USFS –Tahoe National Forest
Yuba River
631 Coyote Street
Nevada City, CA 95959
Botanist/Plant Ecologist/
Noxious Weed Coordinator – Kathy Van Zuuk
Hydrologist – Tim Biddenger

County of Nevada
Planning Department
950 Maidu Ave. Suite 170
Nevada City, CA 95959
Planning Director – Jory Stewart

Brent McDermott - Landowner
Chris Hipkin – Statewide Forestry Services - FORSEE

North Central Information Center
Department of Anthropology
California State University Sacramento
Sacramento, CA 95819-6106

Department of Forestry & Fire Protection
CALFIRE
NTMP Forest Practice Database
6105 Airport Road
Redding, CA 96002

Department of Forestry & Fire Protection
CALFIRE
10242 Ridge Road
Nevada City, CA 95959
Area Forester – Rick Carr

2. Records Examined:

As provided in Section 898 of the rules, the RPF and the plan submitter have consulted with information sources that are reasonably available. The records consulted are listed below:

1. Anderson et. al., 1976. Forest and Water: Effects of forest management on floods, sedimentation, and water supply. Gen Tech. Report PSW-18.
2. Banci, V. 1994. Wolverine. Pgs 99-127 in Ruggiero, L.F., K.B. Aubry, S.W. Buskirk, L.J. Lyon, and W.J. Zielinski (editors), The Scientific Basis for Conservation of Forest Carnivores, American Marten, Fisher, Lynx, and Wolverine. General Technical Report RM-254. USDA Forest Service, Fort Collins, CO.
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6. Brown, G.W. 1974. *Fish Habitat*. USDA Forest Service. General Technical Report PNW-24, pp. E1-E15
7. Brown, G.W. 1985. Controlling Non-point Source Pollution from Silvicultural Operations: What We Know and Don't Know. In *Perspectives on Non-point Source Pollution*, pp. 332-333. U.S. Environmental Protection Agency.
8. Brown, G.W. 1972. Logging and Water Quality in the Pacific Northwest. In *Watersheds in Transition Symposium Proceedings, Urbana, IL*, pp. 330-334. American Water Resources Association
9. Brown, G.W., Forestry and Water Quality. College of Forestry, Oregon State University, Second Ed., 1991
10. California Department of Fish an Game Website (DFG 2000) – www.dfg.ca.gov/
11. Calif. Native Plant Society, Inventory of Rare and Endangered Vascular Plants of Calif., Special Publication #1.
12. California Native Plants Society Website – www.cnps.org
13. CalFlora Occurrence Database query. 3/09/10
14. Color Imagery, 2006 NAIP 1M NC
15. Curtis, J.G., D.W. Pelren, D.B. George, V.D. Adams, and J.B. Layzer. 1990. *Effectiveness of Best Management Practices in Preventing Degradation of Streams Caused by Silvicultural Activities in Pickett State Forest, Tennessee.* Tennessee Technological University, Center for the Management, Utilization and Protection of Water Resources
16. Daniel, Helms, and Baker, Principles of Silviculture, Second Edition
17. Duellman, W. E., and L. Trueb. 1986. Biology of Amphibians. McGraw-Hill Book Co., New York.
18. Dunning, D., 1942. A site classification for the mixed-conifer selection forests of the Sierra Nevada Res. Note PSW-RN-028. USDA.
19. Dunning, D., and Reineke, L.H. 1933. Preliminary Yield Tables for Second Growth Stands in the California Pine Region. Tech. Bull. 334, USDA.
20. Dyrness, C.T. Erodibility and Erosion Potential of Forest Watersheds. International Symposium on Forest Hydrology, Pergamon Press, New York, pp 599-611. 1966.
21. Fitch, H.S. 1936. Amphibians and reptiles of the Rogue River Basin, Oregon. American Midland Naturalist 17:634-652
22. Franklin, J.F. and J.A. Fites-Kaufmann. 1996. Assessment of late-successional forests of the Sierra Nevada. Pg 627-699 in Vol. II, Assessments and Scientific Basis for Management Options. Sierra Nevada Ecosystem Project, Final Report to Congress. Centers for Water and Wildland Resources, University of California, Davis CA.
23. Fowler, C. 1988. Habitat capability model for the northern Goshawk. USDA, Region 5 TNF, Nevada City, CA . 21 pgs.
24. Fuller, D.D., and A.J. Lind. 1992. Implications of fish habitat improvement structures for other stream vertebrates. (174k) Pages 96-104 in: Harris, R.; Erman, D., eds., Proceeding of the Symposium on Biodiversity of Northwestern California; 1991 October 28-30; Santa Rosa, CA.
25. Geluso, K. N. 1978. Urine concentrating ability and renal structure of insectivorous bats. J. Mammal. 59:312-323
26. Golden, M.S., C.L. Tuttle, J.S. Kush, and J.M. Bradley. 1984. *Forestry Activities and Water Quality in Alabama: Effects, Recommended Practices, and an Erosion-Classified System*. Auburn University Agricultural Experiment Station, Bulletin 555.Holland, R.F., 1986. Preliminary descriptions of the terrestrial natural communities of California. California Department of Fish and Game, Non-game Heritage Program, Sacramento, CA.
27. Holland, R.F., 1986. Preliminary descriptions of the terrestrial natural communities of California. California Department of Fish and Game, Non-game Heritage Program, Sacramento, CA.
28. Hanes, Richard O., 1993. Soil Survey of Tahoe National Forest Area. California. USDA Forest Service
29. Harr, et. al., 1975 Changes in stream hydrographs after road building and clear-cutting in the Oregon Coast Range. Water Resources Research 11.
30. Harr, et. al., 1979; Change in stream flow following timber harvest in southwestern Oregon. Res. Paper PNW 249 Portland, OR: USDA
31. Hawksworth, F.G., and Wien, D. 1996. Dwarf Mistletoes: Biology, Pathological, and Systematics. USDA, USFS Agricultural Handbook 709.
32. Hayes, M. P., and M.R. Jennings. 1988. Habitat correlates of distribution of the California Red-legged frog (Rana aurora draytonii) and the foothill yellow-legged frog (Rana boylii): Implication for management. Gen. Tech Report RM 166 RMRES, USFS.
33. Hewlett, J. D. 1982. Principles of forest hydrology. Athens: University of Georgia Press.
34. Holland, D.C. 1991. A synopsis of the ecology and status of Western Pond Turtle (Clemmys marmorata) in 1991.unpublished report, USFWS.

35. Huff, D.D., Hargrove, B., Tharp, M.L., Graham, R., Managing Forests for Water Yield – The Importance of Scale., Journal of Forestry, Vol., 98, # 12, Dec. 2000.
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37. Krumland, B. and Eng, H., 2005. , Report 4, Site Index Systems for Major Uoung-Growth Forest and Woodland Species in Northern California. State of California, The Resource Agency, CDF.
38. Larsen, Eric, and S. Yarnell. 1999. The Influence of Sediment Supply and Transport Capacity on Foothill Yellow-Legged Frog: South Yuba River. California. Dept. of Geology, University of California, Davis, CA.
39. Megahan, W.F. et. al., 1972. Effects of logging and logging roads on erosion and sediment deposition from steep terrain. Journal of Forestry 7.
40. Megahan, W.F. 1975. Sedimentation in relation to logging activities in the mountains of central Idaho: *Present and prospective technology for predicting sediment yields and sources*. ARS-S-40. USDA –ARS.
41. Megahan, W.F. 1980. Non-point Source Pollution from Forestry Activities in the Western United States: Results of Recent Research and Research Needs. In *U.S. Forestry and Water Quality: What Course in the 80s?, Proceedings of the Water Pollution Control Federation Seminar, Richmond, VA, June 19, 1980*, pp. 92-151.
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52. Smith, Sheri Lee, USFS Forest Health Protection, Supervising Entomologist, NE CA Shared Service Area
53. Squires, J.R., and Reynolds, R.T., 1997. Northern Goshawk Habitat Model. USFWS.
54. Stebbins, R.C. 1985. A field guide to western reptiles and amphibians. 2nd ed. Boston; Houghton Mifflin.
55. Steinhart, Peter. Calif. Wild Heritage, Threatened and Endangered Animals in the Golden State. Calif. Department of Fish & Game. 1990
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59. USDA, Mistletoe of North American Conifers, RMRS-GTR-98 2002.
60. USDA, California Wildlife and Their Habitats: Western Sierra Nevada. General Technical Report, PSW-37., 1980.
61. USGS Washington 7.5 Min Quadrangle
62. Van Zuuk, K. USDA – Forest Service TNF – TNF Sensitive Plant Program Standards and Guidelines, 1996.
63. Verner, J., and A.S. Boss. 1980 California wildlife and their habitats: Western Sierra Nevada. General Technical Report PSW-37. Berkeley, CA: USFS PSW
64. Verner, et al 1992. The California Spotted Owl: A technical assessment of its current status. Gen Tech. Rep. PSW-GTR133.
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66. Zeimer, et. al., 1991 Modeling the cumulative watershed effects of forest management strategies. Journal of Environmental Quality.
67. Zweifel, R.G. 1955. Ecology, distribution, and systematic of frogs of *Rana boylei* group. University of California Publications in Zoology 54.

Past and Future Activities Past and future projects included in the cumulative impacts assessment shall be described as follows: A) Identify and briefly describe the location of past and reasonably foreseeable probable future projects within described resource assessment areas. B) Identify and give the location and description of any known, continuing significant environmental problems caused by past projects as defined in 14 CCR 895.1,

Past Projects means previously approved, on-going, or completed projects, which may add to or lessen impact(s) created by the NTMP under consideration. These generally include, but may not be limited to, projects completed within the last ten years.

Reasonably, Foreseeable Probable Future Projects means projects with activities that may add to or lessen impact(s) of the proposed NTMP including but not limited to:

1) if the project is a NTMP on land which is controlled by the NTMP submitter, the NTMP is currently expected to commence within but not limited to, 5 years or,
2) if the project is a NTMP on land which is not under the control of the NTMP submitter the NTMP has been submitted or on-the-ground work including NTMP preparation has materially commenced, or
3) if the project is not a NTMP, and a permit is required from a public agency, and the project is under environmental review by the public agency, or
4) if the project is one which is under taken by a public agency, the agency has made a public announcement of the intent to carry out the project.

Past and future projects included in the cumulative impact assessment shall be described as follows:

A. Identify and briefly describe the location of past and reasonably foreseeable probable future projects as defined in 14 CCR 895.1 within described resource assessment areas.

- From the late 1800's to the early 1900's, iinimg was very active within the assessment area. Both hydraulic and hard rock mining occurred extensively throughout the assessment area. Three extensive hydraulic mining sites occur within the lower portion of the cumulative impacts assessment area (CIAA), Buckeye Diggings, Sailor Flat, and Gas Canyon Diggings. These mines contributed to the filling of the channel in the lower reaches of Greenhorn Creek. The Sawyer Decision of 1884 ended this practice and hard rock mining began to gain popularity.
- Portions of the assessment area, owned by the USFS, were tractor logged in the 1940s and 1950s.
- From the 1960's to the present, tractor, cable, and helicopter logging has occurred throughout much of the assessment area on a regular basis.

Past Projects: During the past 10 years, private timber harvesting operations have occurred within the planning watershed. The following is a checklist of timber harvest plans, which have been filed or have occurred wholly or partially within the assessment area. Records checked include CDF Forest Practice Database and CDF Area Foresters' files and maps.

Table 1 – Area affected by timber harvesting in the past 10 years for the Buckeye Ridge Watershed – 5516.340304 – 10,670 Acres

	Silviculture	Acres	Percent
Pre-harvest	Selection/Group Selection	2700	25.3
	Shelterwood, Removal Step	1000	9.4
	Shelterwood Prep Step	0	0
	Seed Tree Seed Step	3	>.1
	Seed Tree, Removal Step	21	.2
	Rehabilitation	34	.3
	No harvest area	42	.4
	Fuel Break	10	>.1
	Right of Way (Road Const.)	2	>.1
	Sanitation Salvage	608	5.7
	Clearcut	248	2.3
	Commercial Thin	35	.3
	Transition	176	1.6
	Total area - Post Harvest	**4,879**	**45.7**

	Silviculture	Acres	Percent
Proposed Harvest	Selection	40	.4
	Total	40	
	Cumulative Total Post Harvest	**4,919**	**46.1**

NTMPs Submitted to Cal Fire within the Watershed Assessment Area (WAA) from 2000 to 6/15/2010

Harvest Document	Section	Township	Range	Silviculture	Acres
2-00-208 NEV	18	16N	10E	Shelterwood Removal	12
2-01-118 NEV	18	16N	10E	Alt. Shelterwood Removal	47
	24	16N	9E	Sanitation/Salvage	7
	13	16N	9E	Selection	34
	13	16N	9E	Shelterwood Removal	11
2-01-095 NEV	24	16N	9E	Alt. Shelterwood Removal	52
2-02-186 NEV	10	16N	10E	Selection	18
				Shelterwood Removal	26
2-02-108 NEV	2	16N	10E	Selection	46
	11	16N	10E	Shelterwood Removal	27
2-02-086 NEV	3	16N	10E	Alt. Shelterwood Removal	35
	34	17N	10E	Shelterwood Removal	20
2-03-108 NEV	4/33	16N	10E	Alt. Shelterwood Removal	78
2-03-084 NEV	2/11	16N	10E	Alt. Shelterwood Removal	46
2-03-073 NEV	33	17N	10E	Alt. Shelterwood Removal	20
2-03-068 NEV	7	16N	10E	Group Selection	10
	8	16N	10E	No-harvest	8
				Shelterwood Removal	150
2-03-041 NEV	2	16N	10E	Alternative (clearcut)	5
	3	16N	10E	Fuelbreak/Defensible Space	10
	4	16N	10E	Selection	4
	33/34	17N	10E	Shelterwood Removal	167
2-03-022 NEV	1/2	16N	10E	Alt. Group Selection	356
	9/10	16N	10E	Group Selection	950
	11/15	16N	10E	Rehabilitation	20
	16/20	16N	10E	Sanitation/Salvage	549
	21/22	16N	10E	Selection	220
2-03-019 NEV	4/9	17N	10E	Alt. Seed Tree Removal	21
		17N	10E	Alt. Shelterwood Removal	42
		17N	10E	Clearcutting	19
		17N	10E	No-harvest	34
		17N	11E	Seed Tree Seed Step	1
		17N	10E	Selection	13
2-04-215 NEV	2	16N	10E	Alt. Shelterwood Removal	89
	35	17N	10E		
2-04-087 NEV	16	16N	10E	Alt. Shelterwood Removal	17
2-05-195 NEV	11	16N	10E	Alt. Shelterwood Removal	49
2-05-063 NEV	12/13	16N	10E	Shelterwood Removal	27
2-05-058 NEV	16	16N	10E	Selection	19
		16N	10E	Shelterwood Removal	23
2-07-141 NEV	33/34	17N	10E	Group Selection	353
		17N	10E	Sanitation/Salvage	36
2-07-128 NEV	21	16N	10E	Shelterwood Removal	15
2-07-062 NEV	14	16N	9E	Selection	9
2-08-029 NEV	34	17N	10E	Alt. Shelterwood Removal	24
		17N	10E	Seed Tree Seed Step	2
		17N	10E	Selection	9

		17N	10N	Shelterwood Removal	1
2-08-020 NEV	3	16N	10E	Alt. Clearcut	179
	5	16N	10E	Clearcutting	45
	6	16N	10E	Commercial Thinning	35
	10	16N	10E	Group Selection	563
	17	16N	10E	Rehabilitation	14
		16N	10E	Right of Way (Road Construction)	2
		16N	10E	Sanitation/Salvage	16
		16N	10E	Selection	96
2-08-005 NEV	16	16N	10E	Shelterwood Removal	22
2-09-018 NEV	1	16N	10E	Transition	176
				Total	**4879**

An evaluation was made on the relative level of activity that may be associated with the watershed. Field evaluations included observations of watercourse conditions at existing public roadway crossings and overview observations as available from public access points. No ongoing problems related to past harvests were found to be apparent in these observations.

Future Projects:

Letters were sent to the USFS Yuba River Ranger District requesting information regarding future projects. USFS representatives identified no past, present, or future timber harvesting within the Watershed Assessment Area.

A letter was sent to Nevada County Planning Department requesting information regarding future projects. No response from county as of filing of this document.

B. Identify and give the location of any known, continuing significant environmental problems caused by past projects as defined in 14 CCR 895.1.

There are no known continuing environmental problems caused by past projects within the project area.

APPENDIX - TECHNICAL RULE ADDENDUM NO. 2

General Site Description

Watershed Assessment:

The planning watershed encompasses approximately 10,670 acres based on the (CALWATER 2.2 Version, Buckeye Ridge, 5517.340304; USGS Washington, Dutch Flat, Chicago Park, and North Bloomfield Quadrangle, 7.5-Minute Series. The Planning watershed in split into three distinct areas of ownership; private industrial forestland is approximately 27% or 2800 acres, Public ownership including the national forestland is approximately 33% or 3570 acres, and other private non-industrial forestland is approximately 40% or 4,300 acres.

The assessment area starts in Section 5, T16N, R10E, just north of Fowler Springs and Sailor Flat, heading south west across Quaker Hill and through Cascade Shores subdivision in Sections 7, crossing into T16N, R9E and Section 12, and then turning south – south east crossing Sections 13, 14, and 24 to the south end of Buckeye Ridge. The assessment area crosses back into T16N, R10E, Section 19, and then turns east across Sections 30 and 29 and then turning northeast along Chalk Bluff Ridge for approximately five miles through Sections 21, 22, 15, 10, past King Woolford Mill Site, and continuing through Sections 11, 2 and 1. Turning west, the assessment area boundary follows the ridge through Section 2, crossing into T17N, 10E, Section 35, 34, 33, and 32, and then crossing back into T16N, R10E and Section 5 to the point of beginning.

The rationale for choosing the size and location of the watershed assessment area (WAA) is based on the proposed project size, on-site and off-site impacts, and surrounding topography as they relate to; water quality, soil productivity, biological, recreation, and visual impact that could be caused by this project.

The project area is located at the headwaters of a Class III watercourse, a tributary to Greenhorn Creek, which flows south into the Bear River at Rollins Reservoir. The Upper Bear river is listed as a 303(d) water body. The segment listed is that portion of the river above Rollins Reservoir. The stressor identified in the Basin Plan for this river is mercury, a result of hydraulic gold mining.

Beneficial uses identified for the Bear River drainage by the Central Valley Regional Water Quality Control Board Basin Plan include: municipal/domestic water supply, irrigation, stock watering, power industry, contact and non-contact water-based recreation, warm freshwater habitat, cold water fisheries spawning habitat and wildlife habitat. All of the main streams support native fish populations including rainbow and brown trout. Amphibians have been observed in many of the drainages within the assessment area and a portion of the WAA in within the historic range of the California Red-Legged Frog.

Currently, the primary activities within the assessment area are associated with recreation, timberland management, and residential development. As urbanization and rural growth increase, the demand for wood products will also rise to meet the demands for building materials and paper products. As the developing population centers grow in rural area, forestlands boarding these areas will be progressively cleared to accommodate new residential and/or commercial growth. Historically, as these areas become more populated, the concerns of residents will ultimately limit timber management on nearby lands.

In areas that have not been converted from timber production to another use, it is likely that timber harvesting will continue in these areas and that non-industrial timberlands will be re-entered at intervals following the cyclic rise and fall of the log market. It is unlikely that the Tahoe National Forest will prepare any timber sales in the near future within the assessment area. If they should, their management directives would consist of selectively harvesting trees from below and would most likely be confined to ridge top logging.

Over the past 10 years, timber harvesting has affected approximately 46 percent of the watershed assessment area. In general, these impacts are temporary in nature when compared to urbanization and rural growth. Timberland site recovery is estimated using recovery curves. The base disturbance coefficient impact values which are the backbone to site recovery estimates are the result of approximating the watershed's ability to absorb land use activities without causing significant detrimental effects to the beneficial uses of water. For example, full site recovery from harvesting activities can occur within 9 to 15 years depending on the type of selected silviculture and harvesting practice. In comparison, urbanization and rural growth areas cannot recover assuming continued site occupancy.

Over time, the affect of timber harvesting based on total acreage within the watershed will change as site recovery and/or more harvesting occurs. The Forest Practice Rules (FPRs), Best Management Practices (BMPs), and mitigation measures work to reduce these affects to insignificant levels. The following is an evaluation of possible adverse impacts and proposed mitigation to reduce to insignificant levels, activities that may occur by the implementation of this project within the assessment area.

Watercourse Condition:

The Class III watercourse within the project area is a seasonal, intermittent stream, which dries up during summer. This watercourse will not support a resident fishery. Physical inspection was conducted during the flagging of the watercourse. The watercourse within the project area is in good condition with little sign of embedded gravel. Pools when existing are quiet relative to the steam size. Bank cutting is minor with no mass wasting, some down cutting has occurred. The stream channel has some small cobble and gravel; some large organic material exists in isolated areas. Streamside vegetation is adequate along the entire watercourse relative to the location and size.

The Class III watercourse is a low gradient, 1st order watercourse characterized by a moderately confined channel migration zone three to ten feet wide with a low riffle gradient (1 to 5%) in the upper reach above the failed pond. The lower reach is characterizes by a well-defined, V shaped channel with little area of flood plain. Some large woody debris exists throughout the watercourse.

The past water impoundment activity has caused some minor erosion within the watercourse. The gentle slopes and canopy cover has kept erosion to a minimum. Pools in the up reaches of the stream channels seem to be in good shape and the streamside buffers appear to be functioning well.

A. - WATERSHED RESOURCES:

The effects of forestry activities on water quality have been widely studied. Water quality concerns related to forestry were addressed in the 1972 Federal Water Pollution Control Act Amendments and later, more comprehensively, as non point sources under section 208 of the 1977 Clean Water Act and section 319 of the 1987 Water Quality Act.

Water pollution is generally divided into two primary categories: Point sources and non-point sources. Point sources of pollution generally come out of a pipe. They are the effluent of discrete processing or manufacturing activities and are subject to direct end-of-pipe control. Non-point sources of pollution (NPS) are diffuse and generally result from diverse land use activities such as agriculture, forestry, construction, resource extraction, urban runoff, hydro-modification, and others. Pollutants often come from many sources and travel numerous pathways to the watercourse. The initiation of a pollution event is subject to storm events, which are as unpredictable as the weather. Pollution problems are the result of past and present land use and the responsible party may be difficult to identify.

Fisheries and domestic water are the designated beneficial uses of greatest concern to the public. Coldwater fisheries are generally regarded to be the most sensitive to forest management.

Without adequate controls, forestry operations may degrade several water quality characteristics in watercourses and/or lakes receiving drainage from forestlands. Sediment concentrations can increase due to accelerated erosion; water temperatures can increase due to removal of overstory riparian shade; slash and other organic debris can accumulate in watercourses and/or lakes, depleting dissolved oxygen; and organic and inorganic chemical concentrations can increase due to harvesting and fertilizer and pesticide applications (Brown, 1985). These potential increases in water quality contaminants are usually proportional to the severity of site disturbance (Riekerk, 1983, 1985; Riekerk et al., 1989). Impacts to these resources depend on site characteristics, climatic conditions, and the forest practices employed.

The way in which an individual NTMP is determined to comply with FPRs and other federal and state laws is determined first by compliance with specific standards in the FPRs and then by development of site-specific mitigation measures in response to potential significant impacts identified within the NTMP. Compliance is attained by a wide variety of detailed mitigation measures tailored to local conditions including, but not limited to, consideration of slope stability, erosion hazard, road and skid trail location, WLPZ width, BMPs on hill slopes and within WLPZs, and wildlife and fish habitat. Consequently, most adverse significant impacts of individual NTMPs can be mitigated to levels of insignificance.

Cumulative Watershed effects (CWEs) occur within and near bodies of water or significant wet areas, where individual impacts are combined to produce an effect that is greater than any of the individual impacts acting alone. Factors that have been considered in the evaluation of cumulative watershed impacts are listed below.

Watershed impacts have been based on significant on-site and down-stream cumulative affects on beneficial uses of water, as defined and listed in applicable Water Quality Control Plans.

Watershed effects produced by timber harvest and other activities may include one or more of the following: Sediment, Water Temperature, Organic Debris, Chemical Contamination, and Peak Flow. Each of these potential effects is assessed below.

1. **Sediment Effects:** Sediment-induced CWEs 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.

Sediment is often the primary pollutant associated with forestry activities (Pardo, 1980). Under CEQA, the threshold of significance for sediment delivery to streams is based upon the reduction of management-related sediment such that discharge to streams will not degrade or impede the recovery of beneficial uses. Background turbidity would include some continuing effects of past forestry related activities during a particular storm prior to the proposed project, while natural turbidity would be the turbidity that occurs during a particular storm before any timber harvest or other ground-disturbing management activities.

Sediment transported from forestlands into water bodies can be particularly detrimental to aquatic life. When it settles, sediment fills interstitial spaces in lake bottoms or streambeds. This can eliminate essential habitat, covering food sources and spawning sites and smothering bottom-dwelling organisms and periphyton. Sediment deposition also reduces the capacity of stream channels to carry water and of reservoirs to hold water. This decreased flow and storage capacity can lead to increase flooding and decreased water supplies (Golden, et al., 1984).

Suspended sediments increase water turbidity, thereby limiting the depth to which light can penetrate and adversely affecting aquatic vegetation photosynthesis. Suspended sediments can also damage the gills of some fish species, causing them to suffocate, and can limit the ability of sight-feeding fish to find and obtain food.

Turbid waters tend to have higher temperatures and lower dissolved oxygen concentrations. A decrease in dissolved oxygen levels can kill aquatic vegetation, fish, and benthic invertebrates. Increases (or decreases) in water temperature outside the tolerance limits of aquatic organisms, especially cold-water fish such as trout and salmon, can also be lethal (Brown, 1974).

Sediment-induced CWEs within the project area will be minimized or completely negated below significant levels with the application of WLPZ on the Class III watercourse and mitigation measures described at the end of this section.

2. **Water Temperature Effect:** Water temperature related CWEs are changes in water chemistry or biological properties caused by the combination of solar warmed water from two or more locations (in contrast to an individual effect that results from impacts along a single stream segment) where natural cover has been removed.

Water temperature is influenced by many factors including latitude, altitude, season, time of day, flow, channel width and depth, groundwater flow, and shading from topography or vegetation. Increased temperatures in streams and water bodies can result from vegetation removal in the riparian zone from either harvesting or herbicide use. These temperature increases can be dramatic in smaller (lower order) streams, adversely affecting aquatic species and habitat (Brown, 1972; Megahan, 1980;Curtis et al., 1990). Increased water temperatures can also decrease the dissolved oxygen holding capacity of a water body, increasing biological oxygen demand levels and accelerating chemical processes (Curtis et al., 1990).

Water temperature related CWEs within the project area would be minimized or completely negated below significant levels with the application of WLPZ and mitigation measures described at the end of this section.

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

Removing streamside vegetation can reduce the natural, annual inputs of litter to the stream (after decomposition of logging-related litter). This can cause both a drop in food supply, and resultant productivity, and a change in types of food available for organisms that normally dominate the lower food chain of streams with an overhanging or adjacent forest canopy.

Organic debris related CWEs will be minimized or completely negated below significant levels with the application of the Class III WLPZ and mitigation measures described at the end of this section.

4. Chemical Contamination Effects: Potential sources of chemical CWEs 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.

Herbicides, insecticides, and fungicides (collectively termed pesticides) used to control forest pests and undesirable plant species, can be toxic to aquatic organisms. Pesticides that are applied to foliage or soils, or are applied by aerial means, are most readily transported to surface waters and ground waters (Norris and Moore, 1971). Some pesticides with high solubility can be extremely harmful, causing either acute or chronic effects in aquatic organisms, including reduced growth or reproduction, cancer, and organ malfunction or failure (Brown, 1974). Other "chemicals" that may be released during forestry operations include fuel, oil, and coolants used in equipment for harvesting and road-building operations.

Chemical contamination related CWEs are not expected to occur as a result of this project. The potential of chemical contamination of watercourse will be minimized or completely negated below significant levels with the application of the Class III WLPZ. Ground based equipment used in timber operations will not be serviced in locations where servicing will allow grease, oil, or fuel to pass into the watercourse. Pesticides and chemical road treatments are not proposed to be used as part of this project.

The plan does not prescribe for the use of any chemicals to be used for forest management or road stabilization. There will be no significant chemical contamination effects as a result of this operation.

5. Peak Flow Effects: CWEs caused by management-induced peak flow increases in streams during storm events and 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 in sloped roads). These increases, however, are likely to be small relative to natural peak flows from medium and large storms. The effects of management activities on channel conditions indicate that channel changes during storm events are primarily the result of large sediment inputs.

The effects of changes in stream flows are highly site-dependent. The potential for peak flow effects due to timber harvest are related to the amount of timber harvested in relation to the basin size. Increased peak flows have the potential effects to scour channels, erode stream banks, and increase sedimentation to levels higher than pre harvest levels.

Increases in peak flow can also occur as a result of road building, though these effects are usually only evident in smaller basins (Ziemer et. al., 1991). Roads intercept groundwater in road cuts, surface flow from small drainages, and direct rainfall (Best et al., 1995; Megahan, 1975). Roads can gather and transmit rainfall faster than the natural landscape, altering basin hydrology (Harr et al., 1975; Harr et al., 1979; Jones and Grant, 1996). Roads can act as an extension of the drainage network.

Peak flow related CWEs are expected to be unchanged to natural peak flows. The US Geological Survey considers stream-flow measurements within 5 percent of the actual value for 95 percent of the observations to be "excellent" and there is considerable annual variability in runoff, it should be obvious that the expected changes are unlikely to be measurable (Huff, Hargrove, Tharp, and Graham, 2000)

Although a slight and immeasurable increase in flows could occur due to decreased evapotransporation and the opening of roads, landings, and skid trails, the impacts of these activities will be minimized or completely negated to insignificant levels with the application of the FPRs and mitigation proposed.

To protect water quality, and reduce the potential for sediment transport, and increased flow the following mitigation measures are required:

Mitigation:

a) Upon completion of timber operations the LTO and RPF shall evaluate the WLPZ, skid trails, roads and landings for sites where sediment could potentially be transported into watercourses. If any are found, the following soil stabilization procedures apply:

- All landings will be sloped and ditched to prevent water from accumulating on the landing, and properly drained so that landing and road drainage flows cannot transport erosive material to the WLPZ. If necessary to prevent drainage flows from carrying erosive materials into the WLPZ, drainage lead-outs shall be treated by mulching with logging slash to a depth of 2 inches over all the exposed mineral soil. If insufficient slash is available, straw mulch as specified above may be substituted.

- Landings shall be seeded with a mix of ephemeral cereal grass seed at a rate of not less than 40 lbs/acre prior to 15 October if operations are completed by 30 September or within 10 days after 15 October if operations are delayed into October.

- Upon completion of timber operations or before the start of each winter period after operations commence, which ever is first, the LTO shall break down the berm on the outside edge of all main roads (haul or skid) to allow drainage to freely move off the road running surface.

Considering the level of disturbance from activities proposed in this NTMP as they relate to the hydrological characteristics of the assessment area, the potential for significant adverse cumulative impacts on water quality, downstream domestic water supplies or other watershed related resources is considered negligible.

B. - SOIL PRODUCTIVITY:

Cumulative soil productivity impacts occur when the effects of two or more activities, from the same or different projects, combine to produce a significant decrease in soil biomass production potential. These impacts most often occur on-site within the project boundary, and the relative severity of productivity losses for a given level of impact generally increases as site quality declines. The primary factors influencing soil productivity that can be affected by timber operations include: Organic matter loss, Soil compaction, Surface soil loss, Growing space loss.

The Soil Productivity Assessment Area coincides with the NTMP boundary. The rationale for choosing this area being, it is the only area where the soil will be disturbed by the operations. It is also the boundary recommended by the Board of Forestry Technical Rule Addendum Number 2.

Accelerated (management-induced) erosion and sediment production are often the greatest effects of logging, road building, and residential development in forested areas (Hewlett 1982; Anderson et al. 1976). On-site factors contributing to the accelerated erosion process include the compaction of soil, most often caused by heavy equipment and loss of surface organic matter. Soil compaction results in the decrease movement of water and air into and through the soil. The decreased soil aeration, which can decrease microbial activity and root growth penetration, can diminish plant growth. A decrease in available water capacity results in an increased surface runoff, leading to accelerated erosion. The loss of organic matter from increased surface runoff or logging activities can also affect the short- and long-term nutrient supply to vegetation. Surface organic matter acts as erosion protection and can decrease the compacting effects of ground; based heavy equipment. Organic matter in the soil increases water storage and soil stability.

An increase in erosion from on-site logging activities, beyond natural levels, can result in the decrease of soil depth and an increase of sedimentation and turbidity into watercourses. Loss of soil depth can decrease the available water capacity, nutrient storage and rooting volume. The result of decreasing soil depth is decreased soil productivity.

Timber harvest, fuel reduction and reforestation activities result in direct, indirect and cumulative soil effects. Direct effects on soils include: reduction of soil cover and increase in compaction due to the construction of new or re-opening of existing roads, skid trails and landings; loss of nutrients and organic material through the removal of small material, such as tree tops and limbs and reduction in the number of trees available for recruitment of large woody debris. Indirect effects include acceleration of erosion from overland flow due to increased compaction and reduction in infiltration. Together, these direct and indirect effects may result in the reduction of overall long-term productivity of the soil.

1. Organic Matter Loss: Displacement or loss of organic matter can result in a long-term loss of soil productivity. Soil surface litter and downed woody debris are the store-house of long term soil fertility, provide for soil moisture conservation, and support soil microorganisms that are critical in the nutrient cycling and uptake process. Much of the chemical and microbial activity of the forest nutrient cycle is concentrated in the narrow zone at the soil and litter interface.

Displacement of surface organic matter occurs primarily from skidding, and mechanical site preparation, activities. Actual loss of organic matter can occur as a result of burning or erosion. The effects of organic matter loss on soil productivity may be expressed in terms of the percentage displacement or loss as a result of all project activities.

Organic matter loss as a result of this proposed project is expected to be low and temporary in nature. Immediately after logging, there will be a large infusion of organic matter onto the site in the form of slash. In the years following logging, there will be a slight decrease in the amount of organic matter deposited onto the site until the trees and brush grow to a size where they will produce a yearly leaf drop. This decrease is not considered significant because there will be plenty of residual vegetation immediately after logging that will supply annual leaf and litter fall.

Displacements of surface organic matter as a result of slash piling activities are expected to have the greatest impacts. Retention of organic matter in these areas can be accomplished by hand pilling, or using mastication for the treatment of slash. This method should leave sufficient slash and duff on the site to provide good ground cover and minimize erosion. Approximately 40% of organic matter should be retained using this method.

Although a decrease in organic matter on site could occur, the impacts of the operation will be minimized or completely negated below significant levels with the application of the FPRs.

2. Surface Soil Loss: The soil is the storehouse of current and future site fertility, and the majority of nutrients are held in the upper few inches of the soil profile. Topsoil displacement or loss can have an immediate effect on site productivity, although effects may not be obvious because of reduced brush competition and lack of side-by-side comparisons or until the new stand begins to fully occupy the available growing space.

There will be some surface soil loss primarily on the existing skid trails, and landings. The plan area soil productivity values will be maintained by limiting the construction of new roads, landings and skid trails, and installing and maintaining erosion control structures as specified in this plan. Some displacement of topsoil is unavoidable; actual accelerated loss of topsoil may be reduced to insignificance by proper installation and maintenance of erosion control structures.

Surface soil loss is expected to be negligible if the application of the FPRs, and BMPs, are implemented. The following FPRs, and BMPs, will be implemented to reduce impacts of surface soil loss within the project area.

- Use of skid trails will be limited in number and width to the minimum necessary for removal of logs.
- Existing skid trials will be used instead of constructing new skid trails.
- Ground based equipment will not be operated on unstable areas.
- All waterbreaks shall be installed no later than the beginning of the winter period of the current year of timber operations. 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.
- Waterbreaks will be constructed immediately upon conclusion of use of tractor roads, roads, and landings which do not have permanent and adequate drainage facilities, or drainage structures.
- Waterbreaks or any other erosion controls on skid trails, cable roads from end lining, and firebreaks, shall be maintained during the prescribed maintenance period and during timber operations. The prescribed maintenance period for waterbreaks and any other erosion control facilities on skid trails, and firebreaks, shall be at least one year

3. Soil Compaction: Compaction affects site productivity through loss of large soil pores that transmit air and water in the soil and by restricting root penetration. Ground based equipment has by far the greatest effect on soil compaction. The number of passes a machine makes over a soil is a major factor in causing compaction. The greatest increases in soil bulk density occur in the first few passes. Therefore, dispersed skidding operations can cause more compaction over an area than concentrated skidding operations.

Reduction in tree growth is the most prominent effect related to soil compaction, most often caused by heavy equipment and loss of surface organic matter. Soil compaction results in the decreased movement of water into and through the soil. A decrease in available water capacity results in an increased surface runoff leading to accelerated erosion. Compaction also results in decreased soil aeration, which can decrease microbial activity, and root growth penetration, which decreases plant growth.

The amount of compaction will depend on how efficiently skid trails are planned and used. Since tractor logging can cause significant amounts of compaction, this could result in locally significant effects on soil productivity. Best management practices can alleviate or minimize soil compaction, although some compaction and erosion cannot be avoided, due to the nature of timber harvest methods. Such practices include using existing roads and skid trails and designing skid trails to minimize their total area. Potential loss of timber productivity due to soil effects can be more than offset by management practices that increase growth rates such as control of stocking density and competing vegetation and by planting of improved (faster growing) seedlings.

The soil surface will experience some compaction on the skid trails, and landings. However, the increase in soil compaction within the plan area and/or the watershed is considered negligible. Most soil compaction occurs when heavy equipment is operated during periods of saturated soil. Dispersed skidding operations can cause more compaction over an area than concentrated skidding operations.

Soil compaction is expected to be negligible if the application of the FPRs, and BMPs, are implemented.

4. Growing Space Loss: Forest growing space is lost to roads, landings, permanent skid trails, and other permanent or non-restored areas subjected to severe disturbance and compaction.

Growing space loss is not expected to occur as a result of the proposed forestry activities. Growing space is lost to roads, landings, permanent skid trails, and other permanent or non-restored areas subjected to severe disturbance and compaction. Forestry activities will result in some reduction of forest growing space due to the construction and opening of landings and skid trails. No new roads or landing are required to manage this property.

The loss of forest growing space will be reduced by the implementation of current FPRs and BMPs.

Considering the level of disturbance from activities proposed within this NTMP as they relate to the characteristics of soil productivity within the assessment area, combined with the current Forest Practice Rules, and Best Management Practices, the potential for significant adverse cumulative impacts are considered negligible.

C. - BIOLOGICAL RESOURCES:

Scoping: The scoping process to identify species (Avian, Mammals, Aquatic, and Plants) and habitats (e.g. wetlands, vernal pools, serpentine outcrops) includes; an on-site inspection at various times throughout the preparation of the NTMP; CNDDB records check for listed species and associated habitats; review of the CNPS Inventory of Rare and Endangered Plants of California database; Tahoe National Forest Sensitive Plant Program Standard & Guidelines; personal communication with landowners, foresters and wildlife biologists; professional experience; reconnaissance–level field surveys over a 6 month period, which identified and reviewed micro site conditions within and adjacent to the project area, for species that may occur on those sites under limiting conditions, and published research as cited in Section IV, Cumulative Impacts Assessment, Item 2, Records Examined.

Wildlife resources in general were reviewed at the project area, assessment area, and watershed landscape levels. As a result of the scoping process, the analysis did not revealed any critical habitat that this project would negatively impact. The project area does not include late seral forest stands as defined by the FPRs 14 CCR 895.1, and there have been no reported sightings of any species that are rare, endangered, threatened, or species of special concern within the NTMP boundary. The RPF has not identified any threatened, endangered, or sensitive species while conducting fieldwork or reconnaissance-level surveys. If a sensitive species, including key habitat, associated with the plan area, is discovered at any time during operations, operations will immediately be suspended until necessary mitigations are established, as determined by the RPF, the California Dept. of Forestry and Fire Protection, and other agencies if necessary.

Preparation of this document included an assessment of the potential impacts of project construction on wildlife resources and habitats located within the project area. The project is not expected to result in a significant effect on wildlife resources, no mitigation is deemed necessary.

The biological assessment area is the area within 1 mile surrounding the NTMP boundary. The rationale for choosing this area is that after collecting wildlife information from the various resources available, it is felt that wildlife outside of this area would not be significantly impacted from this harvesting operation.

Factors to consider in the evaluation of cumulative biological impacts include:

1. Any known rare, threatened, or endangered species or species of special concern (as described in the Forest Practice Rules) that may be directly or indirectly affected by project activities.

Significant cumulative effects on listed species may be expected from the results of activities over time, which combine to have a substantial effect on the species or on the habitat of the species.

2. Any significant, known wildlife or fisheries resource concerns within the immediate project area and the biological assessment area (e.g. species requiring special elements, sensitive species, and significant natural areas).

Significant cumulative effects may be expected where there is a substantial reduction in required habitat or the project will result in substantial interference with the movement of resident or migratory species.

The significance of cumulative impacts on non-listed species viability should be determined relative to the benefits to other non-listed species. For example, the manipulation of habitat results in conditions, which discourage the presence of some species while encouraging the presence of others.

3. The aquatic and near-water habitat conditions on the NTMP and immediate surrounding area. Habitat conditions of major concern are: Pools and riffles, large woody material in the stream, near-water vegetation. Much of the information needed to evaluate these factors is described in the preceding Watershed Resources section. A general, discussion of their importance is given below:

a. Pools and Riffles: Pools and riffles affect overall habitat quality and fish community structure. Streams with little structural complexity offer poor habitat for fish communities as a whole, even though the channel may be stable. Structural complexity is often lower in streams with low gradients, and filling of pools can reduce stream productivity.

- There are no watercourses within the project area that support a resident fish population.

b. Large Woody Material: Large woody debris in the stream plays an important role in creating and maintaining habitat through the formation of pools. These pools comprise important feeding locations that provide maximum exposure to drifting food organisms in relatively quiet water. Removal of woody debris can reduce frequency and quality of pools.

- Where feasible, large woody debris shall be left on site.

c. Near-Water Vegetation: Near-water vegetation provides many habitat benefits, including: shade, nutrients, vertical diversity, migration corridors, nesting, roosting, and escape. Recruitment of large woody material is also an important element in maintaining habitat quality.

- All hardwoods shall be retained within the WLPZ, except for those damaged due to conifer removal- and these shall not be removed from the WLPZ, but shall be left on site as downed woody debris.
- Riparian areas within the project area will be protected during logging operations with WLPZ. The Class III WLPZ should provide sufficient protection measures so that the resources (vegetation & water) within the zones will not be significantly affected.

4. The biological habitat condition of the NTMP and immediate surrounding area. Significant factors to consider are:

Snags/den trees
Downed, large woody debris
Multistory canopy
Road density
Hardwood cover
Late seral (mature) forest characteristics.
Late seral habitat continuity

a. Snags/Den/Nest Trees: Snags, den trees, nest trees and their recruitment are required elements in the overall habitat needs of more than 160 wildlife species. Many of these species play a vital role in maintaining the overall health of timberlands. Snags of greatest value are >16" D.B.H. and 20 ft. in height. The degree of snag recruitment over time should be considered. Den trees are partially live trees with elements of decay that provide wildlife habitat. Nest trees have importance to birds classified as a sensitive species.

- All hardwoods shall be retained within the WLPZ, except for those damaged due to conifer removal- and these shall not be removed from the WLPZ, but shall be left on site as downed woody debris.
- The current snag density is approximately 2 per acre. Snags are not proposed for harvest.

b. Downed large, woody debris: Large downed logs (particularly conifers) in the upland and near-water environment in all stages of decomposition provide an important habitat for many wildlife species. Large woody debris of greatest value consists of downed logs >16" diameter at the large end and >20 feet in length.

- Where feasible, large woody debris shall be left on site. Recruitment will occur from harvest activity and natural process.

c. Multistory canopy: Upland multistoried canopies have a marked influence on the diversity and density of wildlife species utilizing the area. More productive timberland is generally of greater value and timber site capability should be considered as a factor in an assessment. The amount of upland multistoried canopy may be evaluated by estimating the percent of the stand composed of two or more tree layers on an average per acre basis.

Near-water multistoried canopies in riparian zones that include conifer and hardwood tree species provide an important element of structural diversity to the habitat requirements of wildlife. Near-water multistoried canopy may be evaluated by estimating the percentage of ground covered by one or more vegetative canopy strata, with more emphasis placed on shrub species along Class III and IV streams (14 CCR 936.5).

- Within the BAA, there exist three main management styles resulting in differing forest types. Federal, Non-industrial and industrial timberlands combined will provide for the diversity of forest types, including the multistory canopy needed to maintain the diversity and density of wildlife species utilizing the area.

d. Road Density: Frequently traveled permanent and secondary roads have a significant influence on wildlife use of otherwise suitable habitat. Large declines in deer and bear use of areas adjacent to open roads are frequently noted. Road density influence on large mammal habitat may be evaluated by estimating the miles of open permanent and temporary roads, on a per-section basis, that receive some level of maintenance and are open to the public. This assessment should also account for the effects of vegetation screening and the relative importance of an area to wildlife on a seasonal basis (e.g. winter range).

- Currently the road density within the BAA is approximately seven miles per square mile. The majority of roads are small private access roads. There is significant use of the Banner Quaker Hill Road in the summer. Snow accumulation limits winter access. No new road construction is required to manage this property. Road density will remain unchanged.

e. Hardwood Cover: Hardwoods provide an important element of habitat diversity in the coniferous forest and are utilized as a source of food and/or cover by a large proportion of the state's bird and mammal species. Productivity of deer and other species has been directly related to mast crops. Hardwood cover can be estimated using the basal area per acre provided by hardwoods of all species.

- Hardwoods are an important feature on the landscape and so within the property, all stages of hardwoods will be retained to provide recruitment and structure.
- The quantity of available deer habitat will not change as a result of this proposed project. Forage as a result of forestry activities will either remain unchanged. Cover will change slightly in these areas, however, deer are likely to reoccupy these areas shortly after forestry activities have taken placed.

f. Late Seral (Mature) Forest Characteristics: Determination of the presence or absence of mature and over-mature forest stands and their structural characteristics provides a basis from which to begin an assessment of the influence of management on associated wildlife. These characteristics include large trees as part of a multi layered canopy and the presence of large numbers of snags and downed logs that contribute to an increased level of stand decadence. Late seral stage forest amount may be evaluated by estimating the percentage of the land base within the project and the biological assessment area occupied by areas conforming to the following definitions:

Forests not previously harvested should be at least 80 acres in size to maintain the effects of edge. This acreage is variable based on the degree of similarity in surrounding areas. The area should include a multi-layered canopy, two or more tree species with several large coniferous trees per acre (smaller subdominant trees may be either conifers or hardwoods), large conifer snags, and an abundance of large woody debris. Previously harvested forests are in many possible stages of succession and may include remnant patches of late seral stage forest, which generally conform to the definition of un-harvested forests but do not meet the acreage criteria.

- The purpose of this NTMP is to help the landowner meet the long-term goal of moving the stand structure toward late seral stage.

g. Late Seral Habitat Continuity: Projects containing areas meeting the definitions for late seral stage characteristics must be evaluated for late seral habitat continuity. The fragmentation and resultant isolation of late seral habitat types is one of the most significant factors influencing the sustainability of wildlife populations not adapted to edge environments. This fragmentation may be evaluated by estimating the amount of the on-site project and the biological assessment area occupied by late seral stands greater than 80 acres in size (considering the mitigating influence of adjacent and similar habitat, if applicable) and less than one mile apart or connected by a corridor of similar habitat.

- The area was heavily logged during the height of the gold rush. The overstory trees are typically comprised of 120-140 year old trees, which regenerated the site after logging. The understory is comprised of suppressed shade tolerant species, mostly white fir and incense cedar with approximately 30% crown closure. The WHR classification does not reach WHR 6, with size class 5, trees with dbh greater than 24" over a distinct layer of size class 4 or 3, with a total tree canopy exceeding 60% closure. In addition, the site is lacking the functional characteristics of large decadent trees, snags, and large down logs to be considered a Late Succession Forest Stand as defined in 14 CCR 895.1. The landowners' long-term goal is to move the forest stand structure closer to a WHR 6.

h. Special Habitat Elements: The loss of a key habitat element may have a profound effect on a species even though the habitat is otherwise suitable. Each species may have several key limiting factors to consider. For example, a special need for some large raptors is large decadent trees/snags with broken tops or other features. Deer may have habitat with adequate food and cover to support a healthy population size and composition but dependent on a few critical meadows suitable for fawning success. These and other key elements may need special protection.

- Currently, the stand provides no special habitat elements. However, the habitat structure will change over the first two harvest cycles, as the diameter of the residual trees increase, it is anticipated that the habitat structure will provide the functional characteristics of snags and large down logs, but will still be limiting in large decadent trees.

HABITAT CONDITION TABLE OF PROJECT AND SURROUNDING AREA

Habitat Condition	Pre-Harvest On-Site	Off-Site	Post-Harvest On-Site
1. Presence of snags/den & nest trees	Low	Low	Low
2. Amount of downed large woody debris	Low	Low	Low
3. Presence of multi- story canopy	Moderate	Low	Moderate
4. Road density	Low	Moderate	Low
5. Presence of hardwoods	Low	Low	Low
6. Presence of late seral stage characteristics	Low	Low	Low
7. Continuity of late seral stage forests	Low	Low	Low

BIOLOGICAL RESOURCE INVENTORY

The purpose of this Biological Resources Inventory is to document analysis of the potential effects of this proposed project on vascular plant, invertebrate, fish, amphibian, reptile, bird, and mammal species and their habitat. Potentially occurring species considered in this analysis included federal and state-listed threatened, endangered and candidate species as well as species included in California Native Plant Society Lists 1-4. Reconnaissance–level field surveys were conducted within the project area. No special-status species were found within the project area.

The project area is within the range and has the potential suitable reproductive or foraging habitat for several listed, special status, and potentially sensitive species. The following list identifies those species. Sensitive plant and wildlife species with a potential to occur on the project site were identified through a search of CDFG's California Natural Diversity Database (CNDDB, 2010), review of environmental documents filed with Nevada County Planning Department, discussions with United States Forest Service (USFS) Botanist/Plant Ecologist/Noxious Weed Coordinator and THPs filed with the CDF.

Note: "Special-status Plants & Animals" is a broad term used to refer to all the taxa inventoried by the CDFG's CNDDB, regardless of their legal or protection status.

The following is an analysis of special status species identified in Section III that may occur within the Biological Assessment Area.

FT - Federally listed, Threatened
FPE – Candidate for federal listing as Endangered
FSC – USFWS, Species of Concern, Sensitive
MNB – USFWS Migratory Nongame Birds of Management Concern
BLM – Bureau of Land Management, Sensitive Species
FS – USFS, Sensitive Species
CE – California listed, Endangered
CT – California listed, Threatened
CCR – Calif. Code of Reg. Title 14, Fully Protected Species
CFP – DF&G Code, Fully Protected Species (3511, 4700, 5050)
CSC – DF&G, Species of Special Concern
CDF – Dept. of Forestry, Sensitive Species
1B – CNPS, Rare or Endangered in CA
2 - CNPS, Rare or Endangered in CA, common elsewhere
CNDDB – DF&G Database list

Analysis of Special-Status Avian species that may occur within the Biological Assessment Area				
Scientific name Common name Status	**Habitat** ***(Critical Period)***	**Analysis**	**Potential Impacts**	**Recommendation**
Strix occidentalis **California Spotted Owl** **CNDDB, CSC, MNB, FS, FSC**	Large old trees and snags, high basal area of trees and snags, dense canopies(>70) canopy closure, multiple canopy layers, and downed woody debris (Verner et al. 1992a) **March 15 – September 15**	No suitable habitat for nesting. **Suitable habitat may be present for foraging.**	**Increase in foraging habitat from marginal to moderate.**	Review of the site will be conducted within 10 days of the onset of operations by the RPF responsible for marking timber. If discovered, DFG will be contacted.
Accipiter gentilis **Northern Goshawk** **CNDDB, CSC, MNB, FS, FSC, CDF**	Found in coniferous forest habitats; usually nests on north facing slopes, near water sources. High tree canopy closure for nest stands. **March 15 - August 15**	**Marginal habitat for nesting.** **Suitable habitat may be present for foraging.**	**No impact to nesting habitat.** **Increase in foraging habitat from marginal to moderate**	Review of the site will be conducted within 10 days of the onset of operations by the RPF responsible for marking timber. If discovered, DFG will be contacted.
Haliaeetus leucocephalus **Bald Eagle** **CE, CDF, CFP**	The breeding range is mainly in mountainous habitats near reservoirs, lakes, and rivers. Large nests are normally built in the upper canopy of large trees, usually conifers. **January - August**	No suitable habitat.	Not applicable	Review of the site will be conducted within 10 days of the onset of operations by the RPF responsible for marking timber. If discovered, DFG will be contacted.
Strix nebulosa **Great Grey Owl** **FS, CE, CDF**	Found in or near meadows. During the breeding season nesting takes place in the broken tops of snags or large conifer trees, 35 feet or more from the ground. **February - September**	No suitable habitat for nesting. **Suitable habitat may be present for foraging.**	**Increase in foraging habitat from marginal to moderate**	Review of the site will be conducted within 10 days of the onset of operations by the RPF responsible for marking timber. If discovered, DFG will be contacted.
Accipiter striatus **Sharp-shinned hawk** **CSC**	Typically nests in dense, relatively young-even aged conifer stands, situated on steep north-facing slopes, near water. **March - June**	No suitable habitat for nesting. **Suitable habitat may be present for foraging.**	**Increase in foraging habitat from marginal to moderate**	Review of the site will be conducted within 10 days of the onset of operations by the RPF responsible for marking timber. If discovered, DFG will be contacted.
Accipiter cooperii **Cooper's Hawk** **CSC**	This species nests in dense second growth stands with moderate crown density. Seldom found in areas without dense tree stands, and uses cover to hide, attack, and approach prey. **March - June**	No suitable habitat for nesting. **Suitable habitat may be present for foraging.**	**Increase in foraging habitat from marginal to moderate**	Review of the site will be conducted within 10 days of the onset of operations by the RPF responsible for marking timber. If discovered, DFG will be contacted.
Empidonax traillii **Willow Flycatcher** **CE, FS, CDF, FSC**	Typically found in riparian areas often dominated by willow and/or alder, and permanent water in the form of low gradient watercourse, ponds, lakes and wet meadows. **May - September**	No suitable habitat	Not applicable	No measures required.

Analysis of Special-Status Mammal species that may occur within the Biological Assessment Area				
Scientific name Common name Status	**Habitat** ***(Critical Period)***	**Analysis**	**Potential Impacts**	**Recommendation**
Martes pennati pacifica **Pacific fisher** **CSC, FS, BLM, FPE**	Breeding, resting, and foraging habitat usually consists of old-growth or late successional coniferous forests with greater than 50% canopy closure (Zeiner et al. 1990b). Uses cavities in trees, snags and logs **March 1 – July 31**	No suitable breeding habitat, but **Suitable habitat may be present for foraging-however, very unlikely.** Project located within the historic range.	**Increase in foraging habitat from marginal to moderate**	Report any sightings to CAL FIRE & DFG; Leave den sites and habitat components undisturbed, stop operations with .25 mile
Martes Americana **American Marten** **CNDDB, FS, CSC**	Inhabits late successional forest communities throughout north America. Optimal habitats include various mixed conifer forests with more than 40% canopy. Riparian forest for foraging. **March – August**	No suitable habitat, but project located within the historic range	Not applicable	Report any sightings to CAL FIRE & DFG; Leave den sites and habitat components undisturbed, stop operations with .25 mile
Gulo gulo luteus **California Wolverine** **CT, CFP, CSC, FS**	Inhabits a variety of habitat types within an elevation range between 1,600 feet and 14,200 feet. Prefers areas of low human disturbance. Uses caves, hollows in cliffs, logs, and burrow for cover, generally in denser forest stages. Breeding: **May-July** Birth: **January - April**	**Suitable habitat may be present for foraging-very unlikely.**	**Increase in foraging habitat from marginal to moderate**	Report any sightings to CAL FIRE & DFG; Leave den sites and habitat components undisturbed, stop operations with .25 mile
Vulpes vulpes necator **Sierra Nevada Red Fox** **CT, FS**	Preferred habitat appears to be red fir and lodgepole pine forests in the subalpine zone and alpine fell-fields of the Sierra Nevada between 4,000 and 12,000 feet. Hunts in forest openings and meadows, and barren rocky areas. **February - July**	No suitable habitat, but project located within the historic range	Not applicable	Report any sightings to CAL FIRE & DFG; Leave den sites and habitat components undisturbed, stop operations with .25 mile
Antrozous pallidus **Pallid Bat** **CNDDB, CSC**	Most common in open, dry habitats with rocky areas for roosting. Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings **April - August**	**No suitable breeding habitat Marginal day roosting habitat, suitable habitat present for foraging**	No change in habitat structure.	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise.
			Note: Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly.	
Lasiurus blossevillii **Western Red Bat** **CNDDB, FS, CSC**	Habitat includes forests and woodlands from sea level up through mixed conifer forests. Roosts in trees, found in wooded, riparian, and edge habitats adjacent to streams, fields, or urban areas. **April - August**	No suitable habitat, usually found at lower elevations associated with agriculture lands.	Not applicable	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise.

Scientific name Common name Status	Habitat (Critical Period)	Analysis	Potential Impacts	Recommendation
Corynorhinus townsedii **Townsend's big-eared bat** **CSC, FS, BLM, FSC**	Suitable roosting sites are restricted to caves and cave-like structures such as tunnels, mines, and bridges. **April - August**	No suitable habitat, not usually found east of the coast range.	Not applicable	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise.
Myotis *yumanensis* **Yuma myotis** **CNDDB, CSC, BLM, FSC**	Suitable roosting sites are restricted to caves and cave-like structures such as tunnels, mines, and bridges. Found in open forests and woodlands and is almost always associated with water. **May - July**	No suitable habitat.	Not applicable	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise.
Myotis evotis **Long-eared myotis** **CNDDB, BLM, FSC**	Found in brush, woodland and forests habitats up to 9,000 feet , possibly preferring coniferous woodlands and forests, found using rock outcroppings, crevices, mines, caves, loose bark on trees and snags **May - July**	**Suitable habitat may be present**	**Potential Impacts mitigated to negligible**	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise. **Note:** Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly.
Euderma maculatum **Spotted bat** **CNDDB, CSC, BLM,FSC**	Found in brush, woodland and forests habitats. Horizontal rock crevices provide the optimal roost sites (Watkins 1977) although they may occasionally use caves and buildings as well. **May - July**	**Suitable habitat may be present**	**Potential Impacts mitigated to negligible**	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise. **Note:** Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly.
Eumops perotis californicus **California mastiff bat** **CSC, BLM, FSC**	Roost in crevices in vertical cliffs, usually granite or consolidated sandstone, and in broken terrain with exposed rock faces. Inhabits arid and semiarid lowlands in the lower sonoran life zone. **March - August**	No suitable habitat.	Not applicable	No measures required
Myotis *thysanodes* **Fringed myotis** **CNDDB, BLM**	Found in brush, woodland and forests habitats. Suitable roosting sites are restricted to caves and cave-like structures such as tunnels, mines, and bridges. **April - August**	**Suitable habitat may be present**	**Potential Impacts mitigated to negligible**	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise. **Note:** Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly.

Myotis ciliolabrum **Small-footed myotis** **BLM**	Found in arid wooded and brushy uplands near water. Suitable roosting sites are caves, buildings, mines, crevices, and occasionally under bridges and under bark. **May -June**	**Suitable habitat may be present**	**Potential Impacts mitigated to negligible**	As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make noise.
			Note: Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly.	

Analysis of Special-Status Aquatic species that may occur within the Biological Assessment Area

Scientific name Common name Status	Habitat *(Critical Period)*	Analysis	Potential Impacts	Recommendation
Rana boylii **Foothill yellow-legged frog** **CNDDB, FS, CSC**	Rocky streams and rivers with rocky substrate and open, sunny banks. Isolated pools, vegetated backwater, and deep, shaded, spring-fed pools. **April - September**	No suitable aquatic, or foraging habitat.	Not applicable	No measures required
Rana sierrae **Sierra Nevada Yellow-Legged Frog** **CNDDB, FS, FPE,CSC**	Inhabits lakes, ponds, meadow streams, isolated pools, and sunny riverbanks in the Sierra Nevada Mountains. Waters that do not freeze to the bottom are required. **May - August**	No suitable aquatic or foraging habitat.	Not applicable	No measures required
Rana aurora draytonii **California Red-Legged Frog** **CNDDB, FT, CSC**	Aquatic habitat of low gradiant waterbodies, ponds,and calm slack water areas that are at least 20 inches deep below 4,200 feet. **May - August**	No suitable aquatic or foraging habitat.	Not applicable	No measures required
Clemmys marmorata marmorata **Western Pond Turtle** **CNDDB, CSC,FS, BLM**	Favors the same type of aquatic habitat that supports Foothill Yellow Legged frog. Ponds, slow moving water with logs or rocks for basking sites. **April - September**	No suitable aquatic habitat.	Not applicable	No measures required

Analysis of Special-Status Plant species that may occur within the Biological Assessment Area

Scientific name Common name CNPS List	Habitat *(Identification Period)*	Analysis	Potential Impacts	Recommendation
Lycopodiella inundata **Bog club-moss** CNPS List 2.2 Federal: Sensitive	Lower montane coniferous forest mesic, bogs, fens and swamps ***Jun-Sept***	No suitable habitat	Not applicable	No measures required.
Clarkia biloba ssp. brandegeeae **Brandegee's clarkia** CNPS: List 1B.2 Federal: Sensitive	Often along road cuts within chaparral and cismontane woodland, below 3000' elevation. ***May-July***	No suitable habitat	Not applicable	No measures required.

Rhynchospora capitellata **Brownish beaked-rush** CNPS List 2.2	Growing in meadows, seeps, marshes and swamps within lower and upper montane coniferous forest. ***July-Aug***	No suitable habitat	Not applicable	No measures required.
Lewisia cantelovii **Cantelow's lewisia** CNPS List 1B.2 Federal: Sensitive	Mesic rock outcrops and wet cliffs; usually in moss; on granitics or serpentine ***May - Oct***	No suitable habitat	Not applicable	No measures required.
Penstemon personatus **Closed-throated beardtongue** CNPS List 1B.2	Coniferous forest and chaparral; usually on north-facing slopes in metavolcanic soils ***June - Sept***	Suitable metavolcanic soils are not present within the project area	Not applicable	No measures required.
Mielichhoferia elongata **Elongate copper-moss** CNPS List 2.2	Cismontane woodland on metamorphic rock, usually vernally mesic	No suitable habitat	Not applicable	No measures required.
Asplenium trichomanes ramosum **Green spleenwort** CNPS List 2.3	Subalpine forest on cliffs and rocky outcrops, carbonate or granitic ***Jun - Aug***	No suitable habitat	Not applicable	No measures required.
Lewisia kelloggii ssp. hutchisonii **Hutchisons lewisia** CNPS List 3.3	Upper montane coniferous forest, openings, slate ***Jun - Aug***	No suitable habitat	Not applicable	No measures required.
Phacelia stebbinsii **Stebbins' phacelia** CNPS List 1B.2 Federal: Sensitive	Lower montane coniferous forest, woodland meadows and seeps; riparian woodland ***June - July***	No suitable habitat	Not applicable	No measures required.
Fritillaria eastwoodiae **Butte County Fritillary** CNPS List 3.2 Federal: Sensitive	Chaparral, Cismontane woodland, Lower montane coniferous forest openings, often found on serpentinite ***Mar - Jun***	No suitable habitat	Not applicable	No measures required.
Potamogeton filiformis **Slender-leaved pondweed** CNPS List 2.2	Marshes and swamps, assorted shallow freshwater ***May - Jul***	No suitable habitat	Not applicable	No measures required.
Pyrola chlorantha **Green-flowed wintergreen** CNPS List 1A	Lower montane coniferous forest, known in CA only from one historical collection near Downieville. ***Jun - Jul***	Highly Unlikely	Not applicable	No measures required.
Tauschia howellii **Howell's tauschia** CNPS List 1B.3	Subalpine coniferous forest, Upper montane coniferous forest, granitic, gravelly ***Jun - Aug***	No suitable location, too low in elevation	Not applicable	No measures required.
Vaccineum coccineum **Siskiyou Mountains huckleberry** CNPS List 3.3	Lower montane coniferous forest, Upper montane coniferous forest /often serpentinite ***Jun - Aug***	No suitable habitat	Not applicable	No measures required.

Cypripedium fasciculatuim **Clustered lady's-slipper** CNPS List 4.2	Lower montane coniferous forest, North Coast coniferous forest /usually seeps and streambanks ***Mar - Aug***	**Suitable habitat may be present**	Tractor/dozer/ mastication work, slash pile development and burning;	Avoid mechanical disturbance within openings, existing landings and along the edge of roadways. If found, establish a Special Treatment Area (no operations) around plants.
Cypripedium montanum **Mountain lady's-slipper** CNPS List 4.2	Broad-leafed upland forest, Cismontane woodland, Lower montane coniferous forest, North Coast coniferous forest ***Mar - Aug***	**Suitable habitat may be present**	Tractor/dozer/ mastication work, slash pile development and burning;	Avoid mechanical disturbance within openings, existing landings and along the edge of roadways. If found, establish a Special Treatment Area (no operations) around plants.
Lupinus dalesiae **Quincy lupine** CNPS List 4.2	Chaparral, Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest /openings, often in disturbed areas **May - Aug**	**Suitable habitat may be present**	Tractor/dozer/ mastication work, slash pile development and burning;	Avoid mechanical disturbance within openings, existing landings and along the edge of roadways. If found, establish a Special Treatment Area (no operations) around plants.
Carex sheldonii **Sheldon's sedge** CNPS List 2.2	Usually found in wetlands such as; marshes, calcareous fens, bogs and other peat lands, pond and stream banks, riparian zones, and even ditches. **May - Aug**	No suitable habitat	Not applicable	No measures required.
Didymodon norrisii **Norris' beard moss** CNPS List 2.2	Restricted to rock substrate in low to moderate elevations. Serpentine, calcareous, and volcanic boulders and outcrops in fields, cliffs.	No suitable habitat	Not applicable	No measures required.
Ophioglossum pusillum **Northern adder's tongue** CNPS List 2.2	Usually found in wet meadows, pond margins with sedges and Spiraea. **July**	No suitable habitat	Not applicable	No measures required.
Chlorogalum grandiflorum **Red Hills Soaproot** CNPS 1B.2	Grows in chaparral and wooded hills on serpentine and gabbro rock outcrops. **May - June**	No suitable habitat	Not applicable	No measures required.

California Spotted Owl (*Strix occidentalis occidentalis*) like its cousins the Mexican and northern spotted owl, the California spotted owl is a bellwether of old-growth forests. This species nests primarily in old growth or mature second growth coniferous forest stands.

The population status of the California spotted owl was discussed by Verner et al. (1992). They concluded that available research is insufficient to determine population trends at this time. They found that the preferred habitat is coniferous and hardwood forest in the western Sierra Nevada usually dominated by firs or Douglas-fir, but they also use mature hardwood forests, ponderosa pine, cottonwoods, alders, and oak, especially along narrow, steep-sided canyons with north-facing slopes. They prefer an uneven and multi-layered canopy. Forty-three percent of all nest sites found in Sierran conifer forests were in these two stand types. All other habitat types that were evaluated were used equal to or less than their proportional availability. (DFG, 2000)

Conclusion: There have been no sightings of this species within or adjacent to the project area. Current foraging habitat is expected to improved post harvest. Suitable nesting habitat is not expected to improve even with the retention of large trees and snags as this species usually prefers deep canyons, and close to water. Spotted Owl Database Management System identifies the historic presence of this species in the 1990's one-half mile south of the project area on SPI land within the THP 2-08-020-NEV(3). With the implementation of detection, 10 days prior to operations and the protection of nest site strategy outlined in Section II, Item 38. **No negative impact to this species is expected as a result of this project.**

Northern Goshawk (*Accipiter gentilis*) this bird is the largest of the accipiter raptor family and generally feeds upon other birds. Goshawks generally breed in older age coniferous, mixed, and deciduous forest habitat. This habitat provides large trees for nesting, a closed canopy for protection and thermal cover, and open spaces allowing maneuverability below the canopy (Fowler 1988).

Mixed conifer, red fir, Jeffrey pine and ponderosa pine forests at large tree stages provide optimal habitat. The same forests provide suitable habitat at pole/medium stage and by large tree stages of lodgepole pine and aspen habitats. Suitable habitat is also provided by riparian deciduous habitat when it is adjacent to conifer stands. Marginal habitat is provided by isolated riparian deciduous areas.

Goshawk nests are large flat platform nests ranging in size from 2 feet to 5 feet in diameter, most commonly in the 3-foot range. The nests are constructed of small to mid-sized stick material and are most commonly placed in the crotch between limb and bole occasionally being placed 3 to 10 feet from the bole. Nests in live trees are usually placed at or just below the lower portion of the canopy 20 to 60 feet from the ground. Nests are most commonly built in the largest diameter trees in the stand. Goshawks often have as many as 3 alternate nests spaced an average of 300 yards apart.

High tree canopy closure is characteristic of all goshawk nest stands. In this model, 60% to 100% is optimal, 50% to 59% is suitable, and 30% to 49% is marginal. Goshawk nesting habitat varies among vegetation types but, within any given type, nesting stands consistently have higher densities of large trees and higher canopy cover than randomly selected stands in the same vegetation type (Squires and Reynolds 1997).

Conclusion: There have been no sightings of this species within BAA. Current foraging habitat is expected to improved post harvest. Snags and green culls will be retained throughout the stands, providing potential future nest trees. Nesting habitat is marginal at best. With the implementation of detection, 10 days prior to operations and the protection of nest site strategy outlined in Section II, Item 38. **No negative impact to this species is expected as a result of this project.**

Bald Eagle *(Haliaeetus leucocephalus)*, the bald eagle is a large, dark brown bird of prey, which, as an adult, has a white head and tail. The species winters throughout most of California at lakes, reservoirs, river systems, and some rangelands and coastal wetlands. The breeding range is mainly in mountainous habitats near reservoirs, lakes, and rivers, mainly in the northern two-thirds of the State, in the Central Coast Range, and on Santa Catalina Island. Large nests are normally built in the upper canopy of large trees, usually conifers.

Conclusion: There have been no sightings of this species within the BAA. However, in the recent past, a nest tree was located in Section 31, T17N, R10E, at the north end of Scott's Flat Reservoir. As eagles are for the most part less tolerant of human presence, and prefer nesting close to large bodies of water, the area does not provide suitable foraging, nesting or wintering habitat. With the implementation of detection, 10 days prior to operations and the protection of nest site strategy outlined in Section II, Item 38. **No negative impact to this species is expected as a result of this project.**

Great Grey Owl *(Strix nebulosa)* Although *Strix nebulosa* does not weigh quite as much as either the great horned or snowy owl, the great gray owl has the longest body and the largest wingspan: five feet, of any species of owl in North America. In addition, great grays have a large head with a large, circular facial disk. Plumage is thick and provides insulation for wintering at high elevations and in northern latitudes. The gray and gray-brown feathers are streaked with light and darker grays. This owl exhibits no regular seasonal migration. However, food availability causes movement to higher elevations after the breeding season and to lower elevations in the winter.

Owls attempting to nest probably return to the same nesting area each year. Nests usually are placed in the broken tops of snags or large conifer trees, 35 feet or more from the ground. Nest trees must be large enough to provide a nest for a 30-inch long owl. Normally, two or three eggs are laid. Incubation lasts about 30 days, nestlings remain in the nest about three weeks, and the flightless young remain in the vicinity of the nest for another three to five weeks. These fledglings then stay in the nesting territory for several more months until they can fend for themselves.

During the breeding season, great gray owls are found in Sierra Nevada mixed conifer and red fir forests. Except for birds dispersing, nearly all great gray owls are found in or near meadows within these forest habitats. Important meadow characteristics include meadow size, the height of grass, the portion of the meadow covered by non-grass-forb vegetation, and the livestock grazing pressure. Forests surrounding meadows require a high density of large diameter snags for nests and a high canopy closure to provide cover and a cooler sub-canopy microclimate. Great gray owls are mainly distributed in the scattered meadow-mature forest zone on the west slope of the central Sierra Nevada.

There has been no recent change in the impacts to great gray owls. The loss of mature forest habitat for nesting and the degradation of montane meadows by livestock grazing remain the major sources of habitat loss. There are no conservation management plans addressing the great gray owl. The majorities of currently known nesting sites are in Yosemite National Park and thus are protected through the natural resource management of the park. USFS monitors sites on or near their lands during planning for timber harvest or other projects. (DFG, 2000)

In the Sierra Nevada, great gray owls are found in mixed coniferous forests in combination with meadows. Nesting usually occurs within 600 feet of the forest edge and adjacent open foraging habitat.

Conclusion: There have been no sightings of this species within BAA. Currently the lack of large trees and snags are probably limiting use of the project area by great gray owls. There are no meadows within or adjacent to the NTMP that would provide suitable habitat for great gray owls. With the implementation of detection, 10 days prior to operations and the protection of nest site strategy outlined in Section II, Item 38. **No negative impact to this species is expected as a result of this project.**

Sharp-shinned hawk *(Accipiter striatus)* *Accipiter striatus*, together with its ten subspecies, can be found in North and South America, and the West Indies. In North America it stretches as far north as the limit of trees. Its southern limits are, in the east South Carolina and Alabama, and in the west Nicaragua. It is absent, as a breeder, in Costa Rica and Panama, but reappears in the Andes from Venezuela south to eastern Bolivia, and northwestern Argentina, and extending through southern Brazil, Uruguay, and the Chaco region of Paraguay and northern Argentina. The common Sharp-shinned Hawk of North America is migratory, wintering from the central United States to Costa Rica. This species nests in dense second growth stands with moderate crown depths.

A jay-sized, fast-flying hawk with a long, narrow, square-tipped tail and short rounded wings is the smallest and most numerous of the accipiters. The Sharp-shinned Hawk feeds mainly on birds, which it catches in sudden and swift attacks. Its rounded wings and long narrow tail enable it to pursue birds through the woods, making sharp turns to avoid branches.

The Sharp-shinned Hawk is most similar to the Cooper's Hawk. In all plumages, the Sharp-shinned Hawk has a shorter, less rounded tail with a thinner white tip, slimmer tarsi, a more rounded head that does not project much beyond the wings when soaring and a less snappy wing beat. Male Sharp-shinned Hawks are obviously smaller than all Cooper's Hawks. Adult Sharp-shinned Hawks have a less well-defined cap while immature have thicker, more extensive streaking on the breast and belly.

Conclusion: There have been no sightings of this species within BAA. Currently, there is no suitable nesting habitat within the plan area. Marginal foraging habitat occurs and may be improved once small understory trees are removed. This species is seldom found in areas without dense tree stands, and uses cover to hide, attack, and approach prey. With the implementation of detection, 10 days prior to operations and the protection of nest site strategy outlined in Section II, Item 38. **No negative impact to this species is expected as a result of this project.**

Cooper's Hawk *(Accipiter cooperii)* *Accipiter cooperii* is found in Southern Canada and the entire United States south as far as Florida, Texas, and northwestern Mexico. It is a woodland species and somewhat migratory, reaching Costa Rica in winter.

A typical accipiter in every respect, it sticks closely to cover, venturing out in search of food. It seeks out conifers in which to roost, but rarely nests in them. Nesting is often more or less limited to the fringe of trees along streams.

This species nests in dense second growth stands with moderate crown depths. This species is seldom found in areas without dense tree stands, and uses cover to hide, attack, and approach prey. Frequents landscapes where wooded areas occur in patches and groves. Nest is stick platform lined with bark.

Conclusion: There have been no sightings of this species within BAA. Currently, there is no suitable nesting habitat within the plan area. Marginal foraging habitat occurs and may be improved once small understory trees are removed. With the implementation of detection 10 days prior to operations and the protection of nest site strategy outlined in Section II, Item 38. **No negative impact to this species is expected as a result of this project.**

Willow Flycatcher *(Empidonax traillii)* the willow flycatcher was formerly a common summer resident throughout California. Its breeding range extended wherever extensive willow thickets occurred. The species has now been eliminated as a breeding bird from most of its former range in California.

Loss and degradation of riparian habitat is the principal reason for the decline of willow flycatcher population and the decrease in geographic range of the species. Nest parasitism by brown-headed cowbirds has contributed to population reductions.

Population surveys conducted by USFS and CSU have indicated that flycatcher numbers are low in many areas of the Sierra Nevada and that habitat conditions have deteriorated due to the impact of livestock, especially on National Forests.

Conclusion: There have been no sightings of this species within BAA. No habitat exist within or adjacent to the plan area. **No negative impact to this species is expected as a result of this project.**

Pacific Fisher *(Martes pennanti pacifica)* These relatively large predators feed upon a large variety of avian and mammalian prey species. They all have large territories and generally exist in low population densities. Preferred habitat is characterized by dense (60-100%) multi-storied, multi-species, late serial stage coniferous forests with a high number of large (>30" dbh) snags and downed logs.

Martes pennanti are found along the Pacific Coast from north central coastal British Columbia to northern California, in the Cascade Mountains, and the Sierra Nevada of California. Fishers appear to be restricted to areas with relatively low snow accumulation. Deep, fluffy snow affects habitat use by fishers ((Leonard 1980b; Raine 1983) USDA Gen. Tech. Report RM-254). The highest elevation recorded for an observation of a fisher in California was 3475 m, in the Sierra Nevada, but most observations in northern California forests have been below 1000 m ((Grinnell et al) USDA Gen. Tech. Report RM-254). The problem for fishers is not with forest openings per se. Fishers evolved in forests where windthrow and fire were common. Small patch cuts, group selection harvests, and small clearcuts can superficially resemble both these disturbances in form and in the pattern of succession that follows. (USDA Gen. Tech. Report RM-254).

Conclusion: The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. There have been no sightings of this species within BAA. If any individuals of this specie were present in the project area, they would likely disperse upon the start of timber operations. During timber operations, if a fisher den or a female with young is observed, operations shall cease with .25 miles. CAL FIRE and DFG shall be notified immediately as a means to evaluate proposed protection measures and the plan shall be amended to illustrate the den location and describe any additional protection measures prior to operations in the affected area. **No negative impact to this species is expected as a result of this project.**

American Marten *(Martes Americana)* *Martes Americana* is usually solitary and nocturnal, but on occasions, they have been observed in pairs. The Marten's prime habitat is the coniferous forest. They den in hollow trees, crevices, or vacant ground burrows. They often hunt during the day when prey is abundant.

The marten is an opportunistic feeder that eats primarily small mammals including squirrels and rodents. Occasionally birds, fruit, nuts, insects, and carrion will be eaten as well.

The breeding season occurs from June to August. After mating fertilization of the eggs is delayed and does not take place until February. The embryos then develop within a month's time. The 1-5 blind young (kits) are born in late March or early April in dens lined with dried plant material. They are weaned after 42 days and full size is reached very quickly, around 3 and one-half months after birth. Sexual maturity is reached at 15-24 months of age.

Conclusion: There have been no sightings of this species within BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. If any individuals of this specie were present in the project area, they would likely disperse upon the start of timber operations. **No negative impact to this species is expected as a result of this project.**

California Wolverine *(Gulo gulo luteus)* *Gulo gulo luteus* resembles a small, short-legged bear with a coarse shaggy coat and a bushy tail. The coat is heavy and dark brown with two broad, light-colored bands extending from the shoulder to meet at the base of the tail. Wolverines typically weigh 35 to 60 pounds and measure 35 to 45 inches long, including a six to 10 inch tail. They stand about 14 to 18 inches at the shoulder. Their jaws are very powerful and are adapted to crush and shear frozen meat and bones. Sexes appear similar except that males are 25 to 35 percent larger than females.

Wolverines subsist on a variety of foods including small- and medium-sized mammals, birds, insects, berries, and fungi. Carrion, especially in the form of large ungulates, is believed to be an important component of the diet, particularly during winter. Wolverines are often regarded as animals of high-elevation habitats; however, sightings collected by the DFG over the past several decades indicate that the species inhabits a variety of habitat types within an elevation range between 1,600 feet and 14,200 feet. The mean elevation of over 150 sightings in California is about 8,000 feet. Habitat generally consists of open terrain above timberline.

Conclusion: Marginal foraging habitat occurs within the NTMP area. Foraging habitat may be improved as a result of this harvest. There have been no sightings of this species within BAA. The presence of this species is unlikely due to the absence of suitable breeding habitat within or adjacent to the project area. If any individuals of this specie were present in the project area, they would likely disperse upon the start of timber operations. **No negative impact to this species is expected as a result of this project.**

Sierra Nevada Red Fox *(Vulpes vulpes necator)* *Vulpes vulpes necator* is one of 10 recognized North American subspecies of Vulpes. The Sierra Nevada red fox is distinguished from members of the introduced lowland population of red foxes by its slightly smaller size and darker colored fur. They inhabit remote areas of the State where chance encounters with humans are uncommon. Relatively little is known of the life history of the Sierra Nevada red fox, but it is assumed that its habits are similar to those of other red foxes insofar as choice of dens, hunting tactics, and breeding behavior are concerned. The subspecies is known to inhabit vegetation types similar to those used by the marten and wolverine. Sightings of the subspecies have been reported from the 5,000 to 7,000 foot elevation range with extremes placed at 3,900 feet in Yosemite Valley and 11,900 feet at Lake South America in the southern Sierra Nevada.

Preferred habitat for the Sierra Nevada red fox appears to be red fir and lodgepole pine forests in the subalpine zone and alpine fell-fields of the Sierra Nevada. The fox may hunt in forest openings, meadows, and barren rocky areas associated with its high elevation habitats. Threats to the Sierra Nevada red fox are unknown.

Conclusion: There have been no sightings of this species within BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. If any individuals of this specie were present in the project area, they would likely disperse upon the start of timber operations. **No negative impact to this species is expected as a result of this project.**

Pallid Bat *(Antrozous pallidus)* The pallid bat is a locally common species of low elevations in California. It occurs throughout California except for the high Sierra Nevada from Shasta to Kern Co., and the northwestern corner of the state from Del Norte and western Siskiyou Co., to northern Mendocino Co. A wide variety of habitats is occupied, including grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. The species is most common in open, dry habitats with rocky areas for roosting and is a yearlong resident in most of the range.

Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings. Roost must protect bats from high temperatures. Bats move deeper into cover if temperatures rise. Night roosts may be in more open sites, such as porches and open buildings. Few hibernation sites are known, but probably use rock crevices.

These bats form maternity colonies form in early April, and may have a dozen to 100 individuals. Males may roost separately or in the nursery colony. This species needs water, but has a good urine-concentrating ability (Geluso 1978). It prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging.

Roosting temperatures may be a limiting factor in roost selection. Pallid bat are intolerant of roost temperatures above 40 C./104 F. Most Pallid Bats (95%) roost in groups of 20, or more, ranging to 162. Group size is important for metabolic economy and growth of young. Young animals occupy the center of clusters. Individuals out of clusters experience higher rates of weight loss (Trune and Slobodchikoff 1976, 1978).

Pallid Bats mate from late October-February. The altricial young are weaned in 7 wk, and are observed flying in July and August.

Conclusion: There have been no sightings of this species within or adjacent to the project area. The presence of this species is unlikely due to the absence of suitable breeding habitat within or adjacent to the project area. Marginal roosting habitat and suitable foraging habitat exist within the NTMP area. If any individuals of this specie are present in the project area, they will likely disperse upon the start of timber operations. As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make nose. Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly. **No negative impact to this species is expected as a result of this project.**

Western Red Bat (*Lasiurus blossevillii)* *Lasiurus blossevillii* is a medium-sized bat with short, rounded ears, and a densely furred body. The western red bat's coloration ranges from bright orange to yellow-brown fur and black wing membranes. In California, the western red bat can be found in lower elevations with the exception of desert regions. Although the western red bat migrates, in California it travels only short distances making it a year-round resident. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. Not found in desert areas.

The Red Bat feeds on a variety of insects. The most important prey are moths, crickets, beetles, and cicadas. This species is frequently seen foraging in large concentrations. Foraging may be from high above treetops to nearly ground level. The same foraging route may be followed on many occasions.

The Western Red Bat roosts in trees, it can mostly be found in wooded and riparian areas. Roost sites often are in edge habitats adjacent to streams, fields, or urban areas. Preferred roost sites are protected from above, open below, and located above dark ground-cover. Such sites minimize water loss. Roosts may be from 0.6-13 m (2-40 ft) above ground level. Females and young may roost in higher sites than males.

The Red Bat requires water and prefers edges or habitat mosaics that have trees for roosting and open areas for foraging. This species is nocturnal and hibernates. It begins foraging 1-2 hr after sunset and may forage throughout the night, with a second peak before sunrise. In cold climates it spends the winter in hibernation, with arousals on warm winter days.

Conclusion: There have been no sightings of this species within or adjacent to the project area. The presence of this species is unlikely as it is usually found at lower elevations associated with agriculture and riparian lands. There is an absence of suitable habitat within or adjacent to the project area. If any individuals of this species are present in the project area, they will likely disperse upon the start of timber operations. As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make nose. **No negative impact to this species is expected as a result of this project.**

Townsend's big-eared bat *(Corynorhinus townsedii)* *Corynorhinus townsedii* is has large, forward facing ears measuring 30 to 36 millimeters in length that are joined across the forehead. Their range and distribution covers the coastal regions from southwestern Canada along the Pacific Coast to Santa Barbara County in California. The inland boundary appears to be the eastern edges of the coast range.

Small moths are the principal food of this species. Beetles and a variety of soft-bodied insects also are taken. These bats capture their prey in flight using echolocation, or by gleaning from foliage. Their flight is slow and maneuverable and they are capable of hovering.

The Townsend's big-eared bat requires caves, mines, tunnels, buildings, or other human-made structures for roosting. It may use separate sites for night, day, hibernation, or maternity roosts. Hibernation sites are cold, but not below freezing. Hibernation occurs from October to April when they may be solitary or in small clusters in their cool roosts. Roosting sites are the most important limiting resource.

This species is extremely sensitive to disturbance of roosting sites. A single visit may result in abandonment of the roost. All known nursery colonies in limestone caves in California apparently have been abandoned. Numbers reportedly have declined steeply in California and it is especially sensitive to injury by wing banding.

Conclusion: There have been no sightings of this species within or adjacent to the project area. The presence of this species is unlikely as it is usually found along the Pacific Coast. There is an absence of suitable habitat within or adjacent to the project area. If any individuals of this species are present in the project area, they will likely disperse upon the start of timber operations. As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make nose. **No negative impact to this species is expected as a result of this project.**

Yuma myotis (myotis *yumanensis),* *Myotis yumanensis* is a small bat. is described as having short rounded ears with a pointed tragus, and lacking a keeled calcar. The body is light buff to dark brown with lighter under parts. The fur is darker at the base and dull-looking.

This bat is common in California and found throughout the state except in the Mojave and Colorado Deserts of southeastern California. It occupies a variety of habitats below 11,000 feet (3,300 meters), but is rare above 8,000 feet (2,560 meters). The Yuma myotis is found in open forests and woodlands and is almost always associated with water.

This bat eats insects. They usually feed over water from dusk until about two hours after sunset. They like to eat moths, beetles, and other small insects. Prey is found through echolocation. The bat sends out ultrasonic sounds that bounce off the prey, telling the bat where to find its food. It flies through the air and catches the insect in its mouth. It feeds for several minutes and then drinks.

Females hold the male sperm over the winter. When the female ovulates in the spring, the egg is fertilized. The females gather in maternity roosts in April. Each female gives birth to one offspring.

Conclusion: There have been no sightings of this species within or adjacent to the project area. The presence of this species is unlikely as it is usually associated with water. There is an absence of suitable aquatic habitat within or adjacent to the project area. If any individuals of this species are present in the project area, they will likely disperse upon the start of timber operations. As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make nose. **No negative impact to this species is expected as a result of this project.**

Long-eared myotis (*myotis evotis*) *Myotis evotis* can be distinguished by its large ears, extending about 7 mm past the muzzle, a long pointed tragus, gradually sloping forehead, black wing membranes and ears, and light to dark brown fur.

Myotis evotis is distributed from British Columbia, south to Baja California and east to North Dakota, and then southward through South Dakota, Nebraska, and New Mexico; excluding the southern deserts of Arizona and California. The long-eared myotis is found throughout California except in the hot central valley and the dry hot deserts of southern and southeastern California. This bat can be found in brush, woodland and forests habitats up to 9,000 feet (2700 meters), possible preferring coniferous woodlands and forests, yet is uncommon in most of its range.

M. evotis feeds on many different arthropods and eats more beetles than other myotis. This bat is capable of hovering and feeds on the edges of habitat or over water. Emerges late in the evening to forage.

The long-eared myotis can be found roosting in buildings, rock crevices, under bark and in snags and may use caves as night roosts. Usually roosts singly or in small groups of 12-30 animals, including maternity colonies. Mating likely occurs in the fall with usually one young born in May to June. The young are able to fly by early August. Winter habits of the long-eared myotis are poorly known, but they may make short movements to hibernating sites.

Conclusion: Conclusion: There have been no sightings of this species within or adjacent to the project area. The presence of this species is possible as there is suitable habitat within or adjacent to the project area. However, if any individuals of this species are present in the project area, they will likely disperse upon the start of timber operations. As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make nose. Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly. **Potential impact to this species is considered negligible.**

Spotted bat (*euderma maculatum*), *Euderma maculatum* is a moderately large bat with extremely large ears and a conspicuous dorsal color pattern of three large white spots, one on each shoulder and one on the rump, on a black background; a small white patch at the base of each ear; hairs on the under parts with white tips and blackish bases.

This species is found in the semi-arid regions of the western United States and northern Mexico from southwestern Idaho and south-central Montana southward to the Mexican states of Durango and Queretaro. Horizontal rock crevices provide the optimal roost sites (Watkins 1977) although they may occasionally use caves and buildings as well. Although unmistakable in appearance, the spotted bat is one of the least understood of American bats, primarily because of its relative scarcity, at least in collections. There have been scattered records of this bat throughout the western United States dating back to 1891, but it has been taken with any regularity only in California, Arizona, New Mexico, southern Utah, and southern Colorado.

The infrequency of capture of this bat has caused much confusion and speculation regarding its habitat. Several authors have reported captures in pine forests at high elevations (2400 m); others from a pinyon pine-juniper association; and still others from open scrub associations in desert areas. Little is known of the behavior of the spotted bat except that it appears to be most active well after dark. Most individuals caught in mist nets set over water, where bats come to drink, have been captured after midnight. Available data indicate that moths are highly important in their diet. In fact, these bats may feed almost exclusively on moths. Data on reproduction is sparse. Thus, it appears that a single offspring is born to each sexually active female in June or July.

Conclusion: There have been no sightings of this species within or adjacent to the project area. The presence of this species is possible as there is suitable habitat within or adjacent to the project area. However, if any individuals of this species are present in the project area, they will likely disperse upon the start of timber operations. As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make nose. Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly. **Potential impact to this species is considered negligible.**

California mastiff bat (*Eumops perotis californicus*) *Eumops perotis californicus* is a very large free tailed bat. Two of its distinguishing characteristics are long narrow wings and large rounded ears that are joined at the mid-line across the forehead and project forward, extending beyond the nose. An additional characteristic is the tail which extends far beyond the interfemoral membrane. The color of the body and membranes are dark to brownish gray while slightly paler below. The western mastiff bat is the largest bat in California.

This is an uncommon bat that inhabits arid and semiarid lowlands in the lower sonoran life zone of California. The distribution is not completely known and new sightings in northern California are expanding its previously recorded range. Currently in California, the western mastiff bat ranges from San Francisco across to the Sierra Nevada and south, encompassing the southern half of the state.

The mastiff bat primarily roost in crevices in vertical cliffs, usually granite or consolidated sandstone, and in broken terrain with exposed rock faces; they may also be found occasionally in high buildings, trees and tunnels. Roost sites may change from season to season. Due to its large size, this bat needs vertical faces to drop from in order to take flight. Nursery roosts are found in tight rock crevices with mating taking place in the spring resulting in one young born during the summer.

The mastiff bat is a high flying and foraging bat. Because of this, surveys with mist nets are unsuccessful unless positioned at bat watering holes. The reasons for the observed decline of this species are currently unknown in California, but probably include urbanization and human disturbance.

Conclusion: There have been no sightings of this species within or adjacent to the project area. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. If any individuals of this species are present in the project area, they will likely disperse upon the start of timber operations. As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make nose. **No negative impact to this species is expected as a result of this project.**

Fringed myotis *(myotis thysanodes)* is a member of the long-eared myotis group. Although similar to western long-eared myotis (*Myotis evotis*), it is the only species with a well-developed fringe of hairs on the posterior margin of the uropatagium, and is larger than most other *Myotis*, except in ear size. The ears and membranes are blackish-brown and tend to contrast with the pelage.

Habitat information gathered from range-wide studies state the fringed myotis is found primarily in desert shrublands, sagebrush-grassland, and woodland habitats (ponderosa pine forest, oak and pine habitats, Douglas-fir), although it has been recorded in spruce-fir habitat in New Mexico. It roosts in caves, mines, rock crevices, buildings, and other protected sites. Nursery colonies occur in caves, mines, and sometimes buildings. Fringed myotis in riparian areas tend to be more active over intermittent streams with wider channels (5.5 to 10.5 meters) than ones with channels less than 2.0 meters wide.

Although no management measures have been enacted specifically for the protection of fringed myotis, protection of bat roosting habitat through gating of caves and abandoned mines should be beneficial for this species. Protection guidelines and management protocols designated for Townsend's big-eared bat (Corynorhinus townsendii) are also appropriate for fringed myotis (the two species coexist over much of their ranges) and are recommended as default measures until specific conservation protocols for this species are developed. This basic information will make it easier to design and implement appropriate and effective conservation guidelines to protect important habitats and roosts.

Conclusion: There have been no sightings of this species within or adjacent to the project area. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. If any individuals of this species are present in the project area, they will likely disperse upon the start of timber operations. As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make nose. Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly. **No negative impact to this species is expected as a result of this project.**

Small-footed myotis *(myotis ciliolabrum)* is distinguished by a black mask across the muzzle to its small short ears. It has a long tail, upper parts are light buff to warm buff with a tri-color effect. Under part is pale buff to nearly white. The tail measures 37mm, its feet are7mm, making the total length 79mm.

It also occurs on the west and east sides of the Sierra Nevada, and in Great Basin and desert habitats from Modoc to Kern and San Bernardino cos. It occurs in a wide variety of habitats, primarily in relatively arid wooded and brushy uplands near water. It lives in lava tube caves, cracks, crevices, bark and old buildings throughout its range. The primary food source for this species is insects, moths, flies, bugs, and ants.

The small-footed myotis is a bat of arid, upland habitats. It prefers open stands in forests and woodlands as well as brushy habitats. Streams, ponds, springs, and stock tanks are used for drinking and feeding. Mating is done after hibernation, one baby is born in June. Twins are rare.

Conclusion: There have been no sightings of this species within or adjacent to the project area. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. If any individuals of this species are present in the project area, they will likely disperse upon the start of timber operations. As a precaution prior to felling, any tree with a hollow, or opening in the bole, the fallers will hit the tree with their falling ax to make nose. Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly. **No negative impact to this species is expected as a result of this project.**

Foothill Yellow-Legged Frog ***(Rana boylii)*** This is a moderate-sized (37.2-82.0 mm SUL) highly variably colored frog, but usually dark to light gray, brown, green, or yellow with a somewhat mottled appearance often with considerable amounts of brick or reddish pigment, and rough, tubercled skin (Zweifel 1955; unpubl. data).

Rana boylii is one of the most poorly known ranid frog species in California; no detailed study of its life history has ever been undertaken (although at least two investigators are currently gathering life history data on this species: H. Welsh, and A. Lind, pers. comm.). This species is a stream-dwelling form that deposits masses of 300-1200 eggs on the downstream side of cobbles and boulders over which a relatively thin, gentle flow of water exists (Storer 1925, Fitch 1936, Zweifel 1955).

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable aquatic habitat as the Class III watercourse goes dry during the critical period and is not suitable for foraging or refugia as it is located at the headwaters. **No negative impact to this species is expected as a result of this project.**

Sierra Nevada Yellow Legged Frog (*Rana sierrae*) This frog is variable in color - olive, yellowish or brown above, with varying amounts of black or brown markings. Pale orange to yellow below and underneath the hind legs. Indistinct dorsolateral folds. No dark face mask. Adults are moderate in size, 1.5 - 3.5 in. long from snout to vent (4.0 - 8.9 cm).

Mating and egg-laying occurs in water shortly after the snows have melted and adults have emerged from hibernation, which can be any time from May - August. Adults tend to live around the breeding pond, so most do not need to travel to the breeding site. Egg-laying sites must be connected to permanent lakes or ponds that do not freeze to the bottom in winter, because the tadpoles overwinter, possibly taking as many as 3 or 4 summers before they transform. Eats a variety of terrestrial and aquatic invertebrates and tadpoles. May also consume dead frogs and its own eggs.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable aquatic habitat as the Class III watercourse goes dry during the critical period and is not suitable for foraging or refugia as it is located at the headwaters. **No negative impact to this species is expected as a result of this project.**

California Red-Legged Frog *(Rana aurora draytonii)* This is a large, brown to reddish brown frog with prominent dorsolateral folds and diffuses moderate-sized dark brown to black spots that sometimes have light centers (Storer 1925; pers. observ.). Distribution of red or red- orange pigment is highly variable, but usually restricted to the belly and the undersurfaces of the thighs, legs, and feet. Some individuals have red pigment extending over all undersurfaces and upper surfaces of the body; other individuals lack red pigment entirely or have it restricted to the feet (pers. observ.). The posterior thigh is a nearly uniform brown color with 3-12 distinct white to lemon-yellow spots. The iris is dark brown with iridophores on the upper and lower portions of the iris (pers. observ.).

The historic range of this frog extends through Pacific slope drainages from the vicinity of Redding (Shasta County: Storer 1925) inland and at least to Point Reyes (Marin County: pers. observ.), California (coastally) southward to the Santo Domingo River drainage in Baja California, Mexico (Linsdale 1932). Historically, it also occurred in a few desert slope drainages in southern California (Jennings and Hayes 1994). Populations in central southern Nevada are introduced (Linsdale 1940, Green 1985b). In California, it occurs from Shasta County south to the Mexican border (Figure 17). The records for Santa Cruz Island have been shown to represent an introduction (Jennings 1988a). Its known elevation range extends from near sea level to around 1500 m, although some of the populations toward the upper limit of the range of this species may represent translocations (unpubl. data).

California red-legged frogs breed early in the year (late November-late April: Storer 1925; Hayes and Jennings 1986; S. Sweet, pers. comm.; pers. observ.), undoubtedly because they have a low embryonic critical thermal maximum (see Hayes and Jennings 1986) that restricts them to using a time-window with a high probability of ensuring embryonic survival. Males appear at breeding sites from 2-4 weeks before females (Storer 1925). Embryos hatch 6-14 days after fertilization, and larvae require 4-5 months to attain metamorphosis (Storer 1925). Larvae are thought to be algal grazers, but the foraging ecology of larval R. a. draytonii is unknown. Larvae are infrequently observed in the field because they spent most of their time concealed in sub-mergent vegetation or organic debris (pers. observ.). Post metamorphs grow rapidly, and sexually maturity can be attained at 2 years of age by males and 3 years of age by females (Jennings and Hayes 1985), but both sexes may not reproduce until 3 and 4 years of age, respectively (pers. observ.). Females attain a significantly larger body size than males (138 mm vs. 116 mm SUL: Hayes and Miyamoto 1984). No data are available on the longevity of California red-legged frogs.

Habitat of California red-legged frogs is characterized by dense, shrubby riparian vegetation associated with deep (0.7 m), still or slow-moving water (Jennings 1988b, Hayes and Jennings 1988). The shrubby riparian vegetation that structurally seems to be most suitable for California red-legged frogs is that provided by arroyo willow (Salix lasiolepis); cattails (Typha sp.) and bulrushes (Scirpus sp.) also provide suitable habitat (Jennings 1988b). Although California red-legged frogs can occur in ephemeral or permanent streams or ponds, populations probably cannot be maintained in ephemeral streams in which 0 surface water disappears. Water should have a salinity of 4.5 ‰ to ensure the survival of embryonic stages (Jennings and Hayes 1989). Juvenile frogs seem to favor open, shallow aquatic habitats with dense sub-mergents (pers. observ.).

Riparian habitats where California red-legged frogs still occur need a greater degree of protection. In particular, emphasis needs to be placed on retaining the dense riparian vegetation associated with deep-water habitats used by this taxon. Additionally, the water quality standards (e.g., low salinity levels: Jennings and Hayes 1989) and water flow regimes of such sites need to be maintained. This taxon is suspected of being particularly sensitive to changes in water quality due to a variety of factors (e.g., various herbicides and pesticides, sulfate ions) that have not been examined specifically for their effects on the developmental stages of this taxon; these urgently need study. The local hydrology of sites where California red-legged frogs still occur should be carefully monitored. Impacts such as additional withdrawals of surface and groundwater that modify existing flow regimes and can change water quality should especially be avoided. Particular efforts need to be made to reduce or eliminate habitat modification that results from overgrazing because grazing and similar land use practices are especially effective at reducing or eliminating the dense riparian cover required by California red- legged frogs. Despite the fact that the total protection of entire local hydrographic basins has been suggested (Moyle 1973, Hayes and Jennings 1988), that suggestion remains unimplemented. That approach may ultimately be the only way to protect some of the remaining populations of this taxon. (DFG, 1994)

Conclusion: The project area is within the historic range. There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable aquatic habitat as the Class III watercourse goes dry during the critical period and is not suitable for foraging or refugia as it is located at the headwaters. **No negative impact to this species is expected as a result of this project.**

Western Pond Turtle *(Clemmys marmorata marmorata)* This species is somewhat large, with a carapace length of 110-210 mm. Hatchlings are approximately 25 mm long. Shell is low, broad, and smooth; the widest section lies behind the middle. No keel or serrations present. Sexual dimorphism occurs in morphology and color. Males have a concave plastron, while females have no indentation. Males have a shorter, thicker tail. The cloaca runs anterior to the carapace on females, posterior on males. On larger individuals (110-120 mm carapace), a yellow maxilla (side of head below eye, both sides of the mouth) may occur.

The western pond turtle occurs on suitable aquatic habitats throughout California west of the Sierra Nevada and in parts of Oregon and Washington. Breeding habitat requirements present significant risks to the species. Pond turtles may live for 30 to 40 years, grow slowly, and may take up to 8 years to reach sexual maturity. Mating occurs in April and May, after which females build nests along wetland margins or in adjacent uplands (Rathburn et al 1992). Females leave the watercourse in late afternoon and evening, and travel into adjacent wetland margins or uplands to build nests. Oviposition occurs in July and August, with hatchlings emerging in approximately 12 weeks.

The western pond turtle is found in generally quiet water that ranges in salinity content from fresh to brackish to seawater (Holland 1991). Pond turtles are found near a wide variety of wetlands, including ponds, marshes, lakes, streams, irrigation ditches, and vernal pools. Aquatic habitats with adequate vegetative cover and exposed basking sites are utilized. They are omnivorous generalists and opportunistic predators, eating small insects, aquatic invertebrates, fish, frogs, snakes, birds, and mammals. Wary and secretive, the pond turtle prefers habitats with large areas for cover (logs, algea, and vegetation) and basking (logs, boulders).

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable aquatic habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Bog club-moss (*Lycopodiella inundata)* is a perennial plant that grows low to the ground and is creeping to vine-like. It has both fertile stems (bearing spores) and sterile stems (bearing only leaves). This species is recognizable throughout the year. Bog club moss can be found in peat bogs, muddy depressions, and pond margins between sea level and 3300 feet.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Brandegee's clarkia (*Clarkia biloba ssp. brandegeeae)* is an annual herb, which is usually found below 2900 feet within the foothill woodland and lower conifer forest area. It is not a listed as a rare species, but it is a CNPS list 1B species and a USFS sensitive species. This plant generally blooms from May through June in Nevada County and is threatened by road maintenance and biocide spraying.

Conclusion: No suitable habitat exists within the project area as the elevation of the project is above the species known range. No sightings have been reported within the BAA. **No negative impact to this species is expected as a result of this project.**

Brownish beaked-rush (*Rhynchospora capitellata)* a monocot, is a perennial herb that is native to California and is also found elsewhere in North America and beyond. Usually found in marshes, seeps , boggy meadows at elevations below 3300 feet. It is not a listed as a rare species, but it is a CNPS list 2.2 species. This plant generally blooms from July through August.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable aquatic habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Cantelow's lewisia (*Lewisia cantelovii)* is a perennial herb, which is generally found on wet metamorphic rock cliffs and outcrops, moist granite cliffs, associated with moss or club moss, 1500 to 3000 feet elevation. It is not a listed as a rare species, but it is a CNPS list 1B species and a USFS sensitive species. This plant generally blooms from May through June and is threatened by horticultural collecting and road maintenance.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Closed-throated beardtongue *(Penstemon personatus)* a dicot, is a perennial herb that is native to California and is endemic (limited) to California alone. Usually found in openings and edges in coniferous forest and chaparral; usually on north-facing slopes in metavolcanic soils at elevations of 4500 to 6500 feet. It is not listed as a rare species, but it is a CNPS list 1B species.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Elongate copper-moss ***(Mielichhoferia elongate)*** grows under deciduous and broadleaf canopies with both open and herbaceous or closed and shrubby understory. This specie is generally found on metamorphic rock, usually in vernally mesic sites at elevations between 1,500 and 3,900 feet. This specie is not federal or state listed as threatened or endanger. The CNPS has listed this specie as 2.2, rare or endangered in California, more or less widespread outside California.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Green spleenwort ***(Asplenium trichomanes ramosum)*** a pteridophyte, is a fern (rhizomatous) that is native to California and is also found elsewhere in North America and beyond. Usually found on limestone or related calcareous rocks in sub alpine forest at elevations of 7000 to 8000 feet. This specie is not federal or state listed as threatened or endanger. The CNPS has listed this specie as 2.2, rare or endangered in California, more or less widespread outside California.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Hutchisons lewisia ***(Lewisia kelloggii ssp. hutchisonii)*** a dicot, is a perennial herb that is native to California and is endemic (limited) to California alone. Hutchison's lewisia occurs at seventeen sites ranging from the southern Cascade Range to the central Sierra Nevada. Its habitat is granitic gravel on ridge tops and flats between 5,100 and 7,000 feet elevation, sparsely vegetated by spindly Jeffrey pine and lodgepole pine woodlands, with patches of upland sedge (*Carex* sp.) and rock garden wildflowers. Although this plant is perennial and showy during its flowering period in late June, it shrivels up and disappears by late July until the next spring season. It is not listed as a rare species, but it is a CNPS list 3.3 species.

Conclusion: There have been no sightings of this species within or adjacent to the project area. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Stebbins' phacelia ***(Phacelia stebbinsii)*** a dicot, is an annual herb that is native to California and is endemic (limited) to California alone. Usually found in lower montane coniferous forests, woodlands and non-forested, open sites on a variety of substrata: granitic or dark metamorphic. It is not a listed as a rare species, but it is a CNPS list 1B species and a USFS sensitive species.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Butte County fritillary ***(Fritillaria eastwoodiae)*** is a perennial herb in the Lily family. It is not a listed as a rare species, but it is a CNPS list 3.2 species, a USFS sensitive species and a Federal species of concern. The preferred habitat is chaparral, cismontane woodland, and lower montane coniferous forest. It is usually located on dry slopes, but also found in wet places; soils can be serpentine, red clay or sandy loam. This plant generally blooms from March through May, and occurs at elevations of between 130 and 4,920 feet.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Slender-leaved pondweed ***(Potamogeton filiformis)*** a monocot, is a perennial herb (rhizomatous) that is native to California and is also found elsewhere in North America and beyond. Usually found in freshwater marshes and swamps, associated with shallow freshwater. This plant is an aquatic annual with threadlike leaves that generally blooms from May to July. It is not a listed as a rare species, but it is a CNPS list 2.2 species.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable aquatic habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Green-flowed wintergreen ***(Pyrola chlorantha)*** a dicot, is a shrub (stem succulent) that is native to California. Usually found in lower montane coniferous forests at elevations between sea level and 2900 feet. It is not a listed as a rare species, but it is a CNPS list 1A species, presumed extinct from California.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Howell's tauschia *(Tauschia howellii)* a low, spreading perennial herb usually found on dry ridges and flats on gravelly granitic soil above 5500 feet elevation. Flowers yellow to white, in small, loosely defined umbels between June and August. It is not a listed as a rare species, but it is a CNPS list 1B species.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Siskiyou Mountains huckleberry *(Vaccineum coccineum)* a dicot, is a shrub that is native to California and to Oregon. Usually found in Lodgepole, Red Fir, Yellow Pine Forest at elevations of 4500 to 7000 feet and often associated with serpentine soils. Usually occurs in non-wetlands, but occasionally found in wetlands It is not a listed as a rare species, but it is a CNPS list 3.3 species.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Clustered lady's-slipper (Cypripedium fasciculatuim) a perennial herb that is usually found in partial shade on moist slopes in mixed conifer forests at elevation from 500 to 6000 feet. This plant is a member of the Orchid family and is usually found on general forest soil. It is not a listed as a rare species, but it is a CNPS list 4.2 species.

Conclusion: Suitable habitat may exist within the project area and in the surrounding vicinity. No sightings have been reported within the BAA. The potential impact is from ground-based equipment, slash pile development, and burning. Recommendations include: avoid mechanical disturbance within openings, existing landings and along the edge of roadways. If found, establish a Special Treatment Area (no operations) around plants. **No negative impact to this species is expected as a result of this project.**

Mountain lady's-slipper *(Cypripedium montanum)* is a long-lived, rhizomatous, autotrophic orchid that has a symbiotic relationship with a soil fungus that begins with germination and may last until the plant dies. This plan is a perennial herb that is usually found in diverse habitats, moist areas, dry slopes under oaks and pines. Associated with broad leaf, upland forest at elevations below 7000 feet. This plant is a member of the Orchid family and is usually found on general forest soil. It is not a listed as a rare species, but it is a CNPS list 4.2 species.

Conclusion: Suitable habitat may exist within the project area and in the surrounding vicinity. No sightings have been reported within the BAA. The potential impact is from ground-based equipment, slash pile development, and burning. Recommendations include: avoid mechanical disturbance within openings, existing landings and along the edge of roadways. If found, establish a Special Treatment Area (no operations) around plants. **No negative impact to this species is expected as a result of this project.**

Quincy lupine *(Lupinus dalesiae)* a dicot, is a perennial herb that is native to California and is endemic (limited) to California alone. Usually found in Lodgepole, Red Fir, and Yellow Pine Forest at elevations of 2500 to 8000 feet. This species colonizes open dry to mesic mixed conifer forests, often disturbed areas on light colored fractured shale/slate. It is not a listed as a rare species, but it is a CNPS list 4.2 species.

Conclusion: Suitable habitat may exist within the project area and in the surrounding vicinity. No sightings have been reported within the BAA. The potential impact is from ground-based equipment, slash pile development, and burning. Recommendations include: avoid mechanical disturbance within openings, existing landings and along the edge of roadways. If found, establish a Special Treatment Area (no operations) around plants. **No negative impact to this species is expected as a result of this project.**

Sheldon's sedge *(Carex sheldonii)* is a species of sedge known by the common name Sheldon's sedge. It is native to the western United States, where it grows in wet areas such as lakeshores and moist meadows. This sedge produces triangular stems up to a meter tall from a network of rhizomes. The narrow, hairy leaves attach to the stems by reddish purple sheaths. The inflorescence is a solid, narrow cluster of flowers up to 50 centimeters long, holding up to 100 developing fruits.

Usually found in wetlands such as; marshes, calcareous fens, bogs and other peat lands, pond and stream banks, riparian zones, and even ditches; where they are often the dominant vegetation

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Norris' beard moss *(Didymodon norrisii)* a bryophyte, is a moss that is native to California. *Didymodon norrisii is* a densely matted acrocarpous moss of rock substrates in the family Pottiaceae. *Didymodon norrisii* is restricted to rock substrate with some sheet drainage of water in low to moderate elevations (200-1500 m). Serpentine, calcareous, and volcanic boulders and outcrops in fields, cliffs, and runoff areas are typical habitat for this densely matted moss. It is not a listed as a rare species, but it is a CNPS list 2.2 species.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Northern adder's tongue *(Ophioglossum pusillum)* a pteridophyte, is a fern (rhizomatous) that is native to California and is also found elsewhere in North America and beyond. Usually found in wet meadows, pond margins with sedges and Spiraea. Historical locations in "open swamps" at elevations of 3000 feet. Usually associated with Douglas fir and Carex spp. It is not a listed as a rare species, but it is a CNPS list 2.2 species.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Red Hills Soaproot *(Chlorogalum grandiflorum)* is a perennial herb growing from a 2 - 2 3/4 inch (5-7 cm) bulb that is reddish to brown in color. Flowers are white with purplish midvein, opening in evening and closing by next morning. This plant generally blooms from May through June. Grows in chaparral and wooded hills on serpentine and gabbro rock outcrops from 984 - 1640 feet (300-500 m). Also found in westside ponderosa pine forests up to 3800 feet (1160 meters).

Red Hills Soaproot is known from serpentine and gabbro rock sites primarily in Tuolumne and El Dorado counties. These sites are primarily chaparral; the soaproot growing in the openings. However, there are also a number of occurrences that are associated with Westside ponderosa pine forest from El Dorado to Calaveras County. BLM manages extensive habitat for this species in the Red Hills of Tuolumne County (on serpentine) and in the Pine Hill gabbro formation of El Dorado County, as well as a smaller amount of forest habitat.

Conclusion: There have been no sightings of this species within or adjacent to the BAA. The presence of this species is unlikely due to the absence of suitable habitat within or adjacent to the project area. **No negative impact to this species is expected as a result of this project.**

Biological Conclusion:

It is unlikely that biological resources will be reduced or lost as a result of the proposed project. It can be assumed that existing land use will remain consistent with similar surrounding land uses. Therefore, the impacts on natural resources are primarily going to be affected by recreation, forestry and development activities. Development activities are most likely to have the greatest impacts to biological resources. Areas remaining in recreation and forest production will be managed accordingly and some of these areas will likely maintain mosaic like stand structures offering a wide variety of habitats benefiting many different species.

Although no formal wildlife or plant surveys have been conducted for this project, twelve field visits from January 2010 to June 2010, totaling over 40 hours while preparing the NTMP and archaeological survey, which include early morning and late evenings, have been conducted by the RPF. During this time, there have been no sightings of rare, threatened or endangered species within the project boundary or surrounding area.

To comply with Fish and Game Code Section 3503.5, logging operations during the raptor-nesting season (February through July) will be preceded by pre-operations review of the site by an RPF. Review of the site will be conducted within 10 days of the onset of operations. The review will be conducted by an RPF responsible for marking the timber to be fell. Trees targeted for removal within the harvest area will be reviewed during the survey period which may be in conjunction with the mandatory on the ground, pre-operations meeting with the LTO.

During the life of the NTMP:

- Prior to submitting each Notice of Timber Operations (NTO), the RPF shall:
- Inspect the plan area and identify any physical changes to the site. Any physical changes, such as landslides shall be shown on the NTO map.
- Update the scoping for species of concern or their habitat for any changes in listing status for species that may occur on the project area.

- If a bird of prey, its nest, or eggs are discovered in the plan area, timber harvesting operations within ¼ mile will be stopped, and DFG will be contacted to initiate a consultation to determine an adequate buffer until: 1) the young are capable of sustained flight and can take prey independently; 2) August 15; or 3) the nest has failed after June 1 as determined by a wildlife biologist familiar with raptor biology.

- If sensitive plants are found, a minimum 50-foot no operations buffer shall be flagged or marked around a sensitive plant population until site-specific and species-specific measures can be developed in consultation with the DFG.

- The Pacific Fisher (*Martes pennanti*) has been recognized as a candidate species for listing under the California Endanger Species Act (CESA). The emergency regulations approved by the Office of Administrative Law regarding incidental take has expired, DF&G still recommend the same mitigation measures.

- The critical period for Pacific Fisher (*Martes pennanti*) is March 1 through July 31, where reproduction and caring for young occurs and when the highest potential for disturbance exists. During timber operations, if a fisher den or a female with young is observed, operations shall cease with .25 miles. CAL FIRE and DFG shall be notified immediately as a means to evaluate proposed protection measures and the plan shall be amended to illustrate the den location and describe any additional protection measures prior to operations in the affected area.

- If a species of special concern, including key habitat, associated with the plan area, is discovered at any time during the life of this plan, the species and the associated habitat will be protected under the provisions of 14 CCR, Article 9, Wildlife Protection Practices, Section 939.

- Bats - Due to the sensitive nature of maternity bat roosts (potentially large numbers and non-volant young), is a maternity bat roost is discovered in a tree marker for harvest, the marked roost tree shall remain until after the critical period (June-July), when young bats are able to fly.

Based on information gathered, the contents of the proposed project, mitigation measure proposed, the Forest Practice Rules, information from the review of other plans, the magnitude of impacts and mitigation measures identified in previous subsection, the proposed project is not likely to produce significant adverse cumulative effects to the biological resources within the assessment area.

D. - <u>RECREATIONAL RESOURCES:</u>

The Recreational Assessment Area boundary is 300 feet outside of the NTMP boundary. The rationale for choosing this boundary is that it is the boundary recommended by the Board of Forestry Technical Rule Addendum Number 2. No reason was found to deviate from the Rule Addendum recommendation.

The proposed project is located within the Plan Submitter ownership. The project area is an area currently utilized for timber production. All of the roads into the subject property are private, locked and the public is barred from entry. Both private and public lands surround the property boundary. The public lands are used extensively for recreation activities. The current ownership has no deeded agreement with the public for recreational purposes. There will be no recreational loss to the public from this harvest.

The evaluation of the effects to the recreational resources can seldom be measured quantitatively. Often qualitative judgments of the effects must be made. Based on information gathered, the contents of the proposed project, the Forest Practice Rules, information from the review of other plans, the magnitude of impacts and mitigation measures identified in previous subsections, the proposed project is not likely to produce significant adverse cumulative effects to the recreational resources within the assessment area.

The Visual Assessment Area boundary coincides with the boundary of the planning watershed. The rationale for choosing this boundary is that beyond this boundary the line of sight for a person standing on the ground is blocked by the ridge lines that form the planning watershed and it is consistent with the boundary recommended by Board of Forestry Technical Rule Addendum Number 2, namely "no further than three miles from the timber operation."

Overall, the scenic character of the assessment area through time has been a forested environment with a mixture of tree species. The primary cause of changed to the landscape character historically has been caused by large stand-replacing fires. Human uses have altered the scenic integrity from historic conditions by homesteading, development of transportation systems, logging, etc. The composition of the forest also has been altered by the lack of fire in the environment over the past several decades with much higher percentage of brush species and shade-tolerant tree species than historic conditions.

Forest users place a high value on scenic integrity. Scenery plays a major role in the attraction people have to the area and in the special feelings that area invokes. There are no Special Treatment Areas designated as such by the Board of Forestry because of their visual values. Special Treatment Areas are specific locations which contain one or more of the following significant resource features which may be at risk during timber operations: (I) Within 200 feet of the watercourse transition line of federal or state designated wild and scenic rivers; (2) Within 200 feet of national, state, regional, county or municipal park boundaries; (3) Key habitat areas of federal or state designated threatened, rare or endangered species; (4) Coastal Commission special treatment areas; and (5) Within 200 feet of state designated scenic highways or within scenic corridors.

The proposed project is not expected to result in significant adverse aesthetic effects.

The majority of the NTMP area, with the exception of the road frontage, is private property. The logging operation will be visible from the Banner Quaker Road that forms the perimeter along the west and south boundary of proposed plan. Selection is the proposed silviculture for the entire property. Hazard reduction work will be required adjacent to the road. As such, the traveling public will see a uniform stand of health trees with little or no slash.

Timber harvest is a practice that alters the existing structure of vegetation. The proposed project activities should achieve a predominately natural appearance and meet retention requirements as outlined in the FPRs so that management activities would be visually subordinate to the surrounding landscape.

Based on information gathered, the contents of the proposed project, the Forest Practice Rules, information from the review of other documents, the magnitude of impacts and mitigation measures identified in previous development projects, the proposed project is not likely to produce significant adverse cumulative effects to the visual resources within the assessment area.

F. - VEHICULAR TRAFFIC IMPACTS:

The Traffic Assessment Area involves the first roads, not part of the logging area, on which log truck traffic must travel. The rationale for using this area is that it is the one recommended by the Board of Forestry Technical Rule Addendum Number 2. No reason was found to deviate from the Rule Addendum recommendation.

The haul routes outside the harvest boundary are; Banner Quaker Hill Road to Cascade Shores, to Quaker Hill Cross Road to Red Dog Road to Nevada City and Hwy 20/49. The alternate route is Banner Quaker Hill Road to Chalk Bluff Road and either north to Hwy 20 or South to Red Dog Road. All of these roads have been used for hauling logs to the mill. There are no traffic or maintenance concerns with either route.

It is recommended that the use of Jake (engine) brakes be restricted through the Cascade Shores Subdivision. In addition, dust abatement practices should be used on native surfaced roads in the vicinity of residence near the Cascade Shores Subdivision.

There are no known projects that will combine to create any adverse, significant cumulative impacts to traffic. Based on information gathered, the contents of the proposed project, the Forest Practice Rules, information from the review of other plans, the magnitude of impacts identified and mitigation measures identified in previous projects, the proposed project is not likely to produce significant adverse cumulative effects to vehicular traffic within the assessment area.

G. - OTHER: GREEN HOUSE GAS

The GHG Assessment Area is the same as the watershed assessment area. The rationale for choosing the GHG Assessment Area for this NTMP is based upon the principle that any potential climate effects or impacts associated with the proposed project are linked to the carbon cycle from stump to forest product, product recycling and reuse, product consumption, eventual product decay, and tree regeneration.

The proposed project is part of a complex carbon equation and though methods to quantify potential greenhouse gas (GHG) emissions have been developed for numerous sources, the connection between potential emissions and their ultimate potential effects on or contributions to climate change and global warming have not been precisely defined. No known quantitative significance threshold exists for potential global warming impacts.

The SWOPE NTMP is proposing to mange the project's timber resources on a sustained-yield basis using unevenaged management methods as outlined in the NTMP. As part of the carbon equation the proposed project would result in emissions of GHG's during on-site operations, off-site transportation and manufacturing, wood product consumption, and eventual wood product decay, but would also reduce the potential for wildland fire (a major contributor to GHG's), create conditions conducive to a forest that will grow more rapidly and subsequently sequester relatively large volumes of additional carbon from the atmosphere roughly proportional to the forest's growth in biomass, produce a product that requires up to 280 times less energy to produce than steel, aluminum, plastics or concrete, and encourage the growth and sustainability of the only 100% renewable and recyclable resource on the planet.

The SWOPE NTMP is proposing to use the Selection silvicultural methods on 40 acres at periodic entries to conduct forest management operations. According to the Green House Gas Calculator Spreadsheet provide on the CAL FIRE website, the total project CO2 sequestration over a 100 year period will be approximately 6,000 metric tonnes. The carbon stock removed during any periodic harvest will be replaced within 9 years. The proposed project will not have a significant negative effect on green house gases (GHG) at either the project level or the assessment area level because the proposed project does not include a land use change or an activity that will decreases carbon storage over the normal periods expected for projects consistent with the California Forest Practices Act and its provisions.

The following are some of the most relevant issues to consider when analyzing the potential effects of the proposed project in regards to GHG concerns and carbon storage of the project area:

1) Sustained Yield Management - The SWOPE NTMP is proposing to use the Selection silvicultural methods on 40 acres and periodic forest management operations will occur in the future on the project site. Under sustained yield management, the project's timber stand will be managed such that the amount of carbon removed from the whole stand is balanced by the amount of carbon grown and therefore, carbon storage per acre across the forest remains stable, while harvested carbon flows to product pools (Mader 2007).

2) Carbon Storage - The proposed SWOPE NTMP operations will maintain and enhance stand health and vigor, capture mortality, and shift carbon uptake to more-efficient growers. In consideration of a given stand, the amount of carbon sequestered by young trees varies between 2-6 tons of carbon per acre per year depending on species and site quality and total accumulation of carbon (and wood) in fully stocked stands will continue to rise until the stand reaches maturity (Mader 2007). Subsequently, younger managed stands sequester carbon much more rapidly than older stands which have less efficient photosynthesis and higher respiratory losses and therefore may ultimately have zero net C02 uptake, but store more carbon. Recent studies have also found that the failure to account for carbon taken from C02 in the air and stored in forest products and mill residue significantly understates the total amount of carbon sequestered by California's managed forestlands (Cajun 2008).

3) Wildfire Effects - Catastrophic wildfires represent a significant carbon loss and source of GHG emissions throughout the world. By not managing the proposed project area, conditions are being created that are far more conducive to unnatural, devastating, and destructive crown fires as opposed to conditions created and enhanced by forest management and fuel-reduction practices. Wildfires are one of the primary contributors to GHG's and may emit up to 100 tons of C02 per acre depending on forest type, density, and fire intensity (Helms 2007) and a recent study conducted for The Forest Foundation estimated that just four California wildfires sent 38 million tons of GHG's into the air, equivalent to 7 million cars on the road for one year in California (Bonnicksen 2008). Wildfires also remove carbon from surface soils and emit significant quantities of aerosols, particulates, and nitrous oxide and methane which are more potent GHG's than C02 (Mader 2007). The SWOPE NTMP landowner by providing a sound and long term management and stewardship plan for the project area is significantly reducing the potential for catastrophic wildfire in the region.

4) Insects and Disease - Insect and disease infestations create and contribute to similar impacts to the carbon cycle as wildfires and exacerbate wildfire effects when fire occurs in infested areas. Dense, slow-growing unmanaged forest stands are the most susceptible to the effects of insects and disease and subsequent reduction of stored carbon.

Experts predict that more than 21 million additional acres of western forests will suffer significant tree mortality from bark beetle attacks during the next fifteen years (Bonnicksen 2007). The proposed SWOPE NTMP will enhance the forest stands health and reduce the effects of insect and disease infestations and potentially negative carbon storage effects by treating and managing any potential adverse stand conditions on the project site.

5) Carbon Leakage - Leakage refers to an unintended, previously unaccounted for, *and / or* heretofore unknown effect on the carbon accounting process. For example, excessively restricted harvesting and management practices potentially promote excessive harvesting elsewhere and this would be considering leakage in the carbon accounting process. Leakage is considered negative when carbon management within a given project area causes compensation outside the area or causes carbon (wood as a carbon based product) to be imported.

Currently, the United States imports 36 percent of its wood consumption from other countries, some of which have far lower environmental standards and often may incorporate illegal logging (Helms 2007). The State of California imports 80 percent more wood than is produced in the state (Tuttle 2007). By proceeding with the proposed SWOPE NTMP project, which is written, filed, and reviewed under some of the most stringent and comprehensive environmental regulations in the world, the project can potentially reduce carbon leakage. This carbon leakage is created by the importation of wood from countries and regions where forests are not managed under the same level of comprehensive environmental guidelines and requirements as found in the U.S. and particularly in California. Part of the carbon leakage equation is also the consumption of non-renewable fossil fuels to import the product into the United States and California. The SWOPE NTMP as proposed has the potential to create positive carbon effects by encouraging the local production and use of timber in the market place to reduce imports and the use and consumption of less-efficient and non-renewable wood substitutes.

6) Emissions - The proposed project would produce minimal carbon emissions during timber operations and emissions of GHG's would occur in the larger carbon equation during off-site transportation and manufacturing, wood product consumption, and eventual wood product decay. However, considering the complete carbon equation, the proposed project would have significant and off-setting positive effects including the reduction of wildland fire threat, increased vigor and health of the forest stand, the shifting of carbon uptake to more-efficient growers in the stand, the reduction of mortality from insect and disease infestation, providing wood as a product substitution to replace other products which are non-renewable and emit higher amounts of C02 (e.g. displacing more fossil fuel-intensive products in housing construction), providing an economic benefit to the community in the form of jobs and commerce, discouraging negative carbon leakage and encouraging positive carbon leakage, and providing a product and encouraging the growth and sustainability of the only 100% renewable and recyclable resource on the planet.

The proposed project is part of a complex carbon cycle and though methods to quantify potential greenhouse gas (GHG) emissions have been developed for numerous sources, the connection between potential emissions and their ultimate potential effects on or contributions to climate change and global warming have not been precisely defined. Based on information gathered, the contents of the proposed project, the Forest Practice Rules, information from the review of other plans, the magnitude of impacts identified and mitigation measures identified in previous projects, the proposed project will not produce significant adverse cumulative effects to Green House Gas emission at the project or assessment area level.

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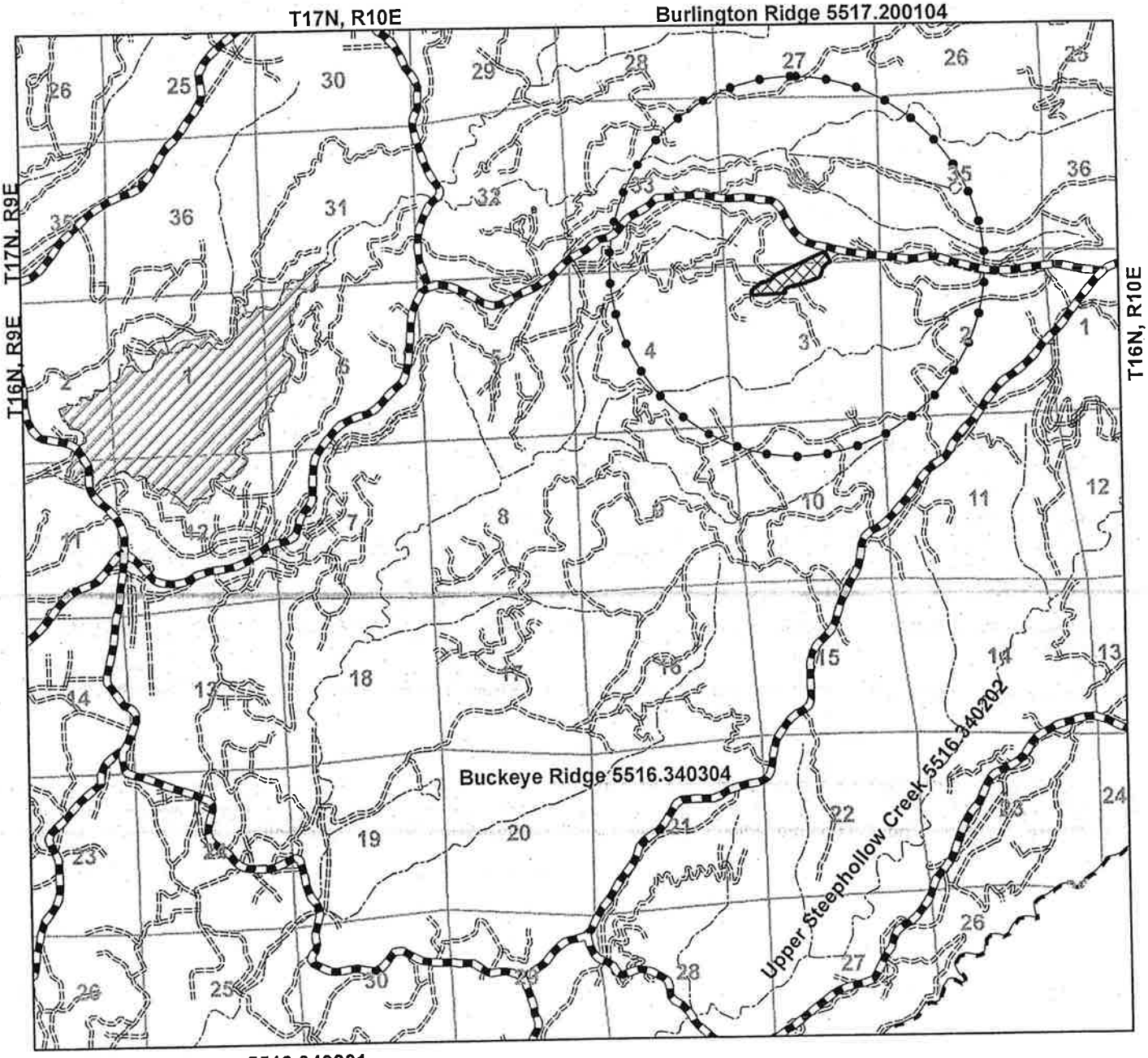
SWOPE - Chalk Bluff 40 NTMP
Cummulative Impacts Assessment Area Map
Portions of S1/2, Section 3, T16N, R10E,
and portions of N1/2, Section 34, T17N, R10E, MDBM
Washington, Dutch Flat, Chicago Park and North Bloomfield 7.5' Quadrangle
Scale 1 :60,000



Legend

Watershed Assessment Area Boundary

Biological Assessment Area

SWOPE Chalk Bluff 40 Project Area

Existing Seasonal Roads

Watercourses

Scotts Flat Resevoir

6-21-10

Alternatives Discussion

Analysis of Alternatives to the Timber Harvest Plan: This section briefly describes the proposed project and alternative management options for implementation within the project area. The California Environmental Quality Act (CEQA) requires that a NTMP describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. A NTMP need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making. An NTMP is not required to consider alternatives, which are infeasible. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.

Because an NTMP must identify ways to mitigate or avoid the significant effects that the project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

1. **The Project as Proposed -** The overall purpose and need of the proposed NTMP is to produce a source of retirement income while moving the stand toward late serial stage development. The silvicultural method proposed for use in the project area will improve stand health and stocking levels of conifer species and to protect and/or improve wildlife habitat. The need for the proposed action, from a broader perspective considering the policies of the Forest Practice Act and the Timberland Productivity Act, include maintaining the flow of high quality timber products to the economy, maintaining a forest products industry, providing a source of employment, avoiding waste of timber resources, contributing to a base for sustainable resources for the economy and maintaining forest health.

Implementation of this NTMP would present the project as proposed. The proposed actions respond to the desired future conditions of the project area and emphasize land management through some of the objectives summarized below.

- Maintain the maximum sustained production of high quality timber by moving the forest stand structure closer to a WHR 6.
- The landowner is relying on the periodic harvesting of growth over time to provide the necessary cash flow during the retirement period.
- Harvest approximately 40 acres under the Selection method. Stocking standards will be met immediately after harvesting operations are completed.
- Skidding operations will be limited to existing skid roads unless identified and flagged by an RPF or his supervised designee prior to use. In no case, will the construction of skid trail be on slopes over 40%.
- No winter operations.

2. **No Project -** None of the project activities previously mentioned in this NTMP would be implemented. Under the "No Project", there would be no change from current management direction or from the level of management intensity. "No Project" would result in visible and measurable changes over a longer period. "No Project" means that timber harvest and an economic return from the sale would be foregone at this time. Biological and physical processes would occur without the influence of resource management. Management that would improve the stand to meet the objectives of the timberland owner(s) would be delayed or possibly lost. Removal of damaged, dead and dying trees from the project area would not occur, therefore not improving forest health and increasing future risk to the remaining live trees. This alternative would not provide timber to help meet the demand for lumber and other wood products, nor would it provide local employment and revenues to the county. Under this alternative, roads would be maintained at levels lower than present. This alternative complies with NEPA and CEQA, which require that a no-action alternative be included in the analysis.

This alternative does not meet any of the needs or objectives of the timberland owner(s); therefore, the "No Project" alternative is dropped from further consideration.

3. **Alternative Locations -** The key question and first step in this analysis 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 the NTMP.

In assessing the impacts of this plan, it was determined that the proposed harvesting, as a result of this NTMP as presented, will not cause a significant adverse impact to the environment, individually and/or cumulatively. The timberland owners do currently own other lands that are suitable for harvesting and management of timber and that would meet the their objectives. However, the landowner is relying on the periodic harvesting of growth over time to provide the necessary cash flow during the retirement period. As such, it is necessary to bring this property into the long-term term management portfolio.

This alternative does not meet any of the needs or objectives of the timberland owner(s); therefore, the use of an alternative location is dropped from further consideration.

4. **Timing of the Project -** As with the previous alternative, the key question and first step in this analysis is whether any of the significant effects of the project would be avoided or substantially lessened by delaying the timing of this proposed project. Proposed actions under this alternative are the same as the proposed action; however, the proposed action would be delayed for sometime (no more than three years). Until the proposed action was acted upon, the immediate results would be consistent with the "No Project" alternative.

In assessing the impacts of this plan, it was determined that the proposed harvesting, as a result of this NTMP as presented, will not cause a significant adverse impact to the environment, individually and/or cumulatively. Delaying the project would only delay the proposed action for a short period. During this time of delay, existing fuels would continue to persist and the timber harvest and an economic return from the sale would be foregone.

The timberland owner(s) has expressed the need to harvest timber from the proposed project area. Time is of the essence for this project as presented. Timing of timber harvesting is proposed to coincide with market and weather conditions and the needs of the timberland owner(s). If timing of this NTMP is delayed, the site would remain as is and the maximum economic opportunity for timber harvest would be lost. This would preclude an economic return from the sale of timber at this time and objectives that would benefit forest health.

This alternative would not meet the immediate needs or objectives of timberland owner; therefore, an alternative to the timing of this project is dropped from further consideration.

5. **Selling Property -** Selling the property or the timber rights is a feasible alternative. However, the timberland owner has not been approached by any public agency interested in public acquisition of the property. The property was purchased to provide the necessary cash flow during the retirement period.

This alternative would not meet the immediate needs or objectives of timberland owner; therefore, an alternative to the selling the property is dropped from further consideration.

The preferred alternative is No. 1, the NTMP as submitted. In order to meet the landowner's objectives, the NTMP should be initiated in a timely manner. The project as proposed will meet or exceed the stocking requirements required by the California Forest Practice Rules for the selected silvicultural system.

SECTION V

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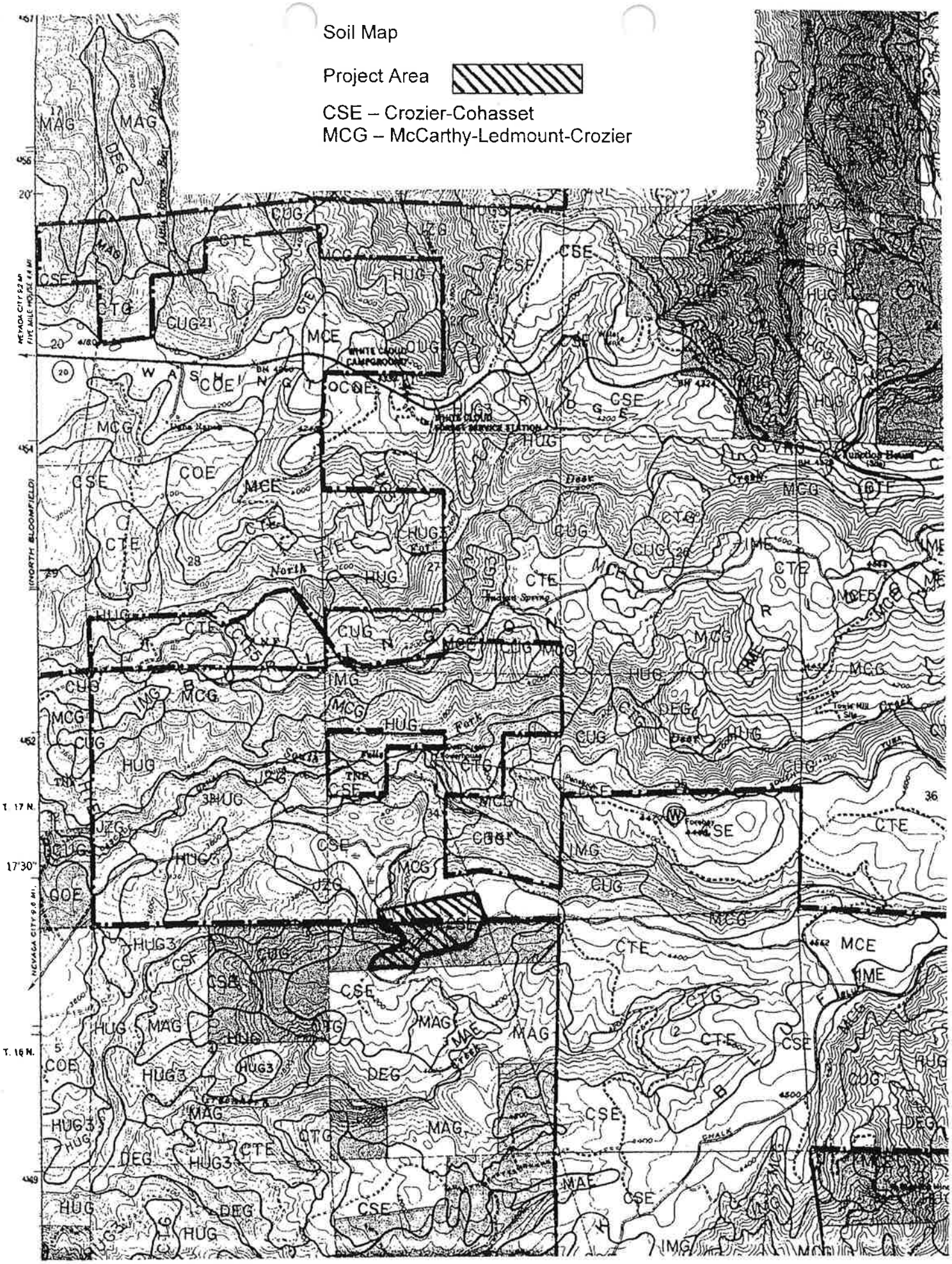
ESTIMATED SURFACE SOIL EROSION HAZARD
RM-87 (4/84)

State of California
Board of Forestry

Crozier-Cohassit	A. Crozier 60%	B. Cohassit 25%		Factor Rating					
McCarthy-Ledmount-Crozier	C. McCarthy 40%	D. Ledmount 25%	E.Crozier 20%	By Area					
I. SOIL FACTORS									
A. SOIL TEXTURE	Fine	Medium	Coarse	A	B	C	D	E	
1. DETACHABILITY	Low	Moderate	High						
Rating	1-9	10-18	19-30	17	17	23	23	17	
2. PERMEABILITY	Slow	Moderate	Rapid						
Rating	5-4	3-2	1	4	4	3	3	4	
B. DEPTH TO RESTRICTIVE LAYER OR BEDROCK									
	Shallow	Moderate	Deep						
	1"-19"	20"-39"	40"-60"+						
Rating	15-9	8-4	3-1	8	3	6	6	10	
C. PERCENT SURFACE COARSE FRAGMENTS GREATER THAN 2MM IN SIZE INCLUDING ROCKS OR STONES									
	Low	Moderate	High						FACTOR RATING BY AREA
	(-) 10-39%	40-70%	71-100%						
Rating	10-6	5-3	2-1	9	9	6	6	6	A B C D E
								SUBTOTAL	38 33 38 38 37
II. SLOPE FACTOR									
Slope	5-15%	16-30%	31-40%	41-50%	51-70%	71-80%(+)			
Rating	1-3	4-6	7-10	11-15	16-25	26-35	5	5	8 8 8
III. PROTECTIVE VEGETATIVE COVER REMAINING AFTER DISTURBANCE									
	Low	Moderate	High						
	0-40%	41-80%	81-100%						
Rating	15-8	7-4	3-1	3	3	3	3	3	
IV. TWO YEAR, ONE-HOUR RAINFALL INTENSITY (Hundredths of an Inch)									
	Low	Moderate	High	Extreme					
	(-) 30-39	40-59	60-69	70-80 (+)					
Rating	1-3	4-7	8-11	12-15	12	12	12	12	12
					TOTAL SUM OF FACTORS	58	53	61	61	60
EROSION HAZARD RATING									
	<50	50-65	66-75	>75					
	Low (L)	Mod(M)	High (H)	Extreme (E)					
					THE DETERMINATION IS:	M	M	M	M	M

EHR WORKSHEET

6-21-10


Soil Map
Project Area
CSE – Crozier-Cohasset
MCG – McCarthy-Ledmount-Crozier

6-21-10

(916) 324-3812

March 1, 2010

Kevin Whitlock
Under The Trees
P.O. Box 363
Nevada City, CA 95959

Dear Mr. Whitlock:

In response to your request on February 23, 2009, a search for occurrences of rare, threatened, endangered, and sensitive animals, plants, and natural communities has been completed by the California Natural Diversity Database (CNDDB) for the following quadrangle(s): **Alleghany, Blue Canyon, Chicago Park, Cisco Grove, Downieville, Dutch Flat, English Mtn., Goodyears Bar, Graniteville, Haypress Valley, North Bloomfield, Sierra City, Washington, Westville, and Pike.**

Please refer to the enclosed documents for an explanation of the terms and information contained in this computerized report. You will be billed shortly for your order. All of our current CNDDB lists are now available online at http://www.dfg.ca.gov/biogeodata/cnddb/plants.asp for plant lists and/or http://www.dfg.ca.gov/biogeodata/cnddb/animals.asp for animals.

NOTICE TO ALL USERS OF NATURAL DIVERSITY DATABASE INFORMATION

This report does not constitute official Department of Fish and Game environmental impact review of a project under the California Environmental Quality Act, National Environmental Policy Act, or other statutory or regulatory authority. Environmental impact review is carried out by other units in the Department. Even if the CNDDB does not report an occurrence of special animals, plants, or natural communities in your project area, the Department may recommend that you conduct studies to determine or confirm their presence or absence, or to determine the impact of your proposed activity on these and other organisms and their habitats.

Although the CNDDB inventory does not include other more common animals and plants, such as those that may be important for game, commercial, or aesthetic reasons, such species are of concern, and the law requires that they also be considered in an environmental assessment of any nonexempt project.

The CNDDB also inventories both terrestrial and aquatic natural communities that are of extremely high quality, very limited distribution or threatened. These natural communities contain a rich heritage of native animals and plants that contribute significantly to the State's natural biotic diversity.

The absence of a special animal, plant, or natural community from the report does not necessarily mean that they are absent from the area in question, only that no occurrence data are currently entered in the CNDDB inventory. The occurrence of special species or natural communities in the vicinity of your project area may be an indication that they would also occur in your project area. It is the responsibility of the lead agency or project sponsor to provide adequate information as to whether a proposed project will affect fish and wildlife (including plants) and their habitats. We strongly recommend that field studies be conducted to complement the report(s).

The CNDDB is the most complete single source of information on California's sensitive species and natural communities. Data on these and other elements of natural diversity are provided to the data base from a number of sources and entered into the inventory as expeditiously as possible. You can help this process by providing us with whatever new or more accurate data you may obtain from the studies you conduct. You may access the field survey forms online at: http://www.dfg.ca.gov/biogeodata/cnddb/plants.asp for plants and/or http://www.dfg.ca.gov/biogeodata/cnddb/animals.asp for animals. For added, convenience you can simply download the field survey form for future use online at: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/natspec.pdf.

We are pleased to provide you with this excellent source of endangered, threatened, rare and sensitive species information. If you have any questions or need assistance, call our Information Services unit at (916) 324-3812. For your convenience, this number is available 24 hours a day for voice mail messages. Thank you for your support of the CNDDB.

Sincerely,

Kristine Donat

Kristine Donat, Information Services Coordinator
California Natural Diversity Database
Biogeographic Data Branch – BDB@dfg.ca.gov
kdonat@dfg.ca.gov

Enclosures

NEVADA COUNTY PUBLISHING COMPANY
Grass Valley, CA

AFFIDAVIT OF PUBLICATION
The Union

Under the Trees
Attn: Kevin Whitlock
PO Box 363
Nevada City, CA 95959

REFERENCE: **Timber Harvest**
McDermott
Ad #4853866

County of Nevada, State of Calif. The undersigned, Betsy Hunter, being the principal clerk of the Nevada County Publishing Co. declares that the Nevada County Publishing Co. now is, and during all times herein named, was a corporation duly organized and existing under the laws of the State of California, and now is, and during all times herein named was the printer of THE UNION, a newspaper of general circulation, as defined by Section 6000 of the Government Code of the State of California, printed and published daily (Sundays excepted) in the City of Grass Valley, County of Nevada, State of California, and that affiant is the principal clerk of said Nevada County Publishing Co.

That the printed advertisement hereto annexed was published in the said UNION, in the issues of the following named dates:

April 3, 2010

I certify, under penalty of perjury, the foregoing is true and correct.

Signed: _____
Legal Advertising Clerk

Public Notice - Request for Information on Domestic Water Supplies

This is a request for information concerning surface domestic water supplies 1,000 feet downstream of the following proposed timber harvesting operations, McDermott CB40 Non-Industrial Timber Management Plan (NTMP): Legal Description - Portion of the N1/2, Section 3, Township 16 North, Range 10 East, and a portion of the S1/2, Section 34, Township 17 North, Range 10 East, MDB&M. The watercourse of concern which flows through the property is a Class III, un-named tributary of Greenhorn Creek, a Class I watercourse. If you are a property owner within 1,000 feet downstream of the NTMP area and have knowledge of surface domestic water supplies, which may be affected by the proposed project, please notify in writing within 10 days of this publication. Responses should be sent in care of: McDermott CB40 NTMP, P.O. Box 363, Nevada City, CA 95959.

Publish: April 3, 2010 **Ad #4853866**

6-21-10

Adjacent

65-270-01
James Wilson
9533 Black Bear Drive
Reno, NV 89506

65-270-02
Shaun Bryars
11574 Northview Drive
Nevada City, CA 95959

65-270-05
Kevin Kohley
10 Piper Lane
Fairfax, CA 94930

65-270-04
Thomas Vanhorne
6186 Elvas Avenue
Sacramento, CA 95819

65-090-02
Sierra Pacific Industries
P.O. Box 496014
Redding, CA 96049-6014

Landowner

65-270-03
SWOPE Medical Group Inc
10780 Genasci
Nevada City, CA 95959

Cumulative Impacts

USFS Yuba River RD
Greg Schimke ADR
15924 Highway 49
Camptonville, CA 95922

Nevada County Comm. Develop
Jory Stewart, AICP, Planning
950 Maidu Ave. Suite 170
Nevada City, CA 95959

Native American Cont

United Auburn Indian Community of the Auburn Rancheria*
Jessica Tavares, Chairperson Tribal
10720 Indian Hill Road
Auburn, CA 95603

Washoe Tribe of Nevada and California*
Waldo Walker, Chairperson
919 Highway 395 South
Gardnerville, NV 89410

Native American Heritage Commission
915 Capitol Mall, Room #364
Sacramento, CA 95814

Domestic Water

65-270-01
James Wilson
9533 Black Bear Drive
Reno, NV 89506

14-190-10
Pacific Gas & Electric
127 East Main Street
Grass Valley, CA 95945

65-270-02
Shaun Bryars
11574 Northview Drive
Nevada City, CA 95959

Under the Trees

Forestry & Environmental Consulting

An ecosystems service firm providing ecological, economical, and socially responsible resource management.

Kevin Whitlock, MBA, RPF #2436
P.O. Box 363 • Nevada City, CA 95959
(530) 265-5670 (o) 530-559-0901 (c) E-mail:underthetrees@att.net

65-270-02
Shaun Bryars
11574 Northview Drive
Nevada City, CA 95959

RE: Request for Surface Domestic Water Information

Dear Landowners;

I am preparing a Non-Industrial Timber Management Plan (NTMP) for property located in a portion of the North ½, Section 3, T16N, R10E, and the South ½, Section 34, T17N, R10E, MDBM. I am requesting information on any surface domestic water supply or use located on or near your property. This includes any household water use derived from watercourses on or adjacent to your property, pursuant to Title 14, California Code of Regulations, Section 1032.10 of the Forest Practice Rules.

As a common courtesy, as well as required by state regulations, all users of surface water within 1,000 feet downstream of the proposed project must be notified of the intent to harvest timber. In addition, the location of all domestic water supplies must be shown on the NTMP map. This applies to household use, and includes the incidental watering of domestic stock for family sustenance or enjoyment and the irrigation of not more than one half acre of lawn, ornamental shrubbery, or gardens at any single establishment. **This does not include wells outside the watercourse channel.**

Your property has been identified as being within 1,000 feet downstream of the proposed project area. This letter is to request information as to your uses of all watercourses within 1,000 feet of the NTMP boundary. Watercourses that may be affected include a tributary to Greenhorn Creek, a Class I watercourse. Even if you are not currently using the watercourse as a domestic water source, but have used it in the past as a backup, etc., please also supply this information.

Please have your information forwarded within ten (10) days of your receipt of this notification. Make your response in writing to: **McDermott – Chalk Bluff, P.O. Box 363, Nevada City, CA 95959**

Again, your response must be in writing. Any response (written or otherwise) will be submitted with the NTMP to CalFire, Department of Forestry & Fire Protection for review. If any domestic supplies are noted, the NTMP shall contain mitigation necessary to protect the domestic water supply. Should you have any questions, please do not hesitate to call me.

Sincerely,

Kevin Whitlock, Registered Professional Forester #2436
Under the Trees
530-265-5670
underthetrees@att.net

6-21-10

Under the Trees

Forestry & Environmental Consulting

An ecosystems service firm providing ecological, economical, and socially responsible resource management.

Kevin Whitlock, MBA, RPF #2436
P.O. Box 363 • Nevada City, CA 95959
(530) 265-5670 (o) 530-559-0901 (c) E-mail:underthetrees@att.net

Yuba River Ranger District
Attn: Greg Schimke Acting District Ranger
15924 Highway 49
Camptonville CA 95922

RE: **McDermott Non-Industrial Timber Management Plan – Natural Resource Information Request**

Dear Mr. Schimke,

I have been contracted to prepare a Non-Industrial Timber Management Plan (NTMP) located east of Nevada City, approximately four miles east of Scotts Flat Reservoir. The legal description is a portion of the North ½, Section 3, T16N, R10E, and the South ½, Section 34, T17N, R10E MDBM. The project is approximately 40 acres and can be identified on the USGS Washington 7.5' quadrangle.

If you have any information concerning any of the following items, during the last ten years within one mile of the project area outlined on the attached map, would you please forward that information to:

McDermott Chalk Bluff NTMP
P.O. Box 363, Nevada City, CA 9595.

Any information will be greatly appreciated.

1. Location, acreage, and any special consideration or significant impacts resulting from activities whether or not they were conducted as projects under CEQA or NEPA.
2. Any known, proposed future projects.
3. Known locations of threatened and/or endangered species or species of special concern. Locations of known archeological sites in or adjacent to the project area.
4. Any known use of surface water within 1,000 feet downstream of the proposed project which includes all domestic water supplies. This applies to household use, and includes the incidental watering of domestic stock for family sustenance or enjoyment and the irrigation of not more than one half acre of lawn, ornamental shrubbery, or gardens at any single establishment. This does not include wells outside the watercourse channel.

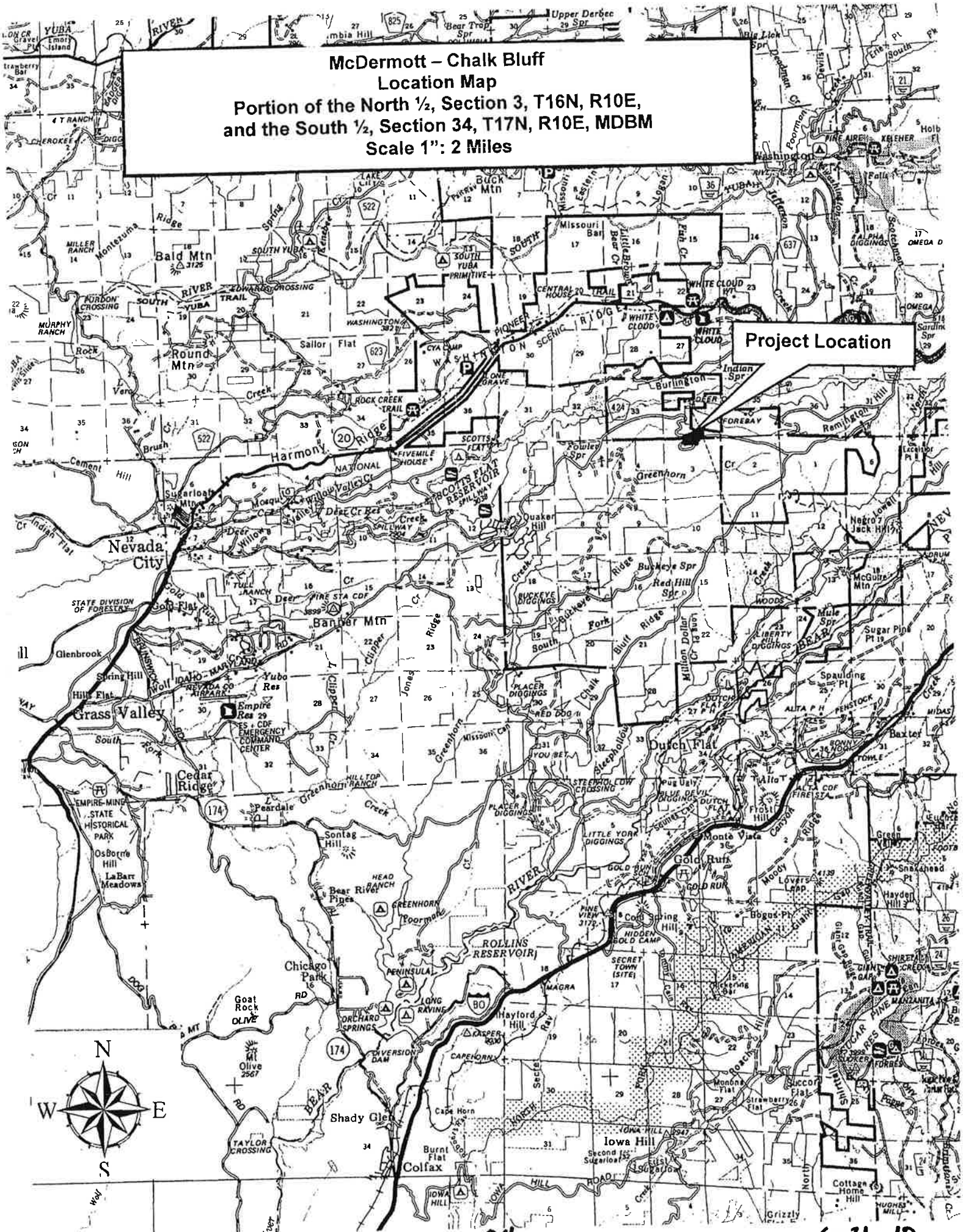
As mentioned, I have attached a map showing the location of the project area. Any response would be greatly appreciated and will be submitted with the NTMP to the CALFIRE for review. If any resource is noted, the NTMP shall contain mitigation necessary for protection.

Thank you for your cooperation. Should you have any questions regarding these items please do not hesitate to call me.

Sincerely,

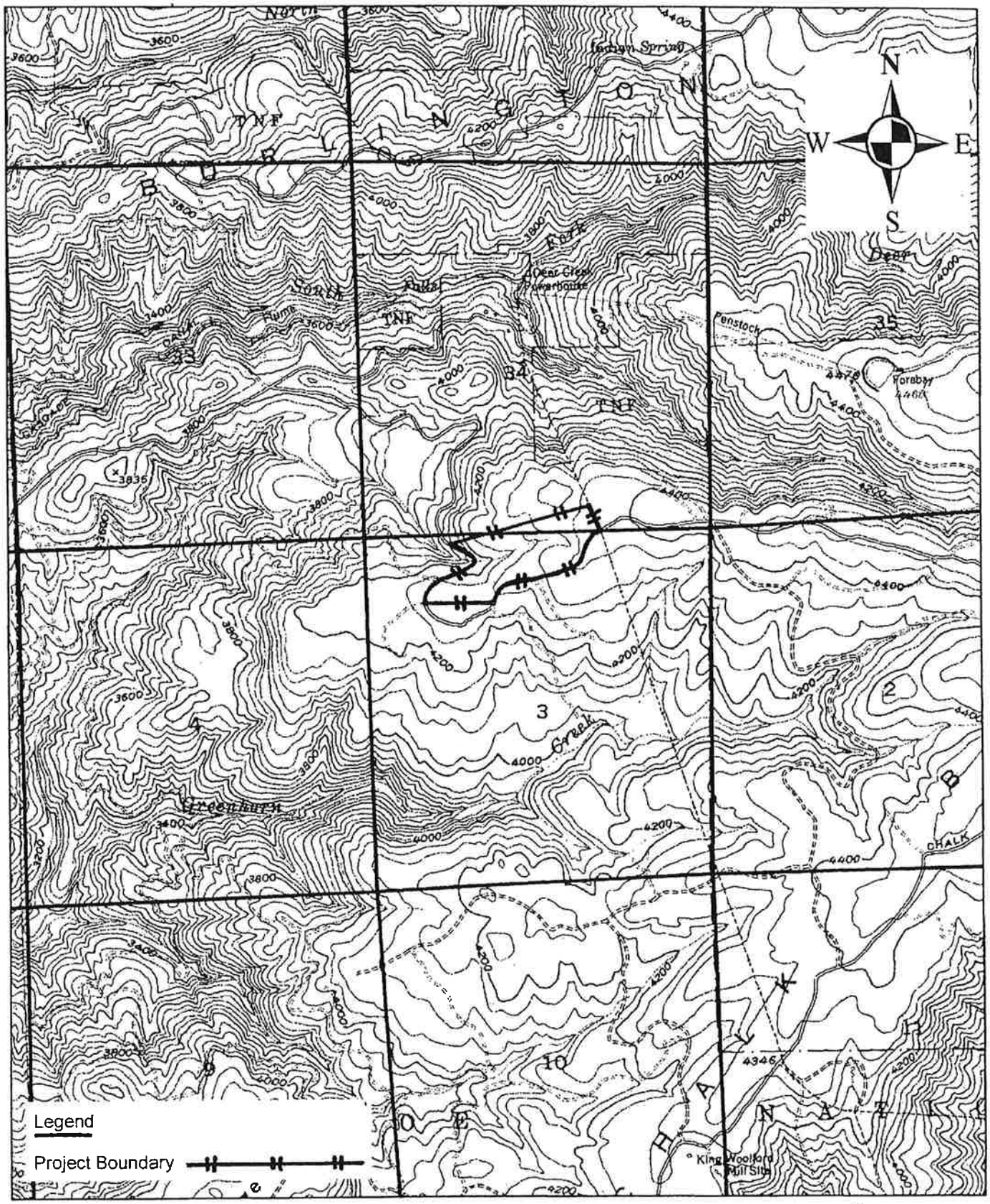
Kevin Whitlock
California Registered Professional Forester #2436
Attached: Map

6-21-10


McDermott – Chalk Bluff
Location Map
Portion of the North ½, Section 3, T16N, R10E,
and the South ½, Section 34, T17N, R10E, MDBM
Scale 1": 2 Miles
Project Location
N
W
E
S

6-21-10

McDermott - Chalk Bluff
Location Map
Portions of Section 3, T16N, R10E, and Section 34, T17N, R10E, MDBM
Washington 7.5' Quarrangle
Scale 1 :24,000
Contour Interval 40'



6-21-10

United States Department of Agriculture
Forest Service
Tahoe National Forest
Yuba River Ranger District (South)
631 Coyote Street
Nevada City, CA
95959-2250
530 265-4531
530 478-6118 TDD
530 478-6109 FAX

File Code: 2600

Date: February 25, 2010

Subject: Request for file data on plant species in vicinity of section 3, T.17N, R.10E to complete a non-industrial timber management plan (NTMP).

To: Kevin Whitlock
P.O. Box 363
Nevada City, CA 95959

Dear Kevin,

The Yuba River Ranger District (YRRD) has completed some plant surveys a little more that one mile away from location you provided. We conducted surveys for the Burlington Underburn project in 1998 which is more than ten years ago. In 1998 we did not find any of the current Region 5 Regional Forester's sensitive plants or fungi and did not find any watchlist plants/plant communities. We noted that Klamath weed (*Hypericum perforatum*) was present in disturbed areas. No other weed species were documented. I did not find documentation of any other surveys close to the area you indicated.

As you know, the Forest Service does not survey on privately owned lands. Given the elevation and soil and vegetation map units for the area you indicated, I would consider the project area to have potential habitat for the following plant and fungi species in the appropriate plant communities:

Sensitive Species	Status (USFWS)	Status (CNPS)	General Habitat Grouping
Botrychium ascendens	None	2	Riparian plant communities at 4,000 feet and above
Botrychium crenulatum	None	2	Riparian plant communities at 4,000 feet and above
Botrychium lunaria	None	2	Riparian plant communities at 4,000 feet and above
Botrychium minganense	None	2	Riparian plant communities at 4,000 feet and above
Botrychium montanum	None	2	Riparian plant communities at 4,000 feet and above
Bruchia bolanderi	None	2	Riparian habitats at 4,000-9,500 feet
Cypripedium fasciculatum	None	4	Mixed conifer older forest, 500-7,200 feet
Cypripedium montanum	None	4	Mixed conifer older forest, 600-7,500 feet
Fissidens aphelotaxifolius	None	None	Riparian, 6,300'& below, streams, wet crevices of cliffs
Hydrothyria venosa	None	None	Aquatic at elevations between 1,150 to 7,000 feet
Lupinus dalesiae	None	1B	Forest edges/openings, 3,000-8,000 feet (YRRD)
Meesia triquetra	None	2	Riparian, 4,250-9,690 feet, primarily fens
Meesia uliginosa	None	2	Riparian, 4,250-6,850 feet, primarily fens
Phacelia stebbinsii	None	1B	Forested edges/openings, 3,000-6,000 feet, westside

Watchlist Species/Community	CNPS List	Habitat
Darlingtonia californica	4	Below 7,000 feet, fens, wet areas
Drosera anglica	2	Below 7,000 feet, fens, wet areas
Drosera rotundifolia	None	Below 8,000 feet, fens, wet areas
Erigeron petrophyllus var. *sierrensis*	4	900-5,700 feet, serpentine/rocky soils
Meesia longiseta	None	All elevations, fens/peatlands/wet areas
Mimulus lacinatus	4	Above 3,000 feet, seeps in granite
Potamogeton filiformis	2	1,000-7,000 feet, lakes and ponds
Rhynchospora alba	2	Below 6,600 feet, wet places
Rhynchospora capitellata	2	Below 6,600 feet, wet places
Scutellaria galericulata	2	4,000-7,000 feet, streambanks
Sphagnum moss species	None	All elevations, fens/ peatlands
Utricularia minor	4	Above 1,500 feet, shallow water
Special Aquatic Features	None	All elevations on the TNF, wet areas

The survey documentation for 1998 showed plant species that are relatively common in mixed conifer forests. Disturbances in the areas of survey were documented as: timber harvest, roads and trails, irrigation canal, fuelwood harvest, hardwood poaching, and trash dumping.
If you have any questions about sensitive or watchlist plants, watchlist plant communities, or weeds, please call me at (530) 478-6243.

Sincerely,

Kathy Van Zuuk

Kathy Van Zuuk
YRRD botanist/plant ecologist/noxious weed coordinator

#87-

6-21-10

Under the Trees

Forestry & Environmental Consulting

An ecosystems service firm providing ecological, economical, and socially responsible resource management.

Kevin Whitlock, MBA, RPF #2436
P.O. Box 363 • Nevada City, CA 95959
(530) 265-5670 (o) 530-559-0901 (c) E-mail: underthetrees@att.net

February 2, 2010

SWOPE Medical Group Inc
10780 Genasci
Nevada City, CA 95959

RE: Plan Submitter/Timberland Owner Responsibilities.

Dear Mr. McDermott,

It is my responsibility as the RPF to ensure that the plan submitter, timber, and timberland owners are aware of the NTMP and aware of their responsibilities to comply with the Forest Practice Act and Forest Practice Rules.

In accordance with the requirements of the California Forest Practice Rules, Title 14, California Code of Regulations 1090.9, of Article 6.5, and other provisions of the Forest Practice Rules, the following is notification of your responsibilities as Plan Submitter, Timber Owner and Timberland owner, or successor in interest. Such person shall:

a) Ensure that a Registered Professional Forester (RPF) conducts any activities, which require an RPF.

b) Provide the RPF preparing the plan or amendments with complete and correct information regarding pertinent legal rights to, interests in, and responsibilities for land, timber, and access as these affect the planning and conduct of timber operations.

c) Sign the Non Industrial Timber Management Plan (NTMP) certifying knowledge of the plan contents and the requirements of this section.

d) Within five (5) working days of change in RPF responsibilities for NTMP implementation or substitution of another RPF, file with the Director a notice which states the RPF's name and registration number, address, and subsequent responsibilities for any RPF required field work, amendment preparation, or operation supervision. Corporations need not file notification because the RPF of record on each document is the responsible person.

(e) Provide a copy of the approved NTMP and Notice of Timber Operations to the LTO.

(f) Notify the Director prior to commencement of site preparation operations. Receipt of a burning permit is sufficient notice.

(g) Provide the RPF preparing the Notice and LTO each a copy of the current NTMP and subsequent amendments.

(h) Notify CAL FIRE prior to commencement of operations annually, per 14 CCR 1090.6 and 1090.13.

14 CCR 1090.6 Notice of Timber Operations
Following confirmation by the non-industrial tree farmer that all necessary field work is functional and useable (including flagging or marking), the non-industrial tree farmer who owns, leases, or otherwise controls or operates on all or any portion of any timberland within the boundaries of an approved Timber Management Plan shall submit a Notice of Timber Operations including the certification required by PRC § 4594.6 to the appropriate CAL FIRE Review Team Office. Timber operations may commence immediately unless the notice has been filed by mailing, in which case operations may commence three days after the notice has been mailed.

14 CCR 1090.13 Notification of Commencement of Operations
For each Notice of Timber Operations submitted, within fifteen days before, and not later than the day of the start up of a timber operation, the Submitter of the Notice, unless the NTMP identifies another person as responsible, shall notify CDF of the start of timber operations. The notification, by telephone or by mail, shall be directed to the appropriate CDF Ranger Unit Headquarters, Forest Practice Inspector, or other designated personnel.

The Notice of Timber Operations (Notice), for the specified approved Non industrial Timber Management Plan (NTMP), is submitted to the California Department of Forestry and Fire Protection (CAL FIRE) and timber operations are hereby noticed to commence, as per 14 CCR 1090.7 and PRC 4594. The Notice of Timber Operations is effective for a maximum of one year from the date of filing. Timber operations may commence immediately unless the Notice has been filed by mailing, in which case operations may commence 3 days after the Notice has been mailed.

In addition to notifying the Director when harvesting operations begin, the Plan Submitter must notify the Director when operations are complete and ensure that stocking requirements of 14 CCR 933.2 (a)(2)(A) Selection system is meet at the completion of timber operations.

(j) File a work completion report with the Director within one month of completion of operations as per PRC 4585. .

Upon approving a work completion report, the Director may prescribe a maintenance period which extends for as much as three years after filing the work completion report based on physical evidence that erosion controls need to be maintained to minimize soil erosion or slope instability or to prevent degradation of the quality and beneficial uses of water. The Timberland Owner has the ultimate responsibility of maintaining all logging roads, skid trails, landings and their associated drainage structures for a minimum of one year.

(k) Per Title 14, California Code of Regulations 1090.26 Any change in ownership of land must be reported to the Director by the new landowner within 180 days of the date such change is recorded in the county where the property is located. Also, before the passage of title, it shall be responsibility of the seller to notify the purchaser of either the timber or timberland of their responsibility for compliance with the stocking standards of the Act and the rules of the Board.

After a plan is found in conformance with the rules and regulations of the Board, the Director may file a Notice of Stocking Requirements on the property with the recorder of the county within which the plan is located if any area logged under a Notice of Timber Operations has not had a report of satisfactory stocking issued by the Director.

In addition to this letter, you will receive with your approved NTMP, a copy of the 2010 California Forest Practice Rules. Should you have any question concerning the rules or the contents of the Non-Industrial Timber Management Plan, please do not hesitate to call me.

Sincerely,

Kevin Whitlock, Registered Professional Forester #2436

State of California
Department of Forestry and Fire Protection

(Administrative Use Only-Area_____)
(Plan No._____)
(Date Received_____)
(Amendment Number_____)

LICENSED TIMBER OPERATOR RESPONSIBILITY ACKNOWLEDGEMENT

(As per 14 CCR §§ 1035.3(a)(1)-(2), 1092.14(a)(1)-(2).)

Harvesting Plan Number: _____

Licensed Timber Operator Information

Name: **Helen McDermott**

Street Address/PO Box: **10780 Genasci Road,** City: **Nevada City** Zip Code: **95959**

Telephone Number: **530-478-0545** LTO Number: **C-1509**

I hereby agree to abide by the terms and specifications of the plan. I have read and understand my responsibility as LTO, as described under 14 CCR §§ 1022.4, 1090.12 and 1092.14. I agree to fulfill my responsibilities as an LTO as they pertain to this plan.

LTO Signature: Helen C. McDermott Title: LTO

Responsible On-Site Contact (if different)

Name **Brent McDermott**

Address **10780 Genasci Road,**

City **Nevada City** State **California** Zip **95959** Phone **530-478-0545**

REGISTERED PROFESSIONAL FORESTER (RPF) RESPONSIBILITY ACKNOWLEDGEMENT

(As per 14 CCR § 1035.1)

RPF Certified to Provide Professional Advice:

Name: **Kevin Whitlock**

Street Address/PO Box: **P.O. Box 363** City: **Nevada City** Zip Code: **95959**

Telephone Number: **530-265-5670** 274-7390 RPF Number: **2436**

I have read and understand my responsibility as RPF, as described under 14 CCR § 1035.1(a)-(g). I agree to fulfill my responsibilities as an RPF as they pertain to this plan.

[√] Yes [ ] No I have been retained as the RPF available to provide professional advice to the licensed timber operator and timberland owner upon request throughout the active timber operations regarding: (1) the plan, (2) the forest practice rules, (3) and other associated regulations pertaining to timber operations.

RPF Signature: Kevin Whitlock