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AUG 3 1 2009

FOREST PRACTICE

TIMBER HARVESTING PLAN

STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY
AND FIRE PROTECTION
RM-63 (02-03)

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

1. TGU 7. NSO
2. FGI Fallsheer 8. Beck Owner?
3. WQS Boone 9. CGS
4. LNF 10.
5. SHU-PW 11.
6. RT 12.

THP Name: **Buck Butte**

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

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

FOR ADMIN. USE ONLY

THP No 2-09-059-SHA (A) 5

Dates Rec'd AUG 3 1 2009

Date Filed SEP 1 0 2009

Date Approved NOV 1 2 2009

Date Expires NOV 1 1 2012

Extensions 1) [ ] 2) [ ]

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

SECTION I - GENERAL INFORMATION

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

1. TIMBER OWNER(S) OF RECORD: Name: **California Department of Forestry and Fire Protection**

   Address **875 Cypress Avenue**

   City **Redding** State **CA** Zip **96001** Phone **(530) 225-2505**

   Signature Bruce W Beck Date 8-26-09

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

2. TIMBERLAND OWNER(S) OF RECORD: Name: **California Department of Forestry and Fire Protection**

   Address **875 Cypress Avenue**

   City **Redding** State **CA** Zip **96001** Phone **(530) 225-2505**

   Signature Bruce W Beck Date 8-26-09

   TIMBERLAND OWNER(S) OF RECORD: **Brooks Walker et al. C/O W. M. Beaty & Associates *(Water drafting only)***

   Address: **P.O. Box 990898**

   City **Redding** State **CA** Zip **96099-0898** Phone **(530) 243-2783**

   Signature: **See attached letter Section V** Date:

TIMBERLAND OWNER(S) OF RECORD: **Carl J. & Jo Ann Davis** ***(Water drafting only)***

Address: **P.O. Box 142**

City **Whitmore** State **CA** Zip **96069** Phone **none**

Signature: **See attached letter Section V** Date: _____

3. LICENSED TIMBER OPERATOR(S): Name **California Department of Forestry and Fire Protection** Lic. No. C-1275
(If unknown, so state. You must notify CDF of LTO prior to start of operations)

Address **875 Cypress Avenue**

City **Redding** State **CA** Zip **96001** Phone **(530) 225-2505**

Signature _____ Date 8-26-09

4. PLAN SUBMITTER(S): Name: **California Department of Forestry and Fire Protection**

Address **875 Cypress Avenue**

City **Redding** State **CA** Zip **96001** Phone **(530) 225-2505**
(Submitter must be from 1, 2, or 3 above. He/she must sign below. Ref. Title 14 CCR 1032.7 (a))

Signature _____ Date 8-26-09

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

Name **The Plan Submitter or designated RPF will notify CAL FIRE of responsible person prior to start of operations.**

Address

City State Zip Phone

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

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

The Licensed Timber Operator. Pursuant to 14 CCR 936.9(p), "The erosion control maintenance period on permanent and seasonal roads and associated landings that are not abandoned in accordance with 14 CCR 923.8 shall be three years."

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

☒ date of THP conformance, or ☐ (date)

b. Expected date of completion of timber operations:

☒ 3 years from date of THP conformance, or ☐ (date)

7. The timber operation will occur within the:

☐ COAST FOREST DISTRICT
☐ Southern Subdistrict of the Coast F. D.

☐ SOUTHERN FOREST DISTRICT
☐ High use subdistrict of the Southern F. D.

☒ 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: covered by USGS 7.5 minute Quad. *Viola & Jacks Backbone CA 1995*
Base and Meridian: ☒ Mount Diablo ☐ Humboldt ☐ San Bernardino

Section	Township	Range	Acreage	County	Assessor's Parcel Number (Optional)
13	32N	2E	16	Shasta	
24	32N	2E	79	Shasta	
17	32N	3E	109	Shasta	
18	32N	3E	233	Shasta	

TOTAL ACREAGE **437** (Logging Area Only)

Planning Watershed: CALWATER Version, Identification Number, and Name

Version 2.2 Cal Water Planning Watersheds	
Name	Number
Upper Battle Creek	5507.120104
Beal	5507.310103

USGS 7.5" Quadrangle Names: Viola & Jack's Backbone.1995

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

10. ☐ Yes ☒ No Is there an approved Sustained Yield Plan for this property? Number Date app.

☐ Yes ☒ No Has a Sustained Yield Plan been submitted but not approved? Number Date sub.

11. ☐ Yes ☒ No Is there a THP or NTMP on file with 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):

☐ Yes ☒ No Is there a contiguous even aged unit with regeneration less than five years old or less than five feet tall? If yes, explain. Ref. Title 14 CCR 913.1 (933.1, 953.1) (a)(4).

12. ☒ Yes ☐ No Is a Notice of Intent necessary for this THP?
☒ Yes ☐ No If yes, was the Notice of Intent posted as required by 14 CCR 1032.7 (g)?

13. RPF preparing the THP: Name **Gabriel V. Schultz** RPF Number **2749**

Address **875 Cypress Avenue**

City **Redding** State **CA** Zip **96001** Phone **(530) 225-2506**

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

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

The timberland is owned by the California Department of Forestry and Fire Protection and managed by the LaTour Demonstration State Forest (LDSF). Mr. Bruce Beck is the manager of LDSF and is the Plan Submitter.

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

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

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

I am responsible for the preparation of the THP including layout, flagging of WLPZ's, designation of timber to be harvested or retained and any additional work deemed necessary for plan approval. Additionally it is my responsibility to administer the operations described in the THP and explain to the LTO his responsibilities to ensure conformance with the requirements of the plan and the Forest Practice Act and Rules.

I will be present, or ensure that that my designee is present, on the logging area at a sufficient frequency to know the progress of operations and to advise the LTO and timberland owner, but not less than once during the life of the plan.

I will immediately furnish written notification to the LTO, the plan submitter, and the Department of a decision to withdraw professional services from the plan.

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

None

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

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

☒ will not have a significant adverse impact on the environment.

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

Signature _____ Date 8/25/09

PART OF PLAN

SECTION II - PLAN OF TIMBER OPERATIONS

NOTE: If a provision of this THP is proposed that is different than the standard rule, the explanation and justification should normally be included in Section III unless it is clearer and better understood as part of Section II.

14. a. Check the Silvicultural methods or treatments allowed by the rules that are to be applied under this THP. 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.

☐ Clearcutting	ac.	☐ Shelterwood Prep. Step ☐ Shelterwood Seed Step ☐ Shelterwood Removal Step	ac. ac. ac.	☐ Seed Tree Seed Step ☐ Seed Tree Removal Step	ac. ac.
☒ **Selection 320 ac.**		☐ Group Selection	ac.	☐ Transition	ac.
☐ Commercial Thinning	ac.	☒ **Road Right of Way 1 ac.**		☒ **Sanitation Salvage**	**101 ac,**
☐ Special Treatment Area	ac.	☐ Rehab. of Understocked Area	ac.	☐ Fuelbreak	ac.
☐ Alternative	ac.	☐ Conversion	ac.	☒ **Non-Timberland Area**	**15 ac.**

Total acreage **437** ac.: Explain if total is different from that in 8. MSP option chosen: (a) [X] (b) [ ] (c) [ ]

b. If Selection, Group Selection, Commercial Thinning, Sanitation Salvage or Alternative methods are selected the post harvest stocking levels (differentiated by site if applicable) must be stated. Note mapping requirements of 1034 (x) (12).

This THP is Under the Option "A" filed under THP 2-02-187 SHA.

Selection: Immediately upon completion of operations the area shall meet the stocking standards of CCR 933.2(a)(2)(A)(2), 75 square feet per acre of basal area shall be retained for Site III lands. The residual stand shall contain sufficient 18 inch DBH trees to meet at least the 15 sq/ft basal area, size, and phenotypic quality of tree requirement specified under the seed tree method as specified in CCR 933.1(c)(1)(A)(1.). Post harvest stocking will be met with group A species.

Sanitation Salvage: Immediately upon completion of operations the area shall meet the stocking standards of CCR 932.7(b), 300 point count for Site III lands.

Biomass harvesting may be utilized throughout the plan area. The biomass harvest will select trees not merchantable as sawlogs (trees less than 10 inches DBH) to reduce stocking levels and accelerate individual tree growth in the residual stand. Trees harvested for biomass will not be marked.

c. ☐ Yes ☒ No Will evenage regeneration step units be larger than those specified in the rules (20 acres tractor,30 acres cable)? If yes, provide substantial evidence that the THP contains measures to accomplish any of subsections (A) - (E) of 14 CCR 913 (933, 953) .1 (a) (2) in Section III of the THP. List below any instructions to the LTO necessary to meet (A) - (E) not found elsewhere in the THP. These units must be designated on map and listed by size.

d. 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 and whether harvested or retained.

All harvest trees 10 inches and greater DBH shall be marked in Orange paint with a horizontal stripe near breast height and a mark at the stump. A sample area will be marked prior to the preharvest inspection.

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

CAL FIRE requests a waiver of marking associated with proposed biomass harvesting throughout the plan area. The biomass harvest will select trees not merchantable as sawlogs (trees less than 10 inches DBH) to reduce stocking levels and accelerate individual tree growth in the residual stand. Directions for LTO are as follows: 1)No saw logs are to be harvested. 2) Leave healthy clumps of 8 inch DBH and smaller trees that cannot be thinned without damaging the residual saplings. 3)In heavily stocked areas, harvest trees in

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suppressed crown positions that are less than 10 inches DBH. 4) Harvest trees that show significant signs of mistletoe, insect attack, disease, or mechanical damage.

e. Forest products to be harvested:

Sawlogs, cull logs, chips, pulp logs, and fuel-wood, poles.

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

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

g. Other instructions to LTO concerning felling operations

Check all road location flagging, watercourse flagging, WLPZ boundary flagging, EEZ and ELZ flagging, and skid trail flagging prior to the commencement of any falling operations. Have the responsible RPF or supervised designee replace any flagging that is incomplete or unclear.

Trees designated for removal within the EEZ or ELZ shall be directionally felled towards the perimeter and away from the protection zone and endlined, so as to keep heavy equipment out of the protection zone. In the ELZ of Class III watercourses, trees may be felled bridging the watercourse and endlined from outside the ELZ. The purpose of this measure is to allow for trees that if not directionally felled across the ELZ would fall into the ELZ or damage the residual stand.

h. ☐ Yes ☒ No Will artificial regeneration be required to meet stocking standards?

i. ☐ Yes ☒ No Will site preparation be used to meet stocking standards? If yes, provide the information required for a site preparation addendum, as per 14 CCR 915.4 (935.4, 955.4).

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

PESTS

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

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

HARVESTING PRACTICES

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

GROUND BASED*	CABLE	SPECIAL
a. [X] Tractor, including end/long lining	d. [ ] Cable, ground lead	g. [ ] 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 THP. (Must match EHR worksheets)

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

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

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

1. **Stabilization measures shall be selected that will prevent significant soil loss or sediment transport into Class I, Class II and Class III waters and may include, but need not be limited to, mulching, rip-rapping, grass seeding, or chemical stabilizers. Preference to which stabilization measure to be used, if the need occurs, shall be based upon on site conditions and the availability of treatment materials. If appropriate for the site, mulching will be the method of choice.**

2. **Mulch shall consist of straw or other material that is less than 3 inches in diameter (i.e. logging slash or brush). Straw mulch shall cover > 90% of the exposed area at an applied depth of > 2 inches. If logging slash or brush is used for mulch it shall be compacted by equipment and cover 90% of the exposed area.**

3. **Where the undisturbed natural ground cover cannot effectively protect beneficial uses of water from timber operations, the ground shall be treated by measures including, but not limited to, seeding, mulching, or replanting, in order to retain and improve its natural ability to filter sediment, minimize soil erosion, and stabilize banks of watercourses and lakes. Treatments shall meet the standards described in item 1 and 2 above.**

4. **Waterbreaks shall be constructed as soon as practical upon conclusion of use of skid trails, roads, and landings, which do not have permanent and adequate drainage facilities, or drainage structures.**

   The maximum distance between waterbreaks on all roads and skid trails within the THP area shall not exceed the following standards except where natural drainage will occur, i.e., low spots, draws, and depressions. In these areas, any berm on the downhill side of the road or skid trail shall be removed to allow drainage and a drainage facility shall not be constructed.

Road or Trail Gradient (%)	10 or Less	11-25	26-50	> 50
Moderate EHR	200 ft.	150 ft.	100 ft.	75 ft.
High EHR	150 ft.	100 ft.	75 ft.	50 ft.

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

   Waterbreaks shall be located to allow water to be discharged into some form of vegetative cover, duff, slash, rocks, or less erodible material wherever practical, 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 and sediment transport shall be minimized. Where waterbreaks cannot effectively disperse surface runoff, including where waterbreaks on roads and skid trails cause surface runoff to be concentrated on down-slopes, roads, or skid trails, other erosion control methods, as described in 1 above, shall be installed as needed to comply with 14 CCR 934.

5. **Soil stabilization of logging roads - Permanent drainage facilities (rolling dips or drivable waterbars) shall be constructed on appurtenant seasonal roads used for this operation. These drainage facilities shall be constructed prior to the completion of hauling on all road segments where practical. Where pre-haul drainage facilities are not feasible, the standard waterbreak construction and spacing specifications will be used.**

6. **All outside berms along roads created from grading or truck traffic during operations shall be pulled back onto the road surface prior to completion of use and final road grading. Where feasible, and to the extent that can reasonably be done with minor road dressing and grading, existing side-hill roads shall be outsloped.**

7. **The traveled surface of logging roads shall be treated to prevent waterborne transport of sediment and concentration of runoff that results from timber operations. Consequently, during timber operations, road**

running surfaces in the logging area shall be treated as necessary to prevent excessive loss of road surface materials by watering.

8. **The erosion control maintenance period on permanent and seasonal roads and associated landings that are not abandoned in accordance with 14 CCR 943.8 shall be three years.**

9. **Pursuant to 14 CCR 936.9(n), exposed areas, >100 square feet, approaches to watercourse crossings between the drainage facilities closest the watercourse, and road cuts and fills within the WLPZ, and within any EEZ or ELZ designated for watercourse or lake protection, shall be treated to stabilize soils, minimize soil erosion, and prevent the discharge of sediment into waters in amounts deleterious to the beneficial uses of water. Treatments shall meet the standards described in item 1and 2 above.**

10. **Timing requirements for all erosion prevention activities.**

    1. **For areas disturbed from May 1 through October 15, treatment shall be completed prior to the start of any rain that causes overland flow across or along the disturbed surface.**

    2. **For areas disturbed from October 16 through April 30, treatment shall be completed prior to any day for which a chance of rain of 30 percent or greater is forecast by the National Weather Service or within 10 days, whichever is earlier.**

    3. **All tractor roads shall have drainage facilities installed as soon as practical following yarding and any day with a National Weather Service forecast of chance of rain 30 percent or more, a flash flood warning, or a flash food watch as specified in CCR 14 936.9(m).**

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 934.3 (e).

21. Within the THP area will ground based equipment be used on:

a. [ ] Yes [X] No Unstable soils or slide areas? Only allowed if unavoidable.
b. [ ] Yes [X] No Slopes over 65%?
c. [X] Yes [ ] 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 below. 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.

c. Slopes over 50% with high or extreme EHR:

Operations shall be restricted to existing tractor roads that do not require reconstruction or designated skid trails (flagged and mapped) on slopes over 50% with a High EHR. See THP map for location of these skid trails. See Section III for explanation and justification. See Section III for additional discussion.

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

WINTER OPERATIONS

23. a. [X] Yes [ ] No — Will timber operations occur during the winter period? If yes, complete "b, c, or d." State in space provided if exempt because yarding method will be cable, helicopter, or balloon.

b. [ ] Yes [X] No — Will mechanical site preparation be conducted during the winter period? If yes, complete "d".

c. [ ] — I choose the in-lieu option as allowed in 14 CCR 914 (934, 954) .7 (c). Specify below the procedures listed in subsections (1) and (2), and list the site specific measures for operations in the WLPZ and unstable areas as required by subsection (3), if there will be no winter operations in these areas, so state.

d. [X] — I choose to prepare a winter operating plan per 14 CCR 914 (934, 954) .7 (b).

The following Winter Operation Plan is for timber operations taking place between October 15 to May 1, as required by 14 CCR 936.9(k). Winter Period is defined in 14 CCR 895.1 as the period between November 15 to April 1. No operations shall occur for the remainder of the winter period after the first shut down due to the restrictions under item 10 below. The harvesting activities that may occur during the winter operational period include but not limited to felling timber, yarding with ground-based equipment, decking logs and hauling logs. The use of landing L2, Road construction and abandonment shall not occur during the Winter Period (Nov 15-April1).

WINTER OPERATING PLAN

1. **The erosion hazard rating in the THP is moderate and high.**
2. **No mechanical site preparation is proposed during the Winter Period.**
3. **The yarding system is ground based.**
4. **The operational period may be at any time between October 15 to May 1 when dry, rainless, or hard frozen conditions exist and when soils are not saturated. Use of heavy equipment or trucks on roads and landings shall be limited to a stable operating surface. Refer to "Definitions" below for the definitions of hard frozen conditions, stable operating surface and saturated soil conditions.**
5. **Erosion control facilities timing. This Winter Operating Plan shall be effective from October 15 to May 1. The installation of erosion controls utilizing drainage facilities is required from October 15 to May 1 on all seasonal roads, 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, a flash flood warning or flash flood watch within the next 24 hours and prior to any weekend shut down periods.**
6. **Precipitation - Consideration in form of rain or snow. Precipitation in the THP area is primarily in the form of snow between October 31 and April 1. Spring rains usually fall onto a substantial snow pack and snow persists until middle to late May with drifts present until mid June. No hauling or ground based operations shall occur when saturated soil conditions are present. Drainage facilities shall be kept in effective condition throughout operations conducted during the winter period.**
7. **Ground conditions (soil moisture condition, frozen). Use of logging roads, tractor roads or landings shall not take place at any location where saturated soil conditions exist, where a stable logging road or landing operating surface does not exist, or when visibly turbid water from the road, landing, or skid trail or inside ditch may reach a watercourse or lake.**
8. **Silvicultural system-ground cover. Healthy regeneration, slash, needle cast and existing ground cover (such as Arctostaphylos *petula.*) will ensure adequate ground cover to dissipate rainfall impact and runoff.**
9. **Operations within the WLPZ. Designated harvest trees within the WLPZ of Class II watercourses are to be felled toward the perimeter of the zone and endlined out. All watercourse crossing facilities not constructed to permanent crossing standards shall be removed before November 15.**
10. **Equipment use limitations. No ground-based operations shall occur during locally saturated soil conditions and shall be limited to stable operating surface. Refer to "Definitions" below for the definitions of hard frozen conditions, stable operating surface and saturated soil conditions.**
11. **Known Unstable Areas. No known unstable areas are within the plan area.**

Definitions (14 CCR 895.1):

Low Antecedent Soil Wetness is defined as conditions not meeting the threshold of saturated soil conditions.

Hard Frozen Conditions means those frozen soil conditions where loaded or unloaded vehicles can travel

sinking into the road surfaces to a depth of more than six inches over a distance of more than 25 feet.

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

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

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

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

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

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

ROADS AND LANDINGS

24. Will any roads be constructed? [X] Yes [ ] No, or reconstructed? [ ] Yes [X] No. If yes, check items "a." through "g."
Will any landings be constructed? [X] Yes [ ] No, or reconstructed? [ ] Yes [X] No. If yes, check items "h." through "k."

a. [ ] Yes	[X] No	Will new or reconstructed roads be wider than single lane with turnouts?
b. [ ] Yes	[X] No	Are logging roads proposed in areas of unstable soils or known slide-prone areas?
c. [ ] Yes	[X] 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	[X] No	Are roads to be constructed or reconstructed, other than crossings, within the WLPZ of a watercourse? If yes, completion of THP Item 27 a. will satisfy required documentation.
e. [ ] Yes	[X] No	Will roads be located across more than 100 feet of lineal distance on slopes over 65%, or on slopes over 50% which are within 100 feet of the boundary of a WLPZ?
f. [ ] Yes	[X] No	Will any roads or watercourse crossings be abandoned?
g. [ ] Yes	[X] No	Are exceptions proposed for flagging or otherwise identifying the location or roads to be constructed?
h. [ ] Yes	[X] 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	[X] No	Are any landings proposed in areas of unstable soils or known slide prone areas?
j. [ ] Yes	[X] 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	[X] No	Will any landings be abandoned?

25. If any section in "item 24" above is answered yes, specify site-specific measures to reduce adverse impacts and list any additional or special information needed by the LTO concerning the construction, maintenance, and/or abandonment of roads or landings, as required by 14 CCR Article 12. Include required explanation and justification in THP Section III.

Road and Landing construction:

Map Point A: Approximately 800 feet of temporary road construction that will terminate with the construction of a new landing. There are no watercourse crossings, the side slope is less than 30%, the road grade averages less than 15 %, EHR is moderate, and there are no unstable areas. No segment of this road extends over 500 feet at 15% or greater in slope.

The temporary road shall be constructed as a seasonal, single lane roads with a sufficient number of turnouts for safe vehicle passage. Any tree over 12 inches d.b.h. with more than 25% of the root surface exposed by road construction, shall be felled concurrently with the timber operations. Waste organic material, such as uprooted stumps, cull logs, accumulations of limbs and branches, and unmerchantable trees, shall not be buried in road fills. The road shall be outsloped where feasible.

Wood debris or cull logs and chunks may be placed and stabilized at the toe of fills to restrain excavated soil from moving down slope. Drainage structures or facilities shall be installed so as to minimize erosion, ensure proper functioning, and to maintain the natural drainage pattern. Drainage structures and facilities shall be of sufficient size, number and location to carry runoff water off of roadbeds, landings and fill slopes. Drainage structures and drainage facilities shall not discharge on erodible fill or other erodible material unless suitable energy dissipaters are used.

Temporary road grade has been flagged. No watercourse crossings are associated with this road. No watercourses are located near this road that may receive any runoff.

If road construction occurs after October 15, drainage structures shall be installed concurrently with the activity.

The limited construction will not significantly expand the area covered by the transportation system within the watersheds. New construction will affect less than 0.001% of the total area within the watersheds.

Upon Completion of operations, the temporary road and associated landing shall be abandoned in accordance with 14 CCR 943.8;

1. **Road shall be BLOCKED so that standard production four wheel-drive highway vehicles cannot pass the point of closure at the time of abandonment.**
2. **The road surface shall be graded or shaped to provide dispersal of water flow.**

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.

Class I Watercourse

The Class I watercourse has been flagged with blue and white striped flagging. Consistent with 14 CCR 936.5 the class I watercourse has at least the minimum widths as shown in the table below.

Pursuant to 14 CCR 936.5(e) "B" ("A") WLPZ shall be clearly identified on the ground by an RPF or supervised designee, with paint, flagging, or other suitable means *prior to the preharvest inspection.* No timber is proposed for harvest within the Class I WLPZ.

Class II watercourses

The Class II watercourses have been flagged with blue and white striped flagging. Consistent with 14 CCR 936.5 all of the class II watercourses have at least the minimum widths as shown in the table below.

Pursuant to 14 CCR 936.5(e) "E", to ensure retention of shade canopy filter strip properties and the maintenance of wildlife values described in 14 CCR 936.4(b) a base mark shall be placed below the cut line of the harvest trees within the zone in advance of timber operations by an RPF or supervised designee. Additionally, pursuant to 14 CCR 936.5(e) "I" To protect water temperature, filter strip properties, upslope stability, and fish & wildlife values, at least 50% of the total canopy covering the ground shall be left in a well distributed multi-storied stand configuration

composed of a diversity of species similar to that found before the start of operations. The residual overstory canopy shall be composed of at least 25% of the existing overstory conifers. As is with class I watercourses, all class II watercourses shall comply with 14 CCR 936.3(g) recruitment of large woody debris for instream habitat shall be provided by retaining at least two living conifers per acre at least 16 inches dbh and 50ft. tall within 50 ft. Trees shall be marked prior to the PHI.

Class III watercourses

Pursuant to 14 CCR 936.4(c)(1), Class III watercourses shall have a 25-foot ELZ on slopes less than 30% and a 50-foot ELZ on slopes greater that 30%.

Class III watercourse ELZs shall be flagged with blue and white striped flagging prior to start of operations. The ELZs shall be flagged by the RPF or supervised designee. Within the ELZ of Class III watercourses, equipment shall be allowed to operate on existing roads, prepared crossings and designated tractor road crossings. At least 50% of the understory vegetation present before timber operations shall be left living and well distributed within the ELZ to maintain soil stability. Note: "ELZ" means, "Equipment Limitation Zone" and shall be defined as follows: a) all heavy equipment is to be excluded from operating within the ELZ except on existing skid trails, skid trail crossings and existing haul roads, b) approved existing skid trails and existing skid trail crossings have been identified on the ground with yellow flagging. c) Approved skid trail crossings shall only be used when dry.

Slope Class %	Width in Feet		
	Class I	Class II	Class III
<30	150	50	25
30-50	150	75	50
>50	150	100	50

Non Classified Draw

No draws, swales, or channels shall be used as skid trails. Skid trail crossings of these non-classified draws, swales, and channels shall be kept to a minimum. Existing crossings shall be used where feasible and shall be as close to a 90-degree angle as possible.

Springs and seeps

These areas include seeps and springs and shall be protected with a minimum 25 foot EEZ.

b. [X] Yes [ ] No Are there any watercourse crossings that require mapping per 14 CCR 1034 (x) (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 THP Review Process to be used to meet Department of Fish and Game CEQA review requirements? If yes, attach the 1603 Addendum below or at the end of this Section II; provide the background information and analysis in Section III; list instructions for LTO below for the installation, protection measures, and mitigation measures; as per THP Form Instructions or CDF Mass Mailing, 07/02/1999, "Fish and Game Code 1603 Agreements and THP Documentation".

General Watercourse Crossing Procedures

All existing culvert crossings within the plan area and appurtenant road systems have been evaluated and were found to be functioning properly outside of WC 1.

The disturbance or removal of vegetation will not exceed the minimum necessary to complete the operations as described. The channel and bank configuration of the disturbed areas will be restored to as near its natural condition as practicable.

All cleared vegetation and debris will be removed from the watercourse corridor and placed or secured where they cannot re-enter a watercourse. Large woody debris may be replaced or left in the watercourse channel.

Within the WLPZ of the Class II watercourses and within the Class III ELZs, areas of disturbed, bare mineral soil greater than 100 square feet that is exposed in conjunction with crossing construction, maintenance, repair or removal will be treated for erosion control immediately upon completion of work.

All temporary watercourse crossing shall be removed prior to October 15 of the year of operations.

Discharge of sediment will be avoided to the maximum extent practicable. In no case will the discharge of sediment result in amounts that are deleterious to fish.

If the watercourse channel has been altered during the operations, its low flow channel will be returned as nearly as possible to its natural state, including its shape and gradient.

If operations require moving equipment across a flowing watercourse, such operations will be conducted without causing a prolonged visible increase in turbidity. For repeated crossings, a bridge, culvert, or rock-lined crossing will be installed as described. Equipment may be operated in the watercourse channel of flowing watercourses only as may be necessary to construct crossings, or channel changes during the use of fords. During construction of crossings, if substantial turbidity may be transported downstream, the flow will be diverted around the work area by temporary pipe, diversion channel or pumping.

If a temporary structure is required to minimize the downstream movement of turbid or silt-laden waters, that structure will only be built from materials such as sandbags, gabions, clean gravel or other materials which will cause little or no turbidity or siltation. All remnants of any such dam or barrier will be removed upon completion of work.

When any dam or other artificial barrier is being constructed, maintained, or placed in operation, sufficient water will at all times be allowed to pass downstream to maintain aquatic life below the diversion structure.

Structures and associated materials that are not designed to withstand high seasonal flows will be removed to areas above bank full stage before such flows occur.

Asphalt or materials containing asphalt, discarded vehicle tires, and/or other petroleum products are prohibited from use or being placed where they may come into contact with flowing waters.

Debris, soil, silt, sand, bark, slash, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material will not be allowed to enter into or placed where it may be washed by rainfall or runoff into a watercourse.

No equipment maintenance or refueling will be conducted within 100 feet any watercourse channel or lake margin.

When any dam, road, or artificial obstruction is being constructed, maintained, or placed in operation, sufficient water will at all times be allowed to pass downstream to maintain aquatic life below the work area.

Watercourse Crossing (WC) 1 shall be a rock rolling dip on a class III watercourse. The crossing is currently a 24 inch culvert. The crossing shows evidence of water flowing over the culvert and is subject to flash flows of rain on snow events. The crossing and the first 25 feet of the approaches shall be rocked with 4 inch competent rock creating a rocked ford. The rocked used within the rolling dip shall be 4 inch fractured rock and may be topped with smaller base rock for the driving surface. Rocks 12 inches and larger shall be used to reinforce the fill and prevent erosion. Smaller rocks may be used to fill in the interstices between the larger rocks. The crossing shall be installed no later than October 31. If water is present during timber operations a temporary pipe shall be installed. The pipe shall be of sufficient size to accommodate the flow of water with a minimum diameter of 4 inches.

Beaver Creek Drafting Location is currently functioning . The inlet shall be beveled.

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

a. [X] Yes [ ] No Prohibition of the construction or reconstruction of roads, construction or use of tractor roads or landings in Class I, II, III, or IV watercourses, WLPZs, marshes, wet meadows, and other wet areas except as follows:
   (1) At prepared tractor road crossings.
   (2) Crossings of Class III watercourses which are dry at time of timber operations.
   (3) At existing road crossings.
   (4) At new tractor and road crossings approved by Department of Fish and Game.

b. [ ] Yes [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 or any alternative practices proposed for watercourse or lake protection?

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

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

Landing and Associated Skid Trails within WLPZs

There are three landings (L1, L2 & L3) and associated skid trails proposed for use that are currently within or partially within a WLPZ (Refer to In Roads and Watercourses Map). In these areas, skidders or tractors will be allowed to skid logs into the WLPZ to the landing and return on existing skid trails only. No new construction of skid trails or roads are proposed in WLPZs. Normal landing operations including limbing, bucking, sorting, and decking may occur on the landings.

The standard rule, 14 CCR 936.3(c) states that the timber operator shall not use landings or skid trails in the WLPZ unless explained and justified in the THP by the RPF, and approved by the Director. The proposed in lieu practice differs from the standard rule in that it allows limited use of designated landings and skid trails within the WLPZ.

- **Only existing, pre-flagged skid trails shall be used within the WLPZ. Approved skid trails shall be flagged with yellow flagging by the RPF.**
- **The outside edge of the landing shall be defined by the RPF or designee with white flagging prior to operations. No operations, including decking of logs and parking equipment, shall occur beyond the flagged limits. If necessary to prevent sediment delivery to a watercourse or other wet area, brow logs will be placed between the active portion of the landing or skid trail and the watercourse.**
- **Existing vegetation between the outside edge of the landings (brow logs) and the watercourses shall remain undisturbed.**
- **No material shall be side cast off the landing or skid trail surface towards the watercourse.**
- **Landings and skid trails shall be stabilized as specified in Item 18 above.**

Roads within WLPZ

Though not an in-lieu practice a road segment exist that is adjacent to and falls within the WLPZ of a Class II watercourses and the ELZ of Class III watercourses. This road segment is immediately south of South Cow Creek Camp Ground. This road will be used for normal vehicular traffic, and log hauling. Equipment will also be allowed to travel on these roads and perform the necessary road maintenance.

In preparing the THP this road segment was reviewed and assessed for any negative impacts to the beneficial uses of water. There are currently no apparent negative impacts and none are anticipated as a result of the proposed operations. This road segment is well established and stable, and the watercourses appear stable. In addition, there are no feasible alternative locations to construct a new road.

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

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

c. [ ] Yes [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 THP area within a Sensitive Watershed as designated by the Board of Forestry and Fire Protection? If yes, identify the watershed and list any special rules, operating procedures or mitigation that will be used to protect the resources identified at risk?

HAZARD REDUCTION

30. a. [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.

Within 100 feet of the edge of the traveled surface of public roads, slash created and trees knocked down by timber operations shall be treated by lopping for fire hazard reduction, piling and burning, chipping, burying or removal from the zone.

31. [X] Yes [ ] No Will piling and burning be used for hazard reduction? See 14 CCR 917.1-.11, 937.1-.10, or 957.1-.10, for specific requirements. Note: LTO is responsible for slash disposal. This responsibility cannot be transferred.

LTO is responsible for slash disposal. Any landing slash that is not spread back onto skid trails shall be piled near the center of the landing. Piles shall not exceed 50 x 50 x 20 feet with a fire line completely around the pile that has a width at least 1.5 times the height of the pile to a maximum of 30 feet. Efforts shall be made to ensure that these piles are as compact and free of soil as practical. Material shall be piled at or near its final location to minimize the amount of movement necessary and subsequent soil deposition in the piles. Slash piles created prior to September 1 of each year shall be burned that fall when safe burning conditions occur. Slash piles created after September 1 of each year may be burned the following fall, prior to December 31, when safe burning conditions occur. See Section III, Item 31.

The local representative of the Director shall be notified in advance of the time and place of any burning of logging slash.

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 THP 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.

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

All trees and snags with visible nesting sites of any threatened, endangered, or board sensitive species will be left standing as prescribed under 14 CCR 939.1 and 939.2(d). If during timber operations within the critical period, the timber operator discovers a snag or tree with a nesting threatened, endangered, or board sensitive species the operator shall protect the nest tree, screen trees, perch trees and replacement trees and shall cease operations within .25 miles, and notify the RPF, the Department of Fish and Game (DFG) and Cal Fire. The RPF shall consult with DFG and develop site specific mitigations and protection measures.

LISTED:

Northern Goshawk: there is a Northern Goshawk activity center located approximately .5 miles north of the THP, NE ¼, Section 13, T32N, R2E. The activity center was originally located in 2001 and has been active every year since. The activity center has fledged offspring in 2001, 2002, 2005-2006. There has been 4 different nest trees all within 300 yards of each other. If Northern Goshawks are observed nesting within the THP area the LTO shall cease all operations within .25 miles of the nest and contact the RPF, CAL FIRE inspector, and DFG.

NON-LISTED:

Pine Marten: The Pine Marten has been detected in the southeastern portions of the forest (Section 24), within the assessment area, during the forest carnivore surveys being conducted by LDSF staff in 2005 and 2006. The THP will maintain habitat for the Pine Marten. LSDF staff in cooperation with the DFG is conducting a monitoring program to evaluate the presence and continued use of known mid-sized forest carnivores.

Pacific Fisher:

On April 27, 2009 the Pacific Fisher became a candidate for listing under the California Endangered Species Act. Emergency regulations were developed by the Fish and Game Commission for this species in order to allow incidental take of fisher for specified activities including timber operations (Section 749.5, Title 14, CCR). This emergency regulation was approved by the Office of Administrative Law on April 27, 2009 and will be in effect until October 27, 2009.

LDSF contains habitats for both the Pacific Fishers and the Pine Marten. Both species were detected on LDSF in a 1990 furbearer presence survey. More recently the Pine Marten has been detected in the southeastern portions of the forest during the forest carnivore surveys being conducted by LDSF staff. No subsequent detections of the Pacific Fisher have occurred. The project will maintain habitat for both the Pine Marten and the Pacific Fisher. If Pacific Fishers are observed within the THP area the LTO shall cease all operations within .25 miles of the observation site and contact the LDSF staff, CAL FIRE inspector, and DFG.

The pertinent DFG Timberland Planning office shall be notified of the detection including time, date, and map location.

The critical period for fishers is March 1 through July 31, where reproduction and caring for young occurs and when the highest potential for disturbance exists.

Observations, detections, and take shall be reported to the Department of Fish and Game, Wildlife Branch, Attn: Fisher Observations, 1812 Ninth St., Sacramento, CA 95811, or by email submission to fisherdata@dfg.ca.gov. Information reported to the Department pursuant to this subdivision shall include as available: a contact name; the date and location (GPS coordinate preferred) of the observation, detection, or take; and details regarding the animal(s) observed (Title 14 CCR, Section 749.5(c)).

See Section III for additional discussion of biological review.

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.

Snags greater than 20 feet tall and 16 inches DBH which are within 100 feet of permanent or seasonal roads or landings will be felled if they lean towards the road or landing and present a safety hazard, or if they are a potential hindrance to future access for initial attack of wildfire as per 14 CCR 939.1(a)(2). Additionally, any snag thought to contain sound volume may be harvested as allowed under 14 CCR 939.1(d).

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.

All trees and snags with visible nesting sites of any non-listed raptor will be left standing as prescribed under 14 CCR 939.1 and 939.2(d). If during timber operations, the timber operator discovers a snag or tree with a nesting of any non-listed raptor the operator shall protect the nest tree, screen trees, perch trees and replacement trees, and cease operations within 500' of the nest, notify the RPF, DFG, Cal Fire. DFG shall have ten (10) days to respond and develop a consultation based on site specific conditions. If a consultation is not developed within the ten (10) days, all non-listed raptors shall have the nest tree, screen trees, perch trees, and replacement trees protected.

Other trees within the THP area that have special value to wildlife will similarly be retained. These trees have been marked with a "W" at dbh. Additionally all snags that do not met the criteria in Item 33 above shall be retained for the benefit of wildlife

36. a. [X] Yes [ ] No Has an archaeological survey been made of the THP area?

b. [X] Yes [ ] No Has a current archaeological records check been conducted for the THP area?

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

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 THP?

38. Describe any special instructions or constraints that are not listed elsewhere in Section II.

Water drafting plan

Drafting locations are Beaver Creek crossing on South Cow Creek Road (Class I watercourse), South Cow Creek crossing on Upper Bridge Road (Class I watercourse), Roaring Spring crossing on Bateman Road (Class II watercourse), and Atkins Creek crossing on the Bateman Road (Class I watercourse).

It is estimated that water usage will be approximately 40,000 gallons per day distributed among the drafting locations during active timber operations.

Water drafting shall not occur at any of these locations when:

(A) bypass flows are less than 2 cubic feet per second, or
(B) pool volume at the water drafting site would be reduced by 10%, or
(C) diversion rate exceeds 350 gallons per minute, or
(D) diversion rate exceeds 10% of the above surface flow.

The following are requirements when drafting:

a. Openings in perforated plate or woven wire mesh screens shall not exceed 3/32 inches (2.38 millimeters).
b. The approach velocity (water moving through the screen) shall not exceed 0.33 feet/second.
c. Flow in the source stream shall be at least 2 cubic feet per second (cfs).
d. Reduction in pool volume shall not exceed 10 percent.
e. The screen surface shall have at least 2.33 square feet of openings and the diversion rate shall not exceed 350 gallons per minute (gpm) or 10 percent of the surface flow.
f. If an alternative screen surface area or diversion rate is desired, the following formula can be used: diversion rate (gpm) X 0.00676 = square feet of screen surface area. The diversion rate can be calculated by dividing the tank capacity by the fastest filling time (i.e.., 3000 gallons / 15 minutes = 200 gpm).
g. The drafting operator shall actively observe the drafting operation. Pumping shall cease and the screen cleaned if it becomes more than 10 percent obstructed with debris.

All drafting locations shall include measures (such as drip pans or absorbent fiber pads) to prevent petroleum-based products originating from vehicles from reaching surface water, groundwater, and soil. These items shall be disposed of properly.

Check all WLPZ, EEZ and ELZ flagging, and skid trail flagging prior to the commencement of any falling operations. Have the responsible RPF or supervised designee replace any flagging that is incomplete or unclear.

Review any restrictions in yarding equipment access which may cause a need for directional falling toward the lead where the logs will be yarded. Trees designated for removal within the WLPZ of a watercourse shall be directionally felled away from the watercourse and longlined, so as to keep heavy equipment out of the protection zone. In the ELZ of Class III watercourses, trees may be felled bridging the watercourse and endlined from outside the ELZ. The purpose of this measure is to allow for trees that if not directionally felled across the ELZ would fall into the ELZ or damage the residual stand.

Use only designated skid trails and tractor road crossing within WLPZs. Designated skid trails and tractor road crossings are delineated with yellow flagging.

All trees marked with a "W", a "No" or a "L" shall be retained.

Review the Winter Operations Plan and the Site Preparation Addendum. L2 shall not be used during the winter period.

The LTO shall carefully review the Forest Practice Rules regarding Conduct of Operations on Roads and Landings, 14 CCR 943.6.

The LTO shall carefully review the Forest Practice Rules regarding Wildlife Protection Practices contained in 14 CCR 939.2 and 939.3.

All trees and snags with visible nesting sites of eagles, hawks, owls, waterfowl, or any rare or endangered species shall be left standing.

Timber may be removed within 100 feet, as measured on the surface of the ground, from the edge of the traveled surface of appurtenant roads owned or controlled by the timberland owner, timber operator or timber owner, and being used during the harvesting of the particular area for safety reasons (hazard, dead, dying and disease and trees that interfere with the maintenance of the road). The traveled surface of such appurtenant roads is also part of the logging area as defined in CCR 895.1 "Logging Area".

The THP boundary has been designated by pink "THP Boundary" flagging.

The Plan submitter shall notify the Department of the commencement of timber operations at the following address:

TEHAMA-GLENN UNIT
Unit Forester
CAL FIRE
604 Antelope Boulevard
Red Bluff, CA 96080
530-528-5106

DIRECTOR OF FORESTRY AND FIRE PROTECTION

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

By: William E. Schultz
(Signature)

November 12, 2009
(Date)

William E. Schultz, RPF #1974
(Printed Name)

Deputy Chief Forest Practice
(Title)

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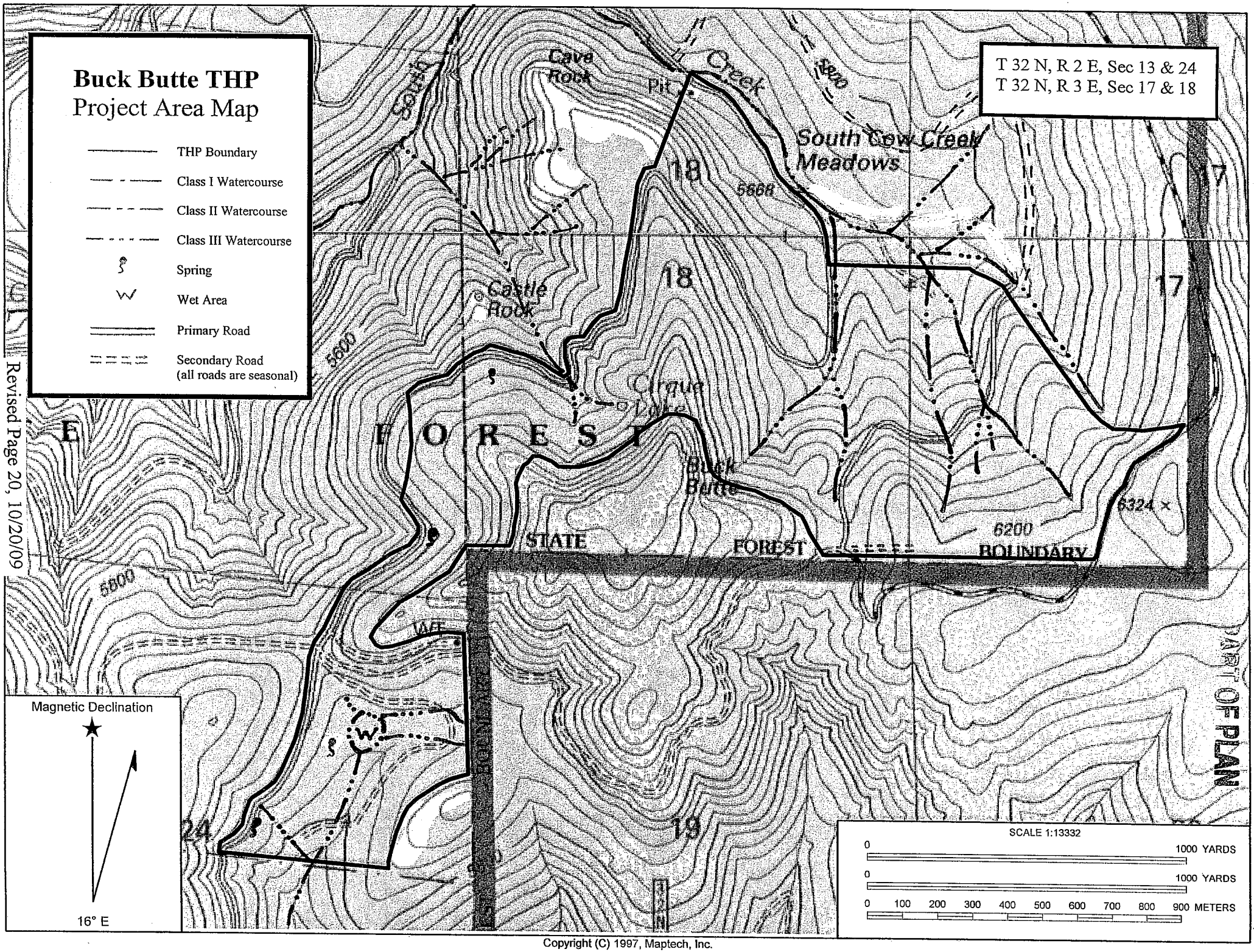

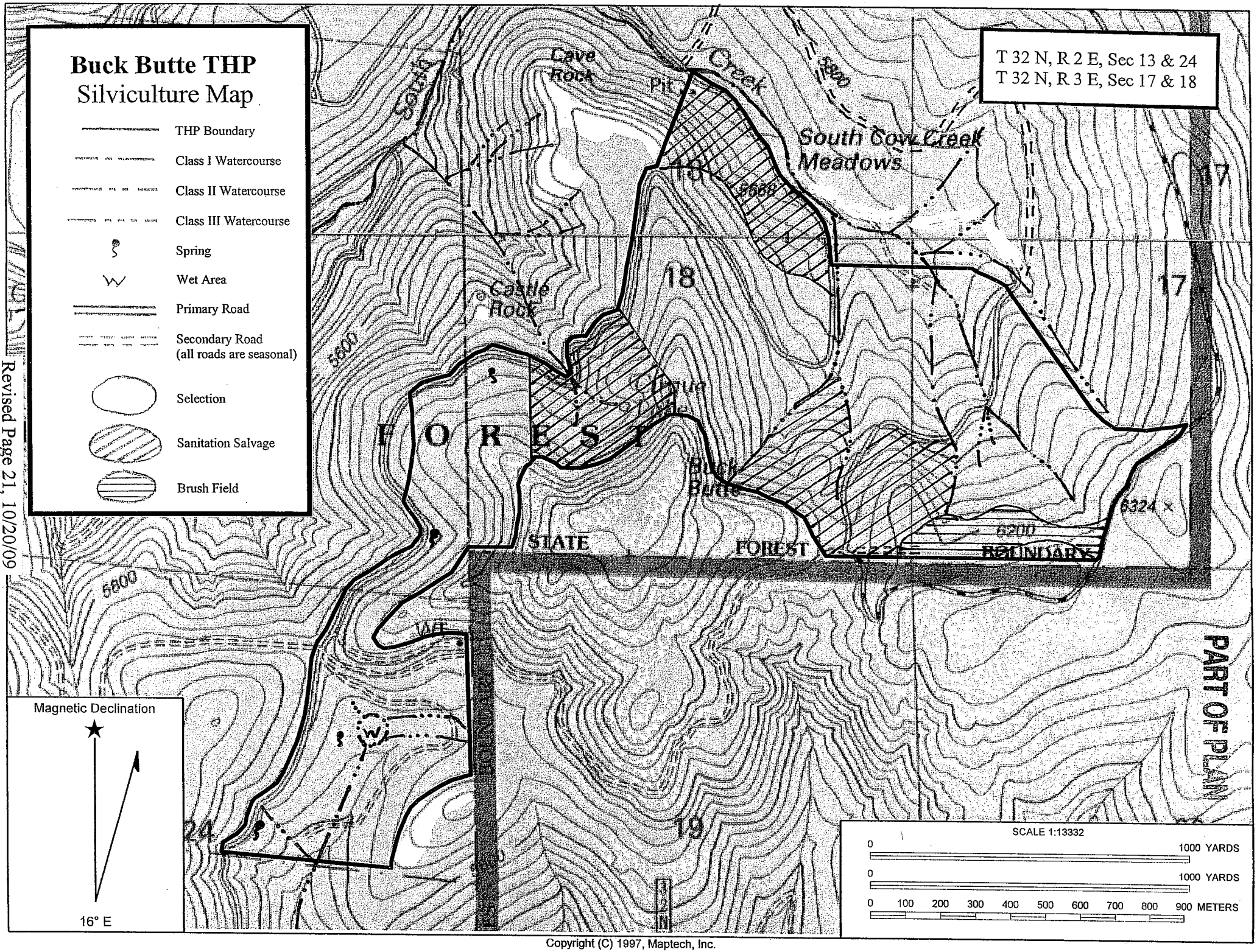

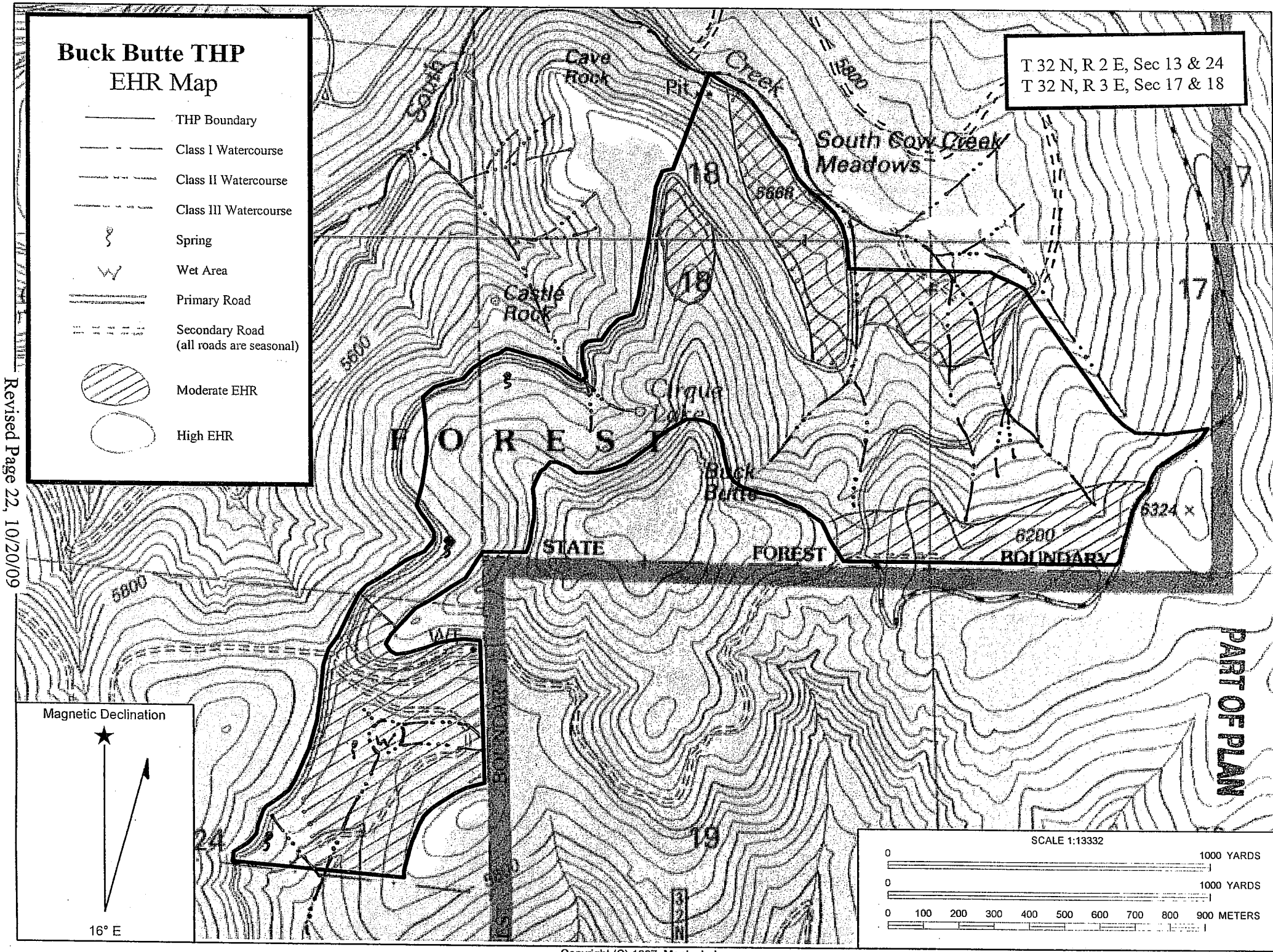

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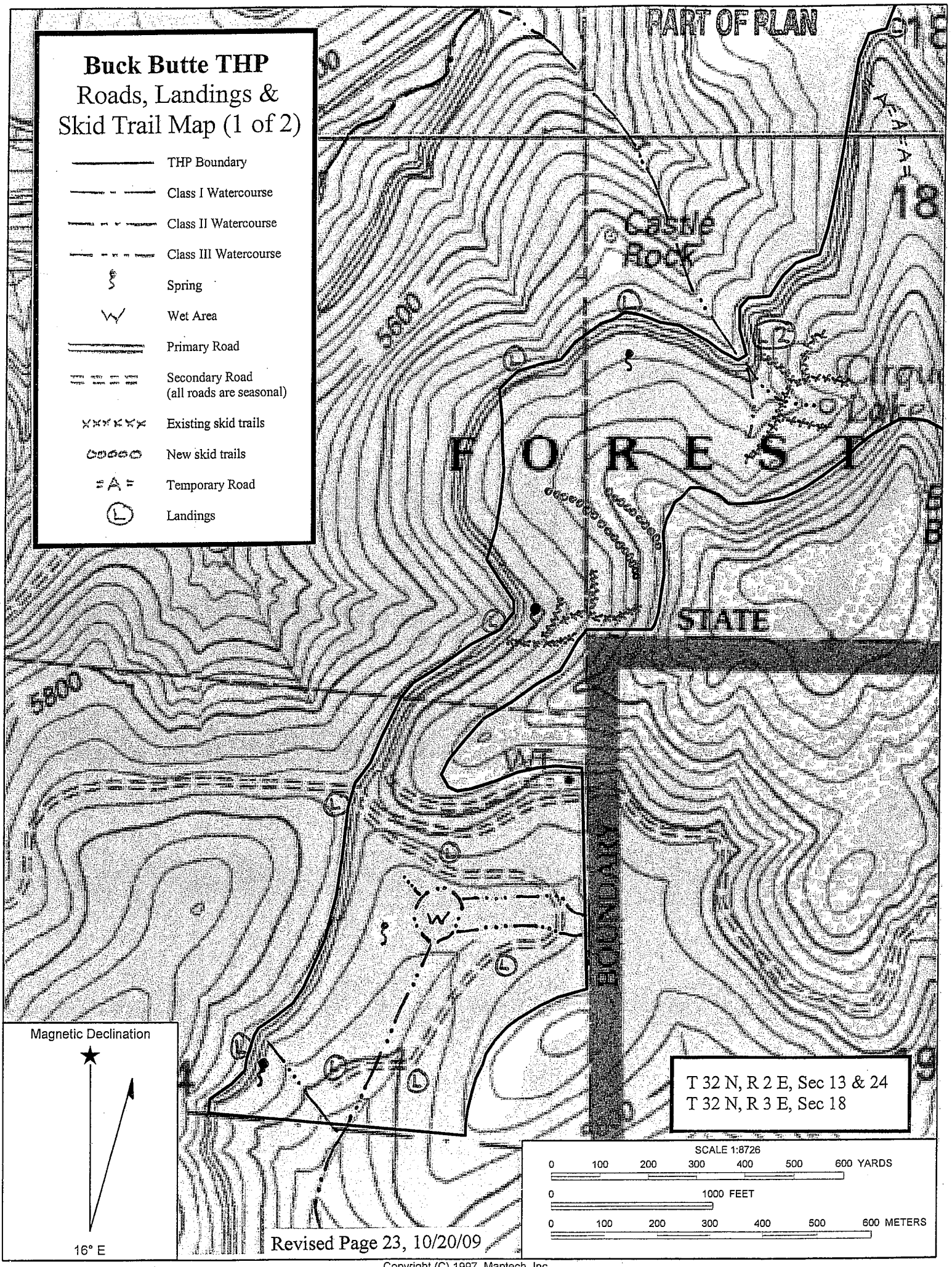

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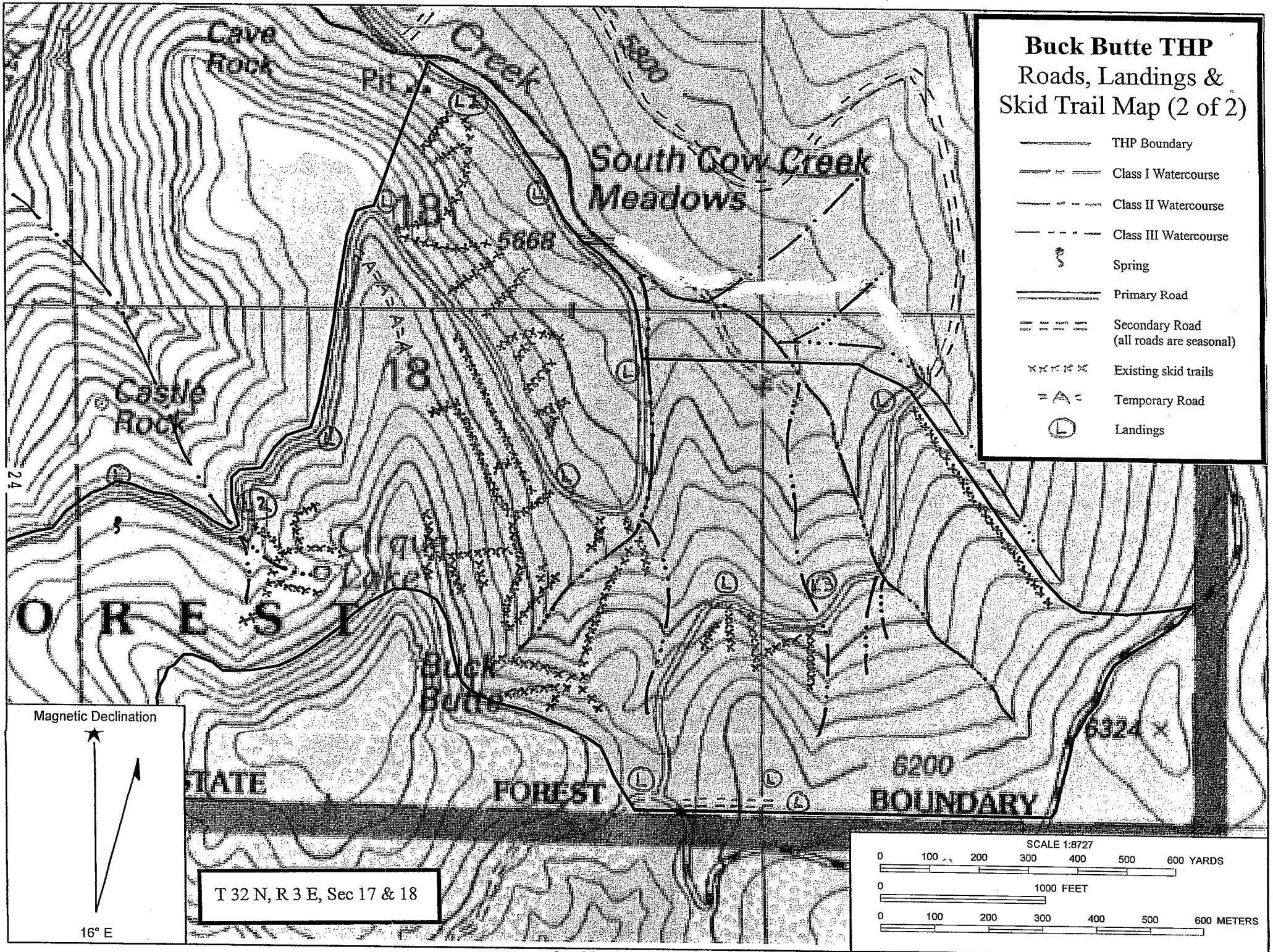

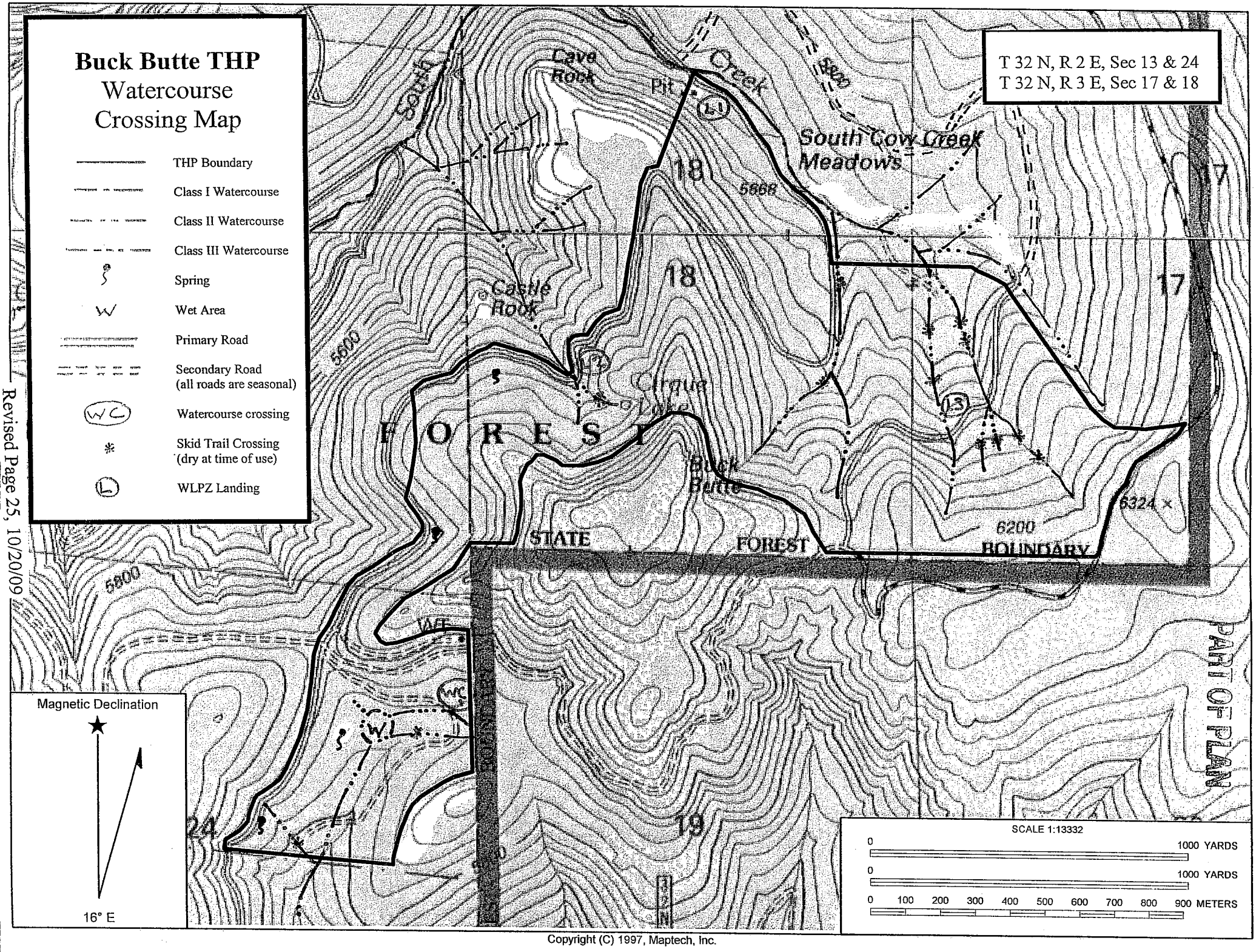

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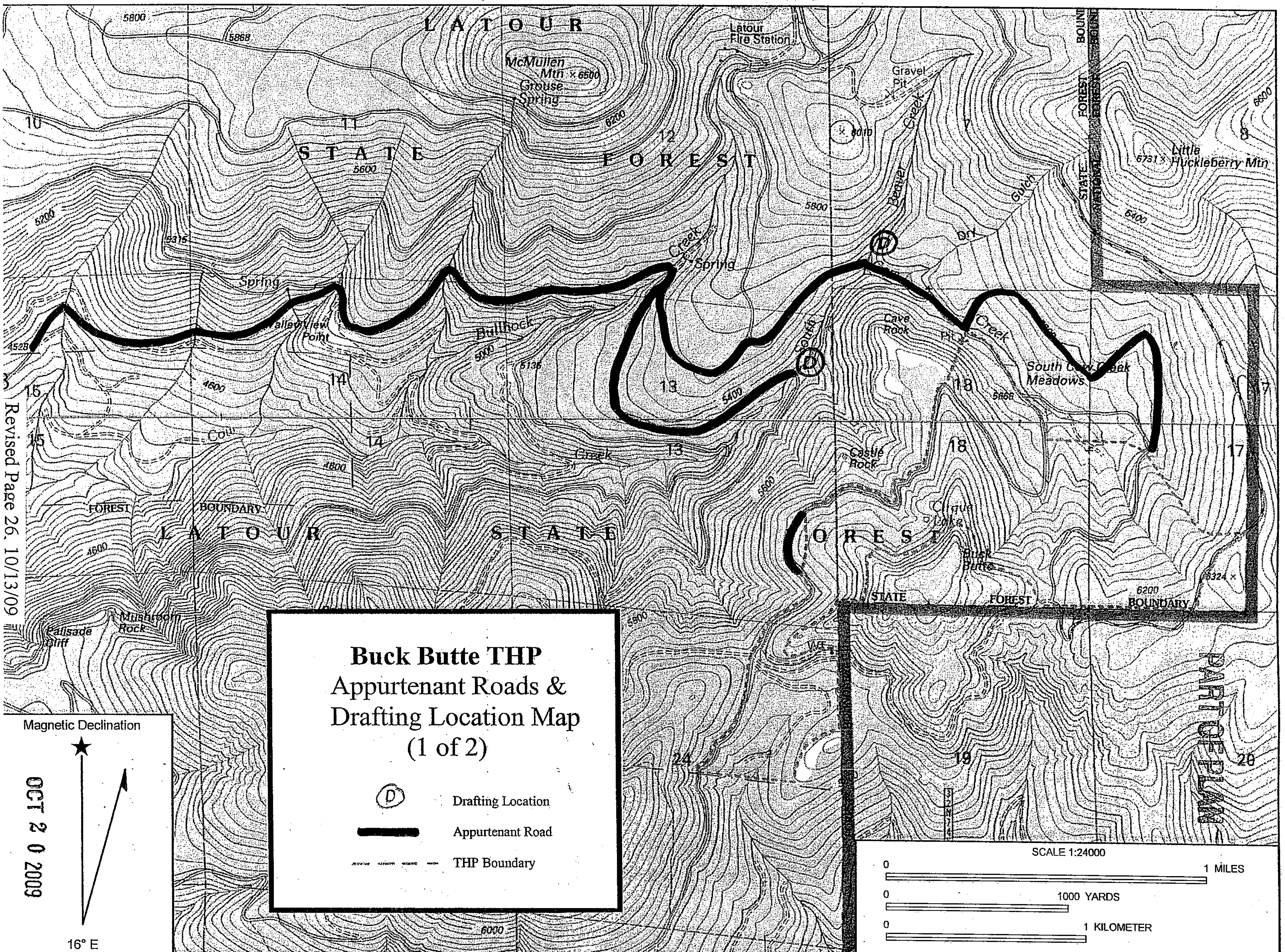
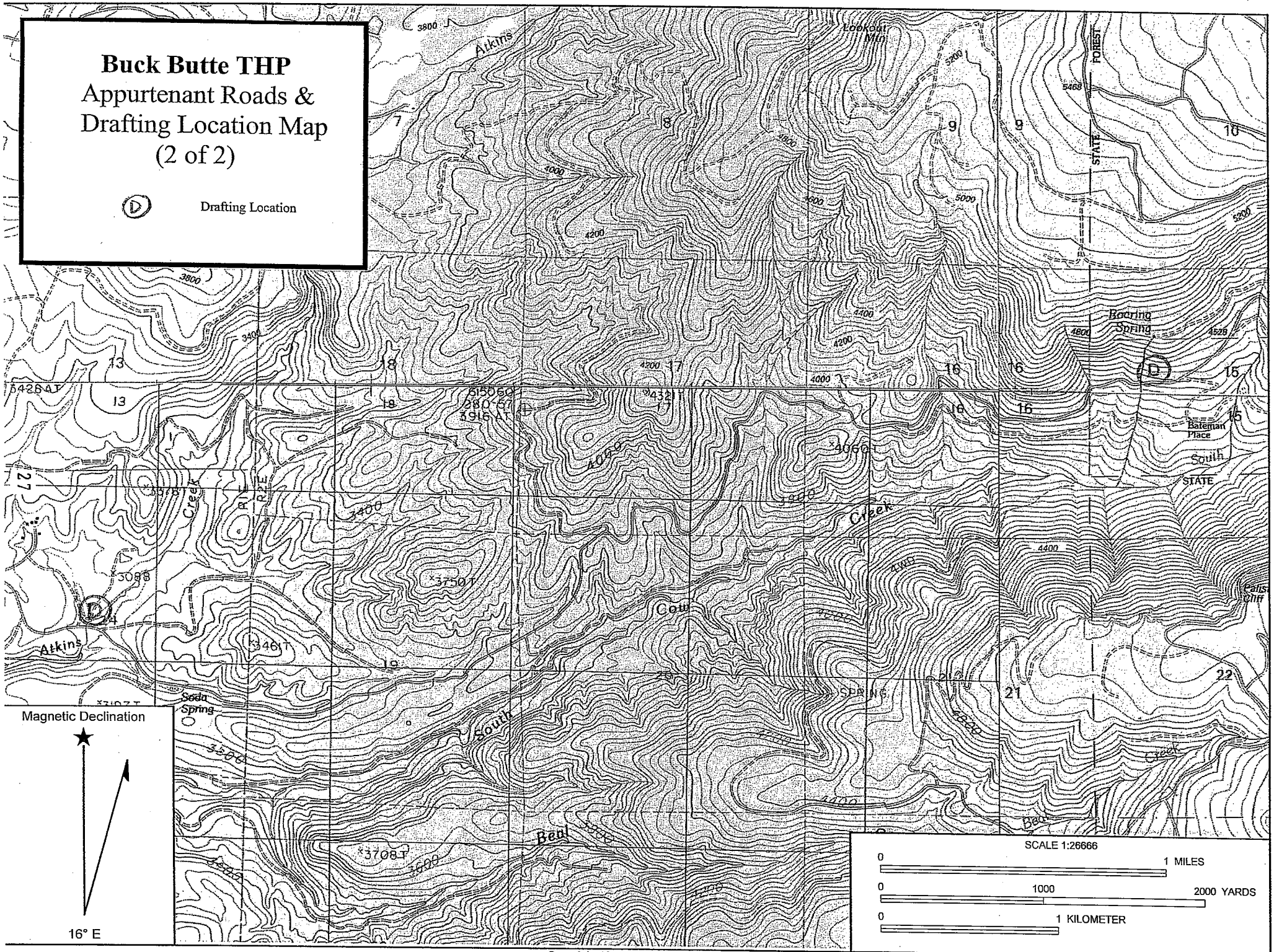


Buck Butte THP
Appurtenant Roads & Drafting Location Map (2 of 2)

(D) Drafting Location



SECTION III
Support Documentation

Feasibility of Alternatives

No significant adverse effects from the proposed operations under this THP are expected to occur. However, an analysis of THP alternatives follows.

Purpose

The legislative authority for the State Forest System is contained in Public Resources Code (PRC) §4631-4658. CAL FIRE is responsible for the management of LDSF. As part of this oversight, the LDSF staff operates under a management plan, which provides general objectives and goals. The plan is required pursuant to Public Resources Code (PRC) §4645 and Article 8 of the California Board of Forestry and Fire Protection (Board) policy.

LDSF has a management plan, approved by the board, which provides direction and guidance for the managed uses of forest resources with an emphasis on forest demonstration, research, recreation, maintenance of wildlife habitat, and water quality protection. Timber harvesting is one of the mechanisms used to implement forest management goals and foster maintenance and enhancement of other non-timber resources. Guided by the statutes, the Board of Forestry and Fire Protection establishes policy, which governs LDSF and other state forests. Board policy states that the primary purpose of the state forest program is to conduct innovative demonstrations, experiments, and education in forest management.

Objectives

- Demonstrate sound forest management.
- Reduce fuel loading thus reducing the risks of wildfires
- Avoid the waste of timber resources
- Enhance growth and vigor of timber resources
- Improvement of the forest road system
- Improve wildlife habitat, and watershed values promoted by the resulting healthy stands

The project as proposed meets is in conformance with the CEQA compliant 2008 LDSF Management Plan, LDSF's Option A for Long Term Sustained Yield (LTSY), the Board's policy and meets the following objectives:

Achieve a balance between growth and harvest over time consistent with the harvesting methods within the rules of the Board.

Maintain functional wildlife habitat in sufficient condition for continued use by the existing wildlife community within the planning watershed.

Maintain growing stock, genetic diversity, and soil productivity.

Demonstrate various erosion control measures, including watercourse crossing design, pre and post harvest.

Capture tree mortality and improve overall health of timber stands.

Alternatives Considered

No Project

Site would remain as is.

No economic benefits would be realized.

Stand vigor would decrease due to the overstocked stand conditions.

Mortality not harvested would be wasted.

Increased risk to wildfires resulting from the overstocked stand conditions and increasing fuel loads.

Forest management and timber harvest demonstrations will not be carried out.

Project Timing

The proposed project will be completed within the next 5 years.

Delaying the project to another decade was considered.

A delay of the proposed timber harvest would result in the waste of timber resources through stand mortality and allow for the continual risk of wildfire.

A delay in harvest and income timing would substantially reduce the present net worth of the proposed project.

The landowners manage their land on a 10 to 20 year cutting cycle. Delaying the project will increase the acres to be treated in future years to maintain the stand treatment schedule.

Alternative Site

This alternative is not necessary, as any significant negative effect from the proposed operations has been mitigated in the THP.

Alternative Silviculture

Alternative silvicultural methods are limited by the restrictions in LDSF's Option A for Long Term Sustained Yield. The LTSY was determined by modeling timber growth for LDSF using specific silvicultural prescriptions. The LTSY was calculated primarily using un-evened aged silviculture. Even though even-aged silviculture is available to use, the minimal acres modeled are better suited for different locations on the forest, within stands of high disease and mortality, or marginal stocking. Single tree selection was modeled in the southeast portion of LDSF where the soil is more erosive. For modeling purposes, no regeneration was assumed in these stands so as to be conservative in projecting growth. Consequently, an alternative silvicultural method is not a viable option.

Upon review of the alternatives considered, the proposed project is the landowner's best alternative to meet the above stated objectives.

General Project Description

Location: The THP is located in Shasta County on LDSF in Sections 13 and 24, T 32N, R 2 E, and Sections 17, and 18, T 32 N, R 3 E. The elevation of the THP ranges from 5,400 feet to 6,120 feet. The THP is approximately 13 air miles east of the community of Whitmore, California, 22 miles south of Burney and 17 miles northeast of Lassen Volcanic National Park.

Vegetation and Stand Conditions

There are two major commercial timber types found on LDSF, mixed conifer and true fire. The mixed conifer type is found at lower elevations on drier south and west facing slopes. The tree components of this type are ponderosa pine (*Pinus ponderosa*), sugar pine (*Pinus lambertiana*), white fir (*Abies concolor*), incense cedar (*Calocedrus decurrens*), Douglas-fir (*Pseudotsuga menziesii*), and at the upper elevations Jeffrey pine (*Pinus jeffreyi*) and red fir (*Abies magnifica*). The major component of the mixed conifer type is white fir.

The true fir type is found on higher elevations and on the north slopes. This type is characterized by almost pure even aged stands of white and red fir. Other species found in association with the true firs are sugar pine, Jeffery pine, lodgepole pine (*Pinus contorta*), western white pine (*Pinus monticola*) and in an isolated area, mountain hemlock (*Tsuga mertensiana*).

The western and lower elevation areas within the harvest area are largely composed of the Sierra mixed conifer stands are uneven-aged with all size classes represented. Regeneration exists in the understory especially in areas where past harvest activities have created openings in the canopy.

The entire harvest area is well stocked. In the selection area the average basal area is estimated at 190 square feet per acre and *ranges* from 120 to 300 square feet per acre. The target *average* basal area post harvest in the group selection area is 140 square feet, but this THP does not limit LDSF from retaining the Forest Practice Rule standards of 75 square feet.

The sanitation salvage area is also well stocked with a multi story dispersion and two-story stand portions. The overstory is composed of residual trees from a harvest that resembled a shelterwood seed step. The overstory trees are declining in health and vigor. The understory is well stocked with advanced 20-30 year old regeneration. The basal area in the sanitation salvage area is estimated at an average of 120 square feet per acre and ranges from 85-200 square feet.

The disease problems observed in the harvest area largely consist of dwarf mistletoe and cytospora or fir canker. Pockets of dead trees exist in the harvest area from fir canker infection. Minor infection of White Pine Blister Rust is affecting intolerant sugar pine and the western white pine. Endemic insect populations of Mountain Pine Beetle and Ips in the pine species and Scolytis in the fir have also been observed.

Soils and Topography

Topography in the area ranges from relatively level in the southern portion of the plan area in Section 24 to 60% slopes along the edge of Buck Butte. The Soil Survey of Shasta County Area, California identifies several soil types, Lyonsville-Jiggs complex, Windy and McCarthy (very) stony sandy loams and rock land.

Lyonsville-Jiggs Complex

(LgE) – About 45% of this complex is Lyonsville stony sandy loam and 45% is Jiggs gravelly sandy loam on 10-50% slopes. The remaining 10% is inclusions of Windy soils. The lyonsville soil has moderate permeability. Available water capacity is 2 to 5 inches. Weathered dacited is at a depth of 20-40 inches. Stones and cobblestones cover 3 to 15 percent of the surface. The jigs soil has moderate rapid permeability. Available water capacity is 2 to 4 inches. Dacite is at a depth of 20-40 inches and exposed dacite bedrock outcrops cover 5-10% of the surface. Runoff is medium to rapid and the hazard of erosion is moderate to high.

(LhE) – Similar to LgE. Lyonsville has an increased in water capacity of 4-7 inches and the Jiggs soil has an increased capacity of 3 to 6.5 inches. Runoff is medium to rapid and erosion is moderate to high. Both soils are deep to 40 to 60 inches.

Windy and McCarthy Stoney SandyLoams (WeD) – This soil is mage up of equal parts Windy and McCarthy. Windy soil has rapid permeability with a water capacity of 5 to 7 inches. The McCarthy soil is moderately rapid permeability with a 4 to 6 inche water capacity. Runoff is medium to rapid in this soil type and the erosion is moderate to high. Bedrock is at a depth of 40- 60 inches. Stones cover 1-3% of the surface.

Windy and McCarthy Very Stoney SandyLoams (WeD) – This soil is mage up of equal parts Windy and McCarthy. Windy soil has rapid permeability with a water capacity of 5 to 7 inches. The McCarthy soil is moderately rapid permeability with a 4 to 6 inches water capacity. Runoff is rapid in this soil type and the erosion is moderate to high. Bedrock is at a depth of 40- 60 inches. Stones cover 3-10% of the surface.

Rock land (RxF) – Shallow soil, rock outcrops. Vegiattion, where present, is similar to adjacent soils, except that rockland has less grass and more drought resistant species, such as Manzanita.

Watershed and Stream Conditions

LDSF is the headwaters source of two major streams, Old Cow Creek and South Cow Creek. A Tributary to the North Fork Battle Creek and South fork Bear Creek drain small portions of the south side of LDSF.

The THP area primarily occurs within the Beal planning watershed, but has a small portion that drifts over to the Upper Battle Creek planning watershed. Within the Beal planning watershed South Cow Creek starts in the South Cow Creek Basin and flows westerly. South Cow Creek is a class I watercourse for most of its length. Springs and tributaries contribute to its flow constituting it as a major stream before it leaves LDSF. Tributaries to South Cow Creek are Bullhock, Beaver, and Atkins Creeks. Bull hock Creek is a Class I watercourse at its confluence with South Cow Creek to the Middle Bridge Road crossing, approximately 4500 feet upstream. Thee intermittent streams that contribute to South Cow Creek are Beal Creek, Dry Gulch and Lee March Gulch. Beal planning watershed is considered threatened and impaired because it has potential for steelhead.

South Cow Creek and Old Cow Creek contains generally complex habitat with deep pools, riffles, and boulders forming step pools. The creek appears to have good channel conditions in the lower portion of the planning watersheds and impacts from timber operations were not significant to those portions of South Cow Creek and Old Cow Creek. Further evaluation of the watercourses occurred in the summer of 2000 from the *LaTour Demonstration State Forest Watershed Monitoring Project*, Stream Channel and Fish Habitat Assessment prepared by the Sacramento Watersheds Action Group (SWAG) under contract with the Department of Forestry and Fire Protection. In this report South Cow Creek, Bullhock Creek and Old Cow Creek were assessed within LDSF boundaries.

The SWAG report evaluated the Class I reaches of all three creeks including 16,579 feet of South Cow Creek within the State Forest Boundaries. The report concluded nearly all (91%) of the watercourse is stable with some instability noted at the upper reaches in a meadow. Banks were stabilized primarily by large cobbles, boulders, and riparian vegetation. By length, habitat was 44% riffles, 44% flat water, 5% pools and 7% dry. Mean pool depth was 1.8 feet for the entire segment. The Class I portion of Bullhock Creek is also stable and has a steep gradient. There is evidence that the watercourse has supported large flood events. Some bank scouring, erosion and depositional features are present in the upper reaches of the Class II segment. These features are largely due to the 1997 rain-on-snow event that resulted in significant runoff in the watershed. By length the habitat of the class I segment of Bullhock Creek is 36% riffles, 58% flat water, and 6% pools. The channel is steep with banks being stabilized with large boulders and diverse woody riparian vegetation.

Only 72 acres in Section 24 of this THP is within the Upper Battle Creek Planning watershed. Within that 72 acres, four Class III watercourse channels merge to a Class II watercourse that drains to Upper Battle Creek. Upper Battle Creek is not considered threatened or impaired. The stream conditions within this plan area are on a relatively flat topography and the channels appears to have meandered in the past. The eastern road that passes south through this area has been raised above the surrounding terrain. It appears that this may have been intentional to help isolate the movement of the Class III watercourses and direct it into several channels in order to maintain a road running surface. The relatively poor channeling of these watercourses appears to originate on the adjacent landowner.

Plan addendum # 14

Selection: pursuant to 14CCR 933.2(a)(2)(A), selection will occur on 321 acres of the plan area. Three silvicultural considerations were observed within the existing stand (1) high stand density in the true fir stands (2) lack of regeneration, and (3) disease and mistletoe infection. In the selection area the average basal area is estimated at 190 square feet per acre and *ranges* from 120 to 300 square feet per acre. The target *average* basal area post harvest in the group selection area is 140 square feet, but this THP does not limit LDSF from retaining the Forest Practice Rule standards of 75 square feet. The site classification in the area to be harvested is Dunning Site III.

Sanitation Salvage: pursuant to 14CCR 933.3(b), the sanitation salvage will be used on 101 acres of the plan area. Sanitation salvage will be applied as a result of silvicultural practices that were applied to the areas in 1990 The stands were harvested to open the understory and retain seed trees to regenerate the stand. The stands can be described as multistory stands, but sections are currently a two tiered stand with large dominate trees over advanced 20 to 30 year old regeneration. The basal area in the sanitation salvage area is estimated at an average of 120 square feet per acre and ranges from 85-200 square feet. The overstory is declining in health and vigor. Disease problems such as dwarf mistletoe and white pine blister rust in the overstory are infecting the understory. The intent of this prescription is to remove only those trees which are dead, dying, or deteriorating, because of damage from fire, wind, insects, disease, flood, or other injurious agent in order to capture future mortality, improve forest health, and release the advanced regeneration.

Sanitation salvage areas shall contain (as a minimum) an average point count of 300 "countable trees" per acre immediately following timber operations.

Plan addendum #17 - Erosion Hazard Rating (EHR)

The Soil Survey of Shasta County California and field observations were used to determine the erosion hazard ratings (EHR) for this THP area. The EHR areas were delineated according to soil type and ground observations with regard to slope, ground cover, and physical characteristics. The EHRs for the THP area are moderate and high. The EHR types are delineated on the EHR Map.

Plan addendum #21

c. Slopes over 50% with high or extreme EHR:

Operations shall be restricted to existing tractor roads that do not require reconstruction and designated skid trails (flagged and mapped) on slopes over 50% with a High EHR. See THP map for location of these skid trails. See Section III for explanation and justification. See Section III for additional discussion.

The standard Rule 14 CCR 934.2 (f)(1) states that heavy equipment shall be prohibited where any of the following conditions are present:

(ii) Slopes steeper than 50% where the erosion hazard rating is high or extreme.

The proposed alternative practice, as described in Section II, item 21, of using existing and RPF designated skid trails will provide equivalent environmental protection as the standard rules A skid trail network is already existing and is well established. The existing skid trail network shall not require reconstruction. These slopes do flatten to sufficiently dissipate water flow and trap sediment before it reaches a watercourse. The existing skid trail pattern is on a rocky soil that is considered to be a high EHR, but there are no strong signs of erosion(rilling, gulling, etc.). The existing skid trails are not currently, and should not in the future; negatively impact the beneficial uses of water downstream. Cable yarding is not an option since no tail hold can be established to facilitate this yarding method. Due to the silviculture and timber species, helicopter yarding is also not feasible. The two proposed skid trails are required to provide access to an area that does not support adequate tail hold locations for cable operations. Consequently, the requirement under 14 CCR 934.2(f)(2)(i) &(ii) are proposed for enforcement purposes;

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

(i) Existing tractor roads that do not require reconstruction, or

(ii) New tractor roads that have been flagged by an RPF or supervised designee prior to use.

Waterbreaks shall be spaced at 50 feet.

Plan addendum #25

Map Point A: Approximately 800 feet of temporary road construction that will terminate with the construction of a new landing. There are no watercourse crossings, the side slope is less than 30%, the road grade averages less than 15 %, EHR is moderate, and there are no unstable areas.

The temporary road shall be constructed as a seasonal, single lane roads with a sufficient number of turnouts for safe vehicle passage. Any tree over 12 inches d.b.h. with more than 25% of the root surface exposed by road construction, shall be felled concurrently with the timber operations. Waste organic material, such as uprooted stumps, cull logs, accumulations of limbs and branches, and unmerchantable trees, shall not be buried in road fills.

Wood debris or cull logs and chunks may be placed and stabilized at the toe of fills to restrain excavated soil from moving down slope. Drainage structures or facilities shall be installed so as to minimize erosion, ensure proper functioning, and to maintain the natural drainage pattern. Drainage structures and facilities shall be of sufficient size, number and location to carry runoff water off of roadbeds, landings and fill slopes. Drainage structures and drainage facilities shall not discharge on erodible fill or other erodible material unless suitable energy dissipaters are used.

The limited construction will not significantly expand the area covered by the transportation system within the watersheds. New construction will affect less than 0.001% of the total area within the watersheds. The temporary road construction is approximately 680 feet.

Upon Completion of operations, the temporary road and associated landing shall be abandoned in accordance with 14 CCR 943.8;

1. Road shall be BLOCKED so that standard production four wheel-drive highway vehicles cannot pass the point of closure at the time of abandonment.

2. The road surface shall be graded or shaped to provide dispersal of water flow.

Plan addendum #27

Standard rule 14 CCR 936.3 (c) states that the timber operator shall not construct or reconstruct roads, construct or use tractor roads or landings in Class I, II, III, IV watercourses, in the WLPZ, marshes, wet meadows, and other wet areas unless when explained and justified in the THP by the RPF, and approved by the Director, except as follows:

(1) At prepared tractor road crossings as described in 934.8 (b).

(2) Crossings of Class III watercourses which are dry at the time of operations

(3) At existing road crossings

(4) At new tractor and road crossings approved as part of the Fish and Game Code process.

The proposed in-lieu practices, as described in Section II, item 27, of using existing skid trails, landings and roads within the WLPZ will provide equivalent, and possibly better, protection to the beneficial uses of water than would the standard rules. The proposed practice eliminates the need to relocate landings, skid trails, and road segments outside and adjacent to the WLPZ. Relocation and new construction is not feasible and would create an overall greater soil disturbance within the watershed. The existing skid trails, landings and roads are stable, and are not currently, and should not in the future; negatively impact the beneficial uses of water downstream. Measures to mitigate possible adverse effects from operations proposed under this plan are specified in Section II, Item 27.

L1 – is an existing landing on South Cow Creek Road that approximately 20 feet encroach in a Class I WLPZ. This landing has also been use as a rock pit in the past. In addition, there is an existing berm along the outside edge of the landing. Measures to mitigate possible adverse effects from operations proposed are specified in Section II, Item 27.

L2 – is an existing landing that is bisected by a Class II WLPZ. In addition, only one skid trail accesses this landing. This skid trail is within a Class II WLPZ and Class II ELZ. This existing skid trail access is the only viable entry point for harvesting the section of timber immediately south of the landing. There are no viable alternative skid trail locations. The silvicultural prescription is sanitation salvage for this area. Measures to mitigate possible adverse effects from operations proposed are specified in Section II, Item 27.

L3 – is an existing landing that is partially within a Class II WLPZ. An existing skid trail does access this landing that is within the Class II WLPZ. However, this skid trail is not proposed to be used. An alternate skid trail has been flagged on the ground in yellow skid trail flagging that prevent reentry into the Class II WLPZ. Measures to mitigate possible adverse effects from operations proposed are specified in Section II, Item 27.

Plan addendum #28 (b) – Notification requirements

An exemption to the Notification requirements for information on domestic water supplies is requested for the newspaper notice. USFS and Sierra Pacific Industries are the only landowners within 1000 feet downstream that receive surface drainage for areas proposed for harvest. USFS and SPI received letters requesting any information regarding domestic water uses within 1000 feet from the proposed project boundary. No responses had been received at time of submittal.

Plan addendum #31 - Piling and burning for hazard reduction

The standard rules 14 CCR 937.2(a) and 937.5(b) state slash to be treated by piling and burning shall be treated no later than April 1 of the year following creation, or within 30 days following climatic access, or as justified in the plan. 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.

An alternative to the standard rule is proposed to allow treatment of landing slash accumulations that result from the use of chipping and/or de-limbing equipment created after September 1 of each year. This material may be burned the following fall when safe burning conditions occur. This alternative practice shall be applied over the entire THP area.

This practice differs from the standard practice in that piles will remain in place over the spring and summer and will be treated in the fall, rather than in the winter or early spring following their creation.

This alternative will provide equal or greater hazard reduction. Slash will be concentrated in the landings so that it is no longer a fuel component of the forested stands. There will be protective space around the piles as specified in Section II, Item 31. Also, there have been several incidents of burnt piles rekindling and even escaping following spring burning in this general region. Allowing fall burning of these piles will assure better consumption of the material and a cooling off period through the winter months.

All other provisions of 14 CCR 937.5 will be complied with. Piles will be constructed so that they are sufficiently free of soil for effective burning. These piles will be burned at a safe time during wet fall or winter weather according to other applicable laws and regulations. Piles that fail to burn sufficiently to remove the fire hazard shall be further treated to eliminate the hazard. All necessary precautions shall be taken to confine such burning to the piles.

Although some scorching of surrounding trees may occur, the extent of this damage will not result in conditions that do not meet the silvicultural and stocking requirements of this THP. No excessive buildup of bark beetle populations is expected to occur as a result of this proposed alternative.

Plan addendum #32 – Biological Resources - Listed Species

The biological assessment area (baa) includes the THP area and the Upper Battle Creek & Beal watersheds. These boundaries represent an area where species using a large home range could possibly be affected. The RPF did a CEQA scoping for plant and wildlife species occurring within the baa. Scoping for species potentially affected by proposed operations always includes the listed species which receive either site specific or area wide habitat retention requirements. In addition non listed species were considered for habitat needs within the baa. The Natural Diversity Data Base (NDDB) was used as a scoping tool to check if any rare, threatened, endangered, or special concern species and/or their habitat are located on or surrounding the THP area. A nine quadrangle query was conducted, which included Viola 7.5 minute quad, its surrounding eight quads. The following is a list of rare, threatened, endangered species, and/or their habitat that occurs within the THP area. There are no recorded occurrences of threatened or endangered species on LDSF.

Northern Goshawk, Accipter gentillis. The harvest area contains both nesting and foraging habitat for the Northern Goshawk. The silvicultural prescriptions proposed will have a very low impact on the Northern Goshawk's habitat requirements. The type of harvest being conducted may even improve forage habitat conditions for the goshawk where dense stands are opened.

This will be the *listed* species that is most likely to occur in the general habitat types found in or near the plan boundaries. There is one known goshawk territory approximately .75 miles of the THP boundary. In the event that goshawks are discovered or suspected of inhabiting the THP area, efforts will be made to verify their presence.

Because habitat for northern goshawks does exist with the THP area, and care has been and will continue to be taken during operations (including marking, field preparation, supervision, etc.) to identify any potential goshawk nest sites or other indications of goshawk presence with the area. In the event that a previously unknown goshawk nest is discovered within 0.25 miles of an area scheduled for operations under this THP, operations will cease immediately within 0.25 miles of the nest until a consultation with DFG can be conducted. At a minimum, all goshawk nest sites will be protected according to 14 CCR 939.3. No currently suitable habitat for northern goshawks will be rendered unsuitable as a result of the harvest proposed under this THP.

Sierra Red Fox, Vulpes vulpes nector: The assessment area and the THP do contain the vegetation types considered habitat for the Sierra Red Fox. Observations of the red fox have occurred within the scoping area and primarily around Lassen Volcanic National Park. The closest observation to the THP is near Highway 44 and Scharch Meadow. LDSF staff has been conducting forest carnivore surveys the last three years and the Sierra Red Fox has not been detected. The project will maintain habitat for the Sierra Red Fox.

California Wolverine, Gulo gulo: The California wolverine has been detected within the scoping area. The assessment area and the THP do contain the vegetation types that are considered habitat for the wolverine. LDSF staff has been conducting forest carnivore surveys the last three years and the wolverine has not been detected. The project will maintain habitat for the California Wolverine.

Pacific Fisher, Martes pennanti: On April 27, 2009 the Pacific Fisher became a candidate for listing under the California Endangered Species Act. Emergency regulations were developed by the Fish and Game Commission for this species in order to allow incidental take of fisher for specified activities including timber operations (Section 749.5, Title 14, CCR). This emergency regulation was approved by the Office of Administrative Law on April 27, 2009 and will be in effect until October 27, 2009.

It appears that the fisher is a generalist as habitat information ranges from mature timber stands, second growth stands and pure hardwood stands. The general habitat includes intermediate to large tree stages of coniferous forests & deciduous-riparian areas with a high percent canopy closure. The micro habitat includes cavities, snags, logs & rocky areas for cover & denning. They appear to require large areas of mature, dense, forest..

LDSF contains habitats for the Pacific Fisher. This species has been detected on LDSF in a 1990 furbearer presence survey. More recently the Pine Marten has been detected in the southeastern portions of the forest during the forest carnivore surveys being conducted by LDSF staff. No subsequent detections of the Pacific Fisher have occurred. The project will maintain habitat for the Pacific Fisher. If Pacific Fishers are observed within the THP area the LTO shall cease all operations within .25 miles of the observation site and contact the LDSF staff, CAL FIRE inspector, and DFG.

The critical period for fishers 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 within 0.25 miles and DFG will be immediately contacted.

Due to the silvicultural methods applied in this THP, no potential impacts are expected. Habitat needs will continue to be present within the plan area. In addition, LDSF staff in cooperation with the DFG is developing a monitoring program to evaluate the present and continued use of mid-sized forest carnivores.

Pine Marten, Martes Aericaa sierrae: The assessment area and the THP do contain habitat the Pine Marten. Pine Martin were detected on LDSF in a 1990 furbearer presence survey. The Pine Marten has been detected in the southeastern portions of the forest (Section 24), within the assessment area, during the forest carnivore surveys being conducted by LDSF staff I 2005 and 2006. The THP will maintain habitat for both the Pine Marten and the Pacific Fisher. LSDF staff in cooperation with the DFG is conducting a monitoring program to evaluate the presence and continued use of known mid-sized forest carnivores.

Northern Spleenwort, Asplenium septentrionale: Northern spleenwort is found growing out of crevices in granite like rock outcrops and is usually found above 5000 feet in elevation. There are several rock outcrops located on LDSF and within the assessment area that have potential habitat for northern spleenwort. Typically these rock outcroppings are not disturbed by timber harvest activities. The road construction described within the plan doesn't traverses any large rock outcrop. Northern Spleenwort has not been observed within the THP or on LDSF.

Vanilla grass, Hierochloe odorata: The assessment area and the THP have the general habitat types associated with the known occurrences of vanilla grass. Vanilla grass is located within wet meadows and seeps above 5400 feet in elevation. The THP provides protection for all meadows and seeps.

Rayless mountain ragwort, Packera indecora: Rayless mountain ragwort is located in meadows and seeps on mesic sites between 5200 and 6500 feet in elevation. The assessment area and the THP has the general habitat types associated with the known occurrences of Rayless mountain ragwort. The THP has potential habitat along the class II watercourses, meadows, springs and seeps. The THP provides protection for all meadows, seeps, and watercourses.

Northwestern moonwort: The assessment area and the THP have the general habitat types associated with the few known occurrences of northwestern moonwort. Northwestern moonwort is located along creek banks, meadows, upper and lower montane coniferous forest above 5310 feet in elevation. The THP provides protection for all watercourse, meadows and seeps.

Mingan moonwort, Botrychium minganense: The assessment area and the THP have the general habitat types associated with the known occurrences of mingan moonwort. Mingan moonwort is located along creek banks of lower montane coniferous forest above 4500 feet in elevation. The THP provides protection for all watercourse and seeps.

Upswept moonwort, Botrychium ascendens: The assessment area and the THP have the general habitat types associated with the few known occurrences of upswept moonwort. Upswept moonwort is located along creek banks, meadows, upper and lower montane coniferous forest above 4500 feet in elevation. The THP provides protection for all watercourse and seeps.

Western goblin, Botrychium montanum: The assessment area and the THP have the general habitat types associated with the few known occurrences of western goblin. Western goblin is located along creek banks in old growth lower montane coniferous forest above 4500 feet in elevation. The THP provides protection for all watercourse and seeps.

Tall alpine-aster, Oreostemma elatum: The assessment area and the THP have the general habitat types associated with the vaguely

documented occurrence of tall alpine-aster in this area. Tall alpine-aster is located on mesic sites along meadows and seeps of upper montane coniferous forest above 3015 feet in elevation. The THP provides protection for all watercourse, meadows and seeps.

Scalloped moonwort, Botrychium crenulatum: The assessment area and the THP have the general habitat types associated with the known occurrences of scalloped moonwort. Scalloped moonwort is located along moist meadows and near creeks of lower montane coniferous forests and freshwater marshes above 4500 feet in elevation. The THP provides protection for all watercourse and seeps.

Santa Lucia dwarf rush, Juncas luciensis: The assessment area and the THP have the general habitat types associated with the vaguely documented occurrence of Santa Lucia dwarf rush in this area. Santa Lucia dwarf rush is located on chaparral, Great Basin scrub, lower montane coniferous forests, meadows and seeps between 900 –6000 feet in elevation. The THP provides protection for all watercourse, meadows and seeps.

Broad-nerved hump moss, Meesia uliginosa: The assessment area and the THP have the general habitat types associated with the vaguely documented occurrence of broad-nerved hump moss in this area. Broad-nerved hump moss is located on meadows and seeps of upper montane conlferous forest above 3900 feet in elevation. The THP provides protection for all meadows and seeps

The following table shows additional species scoped by the CNDDB on Jan 30 2008, Feb 27 2008 & July 14 2009 that retain no habitat in the THP area.

Scientific Name	Common Name	CA Status	CNPS List	Comments
Fritillaria eastwoodiae	Butte County fritillary	None	3.2	THP is above elevation
Cryptantha crinita	silky cryptantha	None	1B.2	THP is above elevation
Phlox muscoides	Moss phlox	None	2.3	Alpine bolder and rock field
Potentilla newberryi	Newberry's cinquefoil	None	2.3	Marshes and swamps
Potamogeton praelongus	White-stemmed pondweed	None	2.3	Marshes and swamps
Draba aureola	Golden alpine draba	None	1B.3	Serpentine or volcanic outcrops
Smelowskia ovalis var congesta	Lassen Peak smelowskia	None	1B.2	Alpine bolder and rock field
Silene suksdorfii	Cascade alpine campion	None	2.3	Alpine bolder and rock field
Astragalus pulsiferea var suksdorfii	Suksdorf's milk-vetch	None	1B.2	Lower Montane
Collomia larsenii	Talus collomia	None	2.2	Loose volcanic material
Mielichhoferia tehamensis	Lassen Peak coppermoss	None	1B.3	Volcanic rock
Hulsea nana	Little hulsea	None	2.3	Rocky or gravely volcanic substraites
Trimorpha acris var debilis	Snow fleabane daisy*	None	2.3	Volcanic rock outcrops
Erigeron nivalis	Snow fleabane daisy*	None	2.3	Alpine bolder and rock field
Eriogonum pyrolifolium var pyrolifolium	Pyrola-leaved buckwheat	None	2.3	Alpine bolder and rock field
Botrychium virginianum	Rattlesnake fern	None	2.2	THP is above elevation
Rana boylii	Foothill yellow-legged	Special	N/A	THP is above elevation, outside range
Pandion haliaetus	Osprey	Special	N/A	No good fish producing body of water
Haliaeetus leucocephalus	Bald eagle	Endanger	N/A	No good body of water near
Falco peregrinus anatum	American peregrine falcon	Endanger	N/A	No habitat for nesting
Eriogonum pyrolifolium	Pyrola-leaved buckwheat	None	2.3	Alpine bolder and rock field
Draba aureola	Golden alpine draba	None	1B.3	Alpine bolder and rock field
Juncus digitatus	Finger ruch	None	1B.1	THP is above elevation
Oncorhynchus tshawytscha	Spring run Chinook salmon	Threat	N/A	No occurrences in watershed.

* Common name Snow Fleabane Daisy showed up twice in the CNPS database between Jan 30, 2008 and July 14, 2009.

There are numerous other wildlife species that exist on LDSF including the THP are that are not listed as threatened, rare, of endangered. Part of the South Cow Creek deer herd uses LDSF as summer range and fawning area. In the past, certain designated brush fields have been burned to improve forage habitat for the deer. There are other brush fields that may be burned in the future. The forest inventory on LDSF indicates there are 7130 acres of merchantable sized timber stands and 677 acres of plantation (1978 Whitmore burn). The remainder of the Forest is brush, rocky areas, meadows, and open areas with scattered trees.

Plan addendum #33 - Snag Falling / Hazard Reduction

Felling of snags for hazard reduction within 100 feet of all public roads, seasonal roads, and landings will not result in the loss of habitat elements associated with late seral stage timber stands. There are standing dead trees in later stages of decay throughout the THP. All snags with visible nesting sites of eagles, hawks, owls, waterfowl, or any rare or endangered species will be left standing as prescribed under 14 CCR 939.1 and 939.2(d). Special attention will be focused on retaining snags within WLPZs that may be recruited as large woody debris (LWD).

DEMONSTRATIONS AND EXPERIMENTS

According to statute and Board policy, the purpose of the state forest program is to investigate and demonstrate the economic feasibility of artificial reforestation and the productive and economic possibilities of forest management practices which are designed to promote continuous forest production, with due regard to conservation of soil, watershed, scenic, wildlife, and recreational values. PRC 4645 authorizes the Department of Forestry and Fire Protection to manage State Forests and states, "The department, in accordance with plans approved by the board, may engage in the management, protection, and reforestation of state forests." The primary current use of state forests is to demonstrate economical silvicultural practices and timber harvesting procedures that protect environmental values.

State forests have been established to furnish land for needed investigation, demonstrations, and education in such things as the economic feasibility of artificial reforestation, good forest practices, maintenance of forest land in a productive condition, study of effects of improved cutting methods, proper management and harvesting methods, and economical forest management.

The following potential demonstrations can be associated with this timber harvesting plan:

1. Continuous Forest Production and economical silvicultural practices.

   Timber harvesting and forest production has occurred on LDSF since 1952. Approximately 160 million board feet of timber has been harvested from the Forest. Since the Forest's establishment, the estimated standing volume of timber has increased from 102 million board feet to 197 million board feet (based on TAI inventory conducted from 1994-2001). This harvest will continue to demonstrate forest production to achieve maximum sustained production of high quality forest products while giving consideration to other values relating to recreation, watershed, wildlife, range and forage, fisheries, and aesthetic enjoyment.

2. Native road surface stabilization within the WLPZ

   The South Cow Creek Road is an existing road, partially within the WLPZ of the Class I and II of South Cow Creek including a Class III tributary. The road has a native surface and varies in slope. South Cow Creek Road currently utilizes rolling dips and outsloping for drainage. Sediment traps shall be installed at the drainage locations along that Class III tributary. The sediment traps should collect the majority of any sediment being transported off the road surface. The results will evaluate the efficacy of the current native road surface material for stabilization.

3. Pine Martin Monitoring

   Presence has been detected in Section 24 of this THP. This plan will monitor the continued presence of the pine martin within the plan area in relation to a selection silviculture practice.

4. Red Fox Monitoring

   Provide monitoring information on the possible presence of the red fox on LDSF. This information will be made available to the Department of Fish and Game for future studies beyond this THP. Information shall include vegetation type, soil type, elevation and climate conditions that observations were made in.

5. Remote photo monitoring for mid-size forest carnivores

   LSDF staff in cooperation with the DFG is conducting a monitoring program to evaluate the presence and continued use of known mid-sized forest carnivores (& R.O.U.S.'s). Additionally within the study, a comparison of pre and post harvest use is being evaluated by silvicultural treatment.

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SECTION IV

CUMMULATIVE IMPACTS

PART OF PLAN

STATE OF CALIFORNIA
BOARD OF FORESTRY
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 ☐ No
If the answer is yes, identify the project(s) and the effected 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 ☒ No
If the answer is yes, identify the activities, describing their location, impacts, and the affected resource subject(s).

(3) Will the proposed project, as presented, in combination with the past, present, or 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?

Impact Assessment	Yes After Mitigation (a)	No After Mitigation (b)	No Reasonably Potential Significant Effects (c)
1. Watershed			X
2. Soil Productivity			X
3. Biological			X
4. Recreation			X
5. Visual			X
6. Traffic			X
7. Other			X

a. Yes, means that potential significant adverse cumulative impact are left after application of the forest practice rules and mitigations or alternatives proposed by the plan submitter.
b. No after mitigation means that any potential for the proposed timber operation to cause or add to significant adverse cumulative impacts by itself or in combination with other projects has been reduced to insignificance or avoided by mitigation measures or alternatives proposed in the THP and application of the forest practice rules.
c. No reasonably potential significant cumulative effects means that the operations proposed under the THP do not have a reasonable potential to join with the impacts of any other project to cause, add to, or constitute significant adverse cumulative impacts.

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

Past and Future Activities

The assessment area for past and future activities consists of the North Battle Creek (5507.120104) and Beal (5507.310103) Cal Water Planning Watersheds, version 2.2

For assessment purposes, the following is a table of past projects that have been approved within the North Battle Creek and Beal planning watersheds. The data was obtained from the CAL FIRE Cumulative Effects Database. Due to the limitations of the CDF database the acres listed below tend to be over estimates. If part of a THP is within the assessment area, then all of the acres of the THP are included in the database, unless noted otherwise.

Timber Harvest Plans in the Assessment Area (North Battle Creek & Beal Creek PW)

THP Number	yarding method	status	Acres by Prescription										
			NH	FB	AP	R/W	CC	SWR	SEL	SS	CT	GSEL	**Total
2-02-033	tractor/skidder	completed					31						31
2-03-172	tractor/skidder	active							458				458
2-05-149	tractor/skidder	active	39	14					95	200		1914	2,262
2-06-138	tractor/skidder	active			167		239						406
2-99-253	tractor/skidder	completed					5	83				368	456
2-01-037	tractor/skidder	completed				1			300	50	1025		1,376
2-03-143	tractor/skidder	active					11	95	362				468
2-03-188	tractor/skidder	active		57			485	2			237		781
2-03-050	tractor/skidder	completed							1185				1,185
2-02-214	tractor/skidder	active	13	112			494	54	3		410		1,086
2-02-187	cable, tractor/skidder	completed						344				1288	1,632
2-99-252	tractor/skidder	completed			265								265
2-01-193	tractor/skidder	completed							2369		32		2,401
2-01-161	tractor/skidder	completed									50	611	661
2-04-211	tractor/skidder	active								292		749	1,041
2-05-147	tractor/skidder	active		4			40						44
2-08-071	tractor/skidder	active				2		7				341	350
*SCH# 2008062009		active	9,033 acre LDSF management plan										
**Total Acreage			52	173	432	3	1305	585	4772	542	1754	5271	14903
Percent of Assessment Area			0.2	0.8	2.0	0.0	6.1	2.7	22.3	2.5	8.1	24.6	69.5

UNK	Unknown (Silviculture not included in the CDF database check)		
CC	Clear Cut	SEL	Selection
SWS	Shelterwood Seed	SS	Sanitation-Salvage
SWP	Shelterwood Prep	CT	Commercial Thinning
SWR	Shelterwood Removal	Trans	Transition Method
STS	Seed Tree Seed	Rehab	Rehabilitation of Understocked Area
STR	Seed Tree Removal	GSEL	Group Selection
R of W	Right of Way	NT	Non Timberland

* This is a CEQA compliant Mitigated Negative Declaration of LaTour Demonstration State Forest's Management Plan 2008.

** Acres and percentages shown within these tables may be increased over the actual acres harvested within the assessment area. Due to the limitations of CAL FIRE's database, if portion of a THP is within the assessment area, then all the acres of the THP are included in the data base.

Based on the CAL FIRE Database Check conducted on July 17, 2009 14,024 acres (69.5%) of the assessment area has been harvested or planned for harvest. Of the total area harvested, 1890 acres (8.8% of the assessment area) were treated with evenaged silviculture methods. The majority of the assessment area that was harvested was treated using unevenaged and intermediate silvicultural methods (13013 acres). No long-term site impacts has resulted from the harvesting with in the assessment area.

Present projects

For the purpose of assessing present projects the entire THP area is being treated with a selection, and sanitation salvage silviculture methods. Another THP is scheduled for LDSF, but the acreages are unknown at this time. Silviculture is expected to be Variable Retention and Selection. There are no other known California Environmental Quality Act projects currently proposed within the assessment area.

Future Projects

Future projects include the ongoing production and removal of high quality forest products through scheduled periodic harvesting on the commercial timberlands. LDSF will continue to manage the State's timberlands on periodic entries (18 year re-entry cycle) using predominantly unevenaged silviculture. Within the next 5 years LDSF has one additional THP planned within the Beal watershed. No increased impacts are expected to result from these ongoing forest management activities.

ASSESMENT AREAS

Watershed Resources

The watershed assessment area consists of the Beal and Upper Battle Creek Cal Water 2.2 watersheds and is shown on the attached Watershed Assessment Map. The THP boundary lies within the headwaters of both watersheds. The watersheds are third order watersheds and Cow Creek is tributary to the Sacramento River. This assessment area was chosen because the key cumulative impact issues, related to timber harvest, typically express themselves at the scale of planning watersheds or a subset of the planning watershed area.

Beal watershed (planning watershed 5507.310103) is the headwaters of South Cow Creek and drains a basin of 11,598 acres, of which 5,928 acres are contained within the boundaries of LDSF. Elevation ranges from 6,740 at LaTour Butte to 2,920 feet at the junction with Atkins Creek. Major tributaries include Beaver, Bullhock and Beal Creeks. South Cow is a third order stream before the junction with Atkins Creek (and fourth order below Atkins). There are approximately 9 miles of Class I watercourses along the main channel of South Cow Creek. Ownership in the lower elevations of the watershed is predominately private commercial timberlands

Upper Battle Creek watershed (planning watershed 5507.120104) includes the headwaters portion of North Fork Battle Creek. It includes North Battle Creek Reservoir, but is above McCumber Reservoir. Total watershed area is 9,830 acres, of which 199 acres are contained within the boundaries of LDSF. Elevation ranges from 7,064 (Huckleberry Mountain) to 4,100 feet at Bridges Creek. Major tributaries are unnamed. North Fork Battle Creek is a third order stream. There are approximately 7.5 miles of Class I watercourse along the main channel.

Soil Productivity

The assessment area will be the boundary of the THP. This will be adequate to cover impacts from timber operations.

Biological Resources

The biological assessment area (BAA) coincides with the watershed assessment area. The BAA has high biodiversity based on the elevation range, and multiple types of vegetation and habitat. Rational for selection of the BAA is that the watershed assessment area serves as a distinct boundary for collecting and observing wildlife data. This area provides a large enough area adjacent to the THP to assess cumulative impacts to wildlife.

Recreational Resources

The assessment area for recreational resources will be the harvest area plus 300 feet from the plan boundary. This area is appropriate due to the limited recreational use the area receives.

Visual Resources

The visual assessment area is the plan area that is readily visible to significant numbers of people within 3 miles of the THP. This was selected due to the distance of the harvest area from communities and well traveled roads.

Vehicular Traffic Impacts

The assessment area includes the two main haul routes from the THP area.

a) Cutter Road to the Lassen National Forest Road A16, North to the Tamarack Rd (Shasta County Rd.)

b) Bateman Road from the harvest boundary to the end of the county road portion on the Bateman Road. The county road ends at the Atkins Creek watercourse crossing.

The extent of the assessment area was determined based on these routes are the most logical routes off the harvest area and the assessment area terminates at the first county road.

B. Watershed Impact Assessment

LDSF is located at the top of a range and is the headwaters for one major drainage, South Cow Creek and part of the headwaters of North Battle Creek. Beal and North Battle Creek watersheds are the headwaters of these two major drainages. Precipitation averages 46 inches a year with most of it as snow (74%) between November and March. Summer rainfall in the form of thunderstorms is unpredictable.

The harvest area lies within the Beal and North Battle Creek watersheds. Tributaries to South Cow Creek, part of the Beal Watershed, are within the plan area although the WLPZ of South Cow Creek is outside the plan. Numerous skid trials and landings exist in the harvest area from past selection harvests. Slopes of the harvest area within the Beal Watershed are moderate with the average being approximately 25-30%.

Various portions of the plan area were initially harvested in the early 1960's. A second entry occurred in the 1990s, which covered a significant portion of the plan area. Past harvests used the selection silvicultural system.

South Cow Creek is a third order watercourse and a fourth order watercourse downstream of the junction of Atkins Creek. South Cow Creek is in good condition. South Cow Creek contains generally complex habitat with deep pools, riffles, and boulders forming step pools. The creek appears to have good channel conditions in the lower portion of the planning watershed and impacts from timber operations were not significant to those portions of South Cow Creek.

Further evaluation of the South Cow Creek, Old Cow Creek and Bullhock Creek occurred in the summer of 2000 from the *LaTour Demonstration State Forest Watershed Monitoring Project,* Stream Channel and Fish Habitat Assessment prepared by the Sacramento Watersheds Action Group (SWAG) under contract with the Department of Forestry and Fire Protection. In this report South Cow Creek, Bullhock Creek and Old Cow Creek were assessed within the LDSF boundaries. The SWAG report assessed 16,579 feet of South Cow Creek, 15,376 feet of Bullhock creek and 7,380 feet of Old Cow Creek within the LDSF Boundaries. The report concluded 91% of S. Cow Creek was stabile with some instability noted at the upper reaches in a meadow. The report noted that 99% of Old Cow Creek was stabile with the first 300 feet of Old Cow Creek being rated as stability at risk. Banks were stabilized primarily by large cobbles, boulders, and riparian vegetation. By length habitat within these two creek is approximately 40% riffle, 40% flatwater and 20% pools. Bullhock creek lies entirely within the LDSF Boundary. The 4500-foot class I segment of this watercourse was also rated as being stabile and begins at its confluence with South Cow Creek. The channel is steep with the banks being stabilized with large boulders and diverse woody riparian vegetation. By length habitat is 36% riffles, 58% flatwater, and 6% pools. Bullhock Creek has a steep gradient and has evidence of supporting large flood events. The habitat within all three Class I watercourses are boulder dominated.

South Cow Creek has been 303(d) listed based on the pollutant of Fecal Coliform. The possible sources of fecal coliform include agriculture, grazing related sources and others. Although LaTour may acquire an occasional lost cow on the property, it is not considered a highly desirable grazing area due to steep slopes, dense timber cover and minimal meadow grazing potential. In addition, weather conditions also attribute to the loss of grazing potential (moderate to heavy snow loads in the Winter and Spring). This THP does not propose cattle grazing , installation of septic tanks, nor will timber harvesting increase or decrease fecal coliform potential.

Trout occur in South Cow Creek and Old Cow Creek. The only other creek that has trout is Bullhock Creek in the lower 600 – 800 feet during the early part of the year. All planning watersheds within the assessment area are included within the Evolutionarily Significant Unit (ESU) for Chinook salmon and steelhead trout due to known downstream populations. Only the Beal and Atkins planning watersheds are classified as "Threatened and Impaired Watersheds" under the Forest Practice Rules. No anadromous salmonids occur on LDSF, nor are there historical records of observations.

Species of trout found on LDSF are rainbow trout (*Salmo gairdneri*), brown trout (*Salmo trutta*), and an occasional eastern brook trout (*Salvelinus frontinalis*). South Cow Creek primarily has rainbow trout and Old Cow Creek has primarily brown trout.

The desired future condition for watershed and fisheries resources on LaTour includes maintaining and improving current riparian conditions and in-stream habitat. Management in WLPZ areas on LaTour will in most cases exceed the requirements for riparian area protection laid out in the State forest practice rules. We anticipate that riparian areas will be a fertile area for future research on the Forest. Management in and near these areas will be focused on maintaining maximum future management flexibility and not foreclose on future options for research and management.

Although there are no current or historical records of anadromous salmonids on LaTour, all planning watersheds within LaTour are included within the Evolutionarily Significant Unit (ESU) for Chinook salmon and steelhead trout due to known downstream populations, and the Beal and Atkins planning watersheds are classified as "Threatened and Impaired Watersheds" under the forest practice rules. Timber Harvest Plans submitted within the Beale and Atkins planning watersheds will comply with the forest practice rule 14 CCR 936.9, "Protection and Restoration in Watersheds with Threatened or Impaired Values." All stream channels, streambanks, and riparian zones will be protected during forest management activities. Protection of watershed values will be an integral part of the overall management of the forest and will be directly correlated with silvicultural practices and logging standards pursuant to section 4651 of the Public Resource Code and the Forest Practice Act.

The following general guidelines for watershed and fisheries resources will be adhered to on LaTour:

1) Maintain conifer and hardwood trees in buffer zones along all watercourses and around all springs in order to lower water temperature, or prevent increases in water temperature.
2) Allow for the natural recruitment of large woody debris to the stream channel to improve or maintain instream habitat quality and stream ecosystem function.

3) Minimize the number of temporary watercourse crossings.

4) No significant increase in erosion or sedimentation over background levels is expected to result from timber harvesting at the levels described in this Option A document. Commonly used estimates of sedimentation rates attributable to timber operations do not take into account the reduction in sedimentation that will result from watershed remediation projects that will be implemented in conjunction with timber operations. Such projects are in addition to the mitigation measures required by the forest practice rules to reduce erosion. Examples of planned watershed remediation efforts on LaTour to be implemented over the next several years include rocking main roads as needed, replacing culverts at risk of failure with larger culverts and outsloping road segments with rolling dips. Where necessary, the existing road system will be upgraded

   Each timber harvesting operation will be evaluated with respect for sediment source remediation. High-priority remediation sites will be considered when selecting areas for upcoming harvests. In some cases, remediation at locations other than timber harvest areas could constitute offsite mitigation for the watershed impacts of harvesting.

Sediment Effects

Sediment-induced cumulative watershed effects (CWE) 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 effects result from many factors such as weather, geology, soil erosion potential, road location, silviculture, vegetation retention, and heavy equipment operations adjacent to watercourses. Sedimentation has occurred to tributaries of the South Cow Creek during the winter storms of 1997, when rain-on-snow events caused significant runoff resulting in culvert crossing failures and road fill washing into the drainage system.

The management of LDSF has a goal of reducing sedimentation to watercourses. The LDSF has developed and implemented a Road Management Plan (RMP) in compliance with the California Environmental Quality Act (CEQA) that will reduce erosion and sediment from the permanent road system. Implementation of the RMP involves systematic survey of the road system and all watercourse crossings.

Since 1999 over 10 miles of roads in the Beal Watershed have been treated to improve drainage and reduce erosion. This treatment has included outsloping and installing rolling dips on 5.5 miles of road that were previously insloped with an inside ditch. Where road surface runoff is a concern the traveled surface is rocked. At the headwaters of South Cow Creek, 0.5 miles of South Cow Creek road was abandoned and five crossings permanently removed. Watercourse crossings are evaluated as to their potential to fail or contribute sediment from improper installation. Twelve crossings have been replaced since 1999. All of these actions have or will reduce potential sediment inputs into the Beal Watershed. Approximately 1 mile of LDSF roads have been rocked within the

Huckleberry watershed since the implementation of the RMP.

Under this THP steps have been taken to reduce sediment effects from timber operations and correct new road issues that have been identified as having the potential to contribute sediment to watercourses. The prescribed silvicultural systems will maintain vegetation over the harvest area. There will be no groups designated to be harvested within the WLPZ of watercourses. Where operations will occur in the WLPZ or ELZ of a watercourse, mitigations are incorporated into the plan to reduce erosion and the impact to insignificance.

Water Temperature/Thermal Loading Effects

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. Due to the elevation of the plan area the two major factors that would affect water temperature are water source and canopy cover. The contribution of water from the plan area within both watersheds, during the summer months, is spring-fed watercourses from streams with gradients that result in high flow velocities. Stream reaches with low flow velocities and full solar exposure that would result in an increase in water temperature are uncommon on the LDSF within these watersheds. Past harvests have maintained canopy cover over watercourses. The SWAG report found that the Class I watercourses within the Beal watershed had an average of 69% canopy cover, measured with a solar pathfinder, within the LDSF boundaries. Ninety four (94) percent of this cover consisted of coniferous vegetation.

This THP will maintain streamside vegetation that will continue to shade watercourses from solar radiation and prevent water temperature increases.

Organic Debris/LWD Effects

Large woody debris can have both positive and negative effects on a watercourse. Large woody debris is an important stabilizing agent in steep gradient channels. 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.

Based upon the California Department of Fish and Game's *California Salmonid Stream Habitat Restoration Manual –Third Edition,* the SWAG study found that on average there were 22 pieces of large woody debris per 100 feet of watercourse segment in the Class I watercourses on the LDSF. Watercourse protection provided in the plan will continue to provide both LWD for streamside habitat and prevent the sudden introduction of debris from harvesting practices.

Chemical Contamination Effects

Sources of chemical contamination 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.

The use of oil or dust retarding materials is not planned for this THP. Accidental contamination of equipment fuel or oil is unlikely. Fuel is stored in an area where it cannot contaminate a watercourse if a leak occurs. Additionally, equipment shall be serviced outside the protection zone of watercourses.

The use, type and the timing of the herbicide shall be determined and recommended by a PCA and the application shall adhere to the PCA's recommendation, the herbicide label instructions, and the Mitigated Negative Declaration, State Clearing House (SCH) # 2008062009 for LDSF Management Plan 2008 to DPR regulations, the PCA recommendation, the instructions on the herbicide label. The label is a comprehensive document about the herbicide, any associated hazards, active and inactive agents, and the proper use and handling of the herbicide. To speculate on potential impacts that could occur if the label, PCA recommendations, and DPR regulations are not followed is beyond the scope of this document.

No cumulative watershed effect, with regards to chemical contamination, is predicted for this THP.

Peak Flow Effects

Peak flow increases may result from management activities that reduce vegetative water use or produce openings where snow can accumulate (such as clear-cutting and site preparation) or that change the timing of flows by producing more efficient runoff routing (such as insloped roads).

The assessment area has experienced high peak flows from rain-on-snow events. These events, such as occurred in 1997, are unpredictable. The proposed silvicultural prescriptions will maintain vegetation over the plan area that will enhance infiltration of precipitation and maintain peak flows. Groups within the selection area will be less than 2.5 acres and will be planted to establish vegetation in the opening. There are no new roads planned for this timber harvesting plan that would reroute and concentrate runoff. As stated above for sediments effects, the drainage of existing roads is being improved through implementation of LaTour's Road

Management Plan. The potential for this plan to increase peak flows is insignificant.

This harvest will have no impact on water temperature, organic debris, chemical contamination, or peak flow cumulative watershed effects. Sediments effects from road use and harvesting activities may occur but will be insignificant. Only one new temporary road construction is planned. No large openings will be created. Nearly all tractor roads needed for this harvest exist. All watercourses and springs within and adjacent to the harvest area will be protected. Post harvest streamside vegetation will continue to provide filter strip properties and shading. Water drafting is proposed at four locations. Drafting locations will be rocked to prevent the introduction of sediment into the watercourse during drafting operations. Additionally the vehicles will be inspected to ensure chemical contaminants are not introduced into the watercourses. The silvicultural systems being applied should have no effect on peak flow. The vigorous residual stand will continue to maintain infiltration capacities and hold soil in place.

C. Soil Productivity Assessment

The Soil Survey of Shasta County Area, California identifies several soil types, Lyonsville-Jiggs complex, Windy and McCarthy (very) stony sandy loams and rock land. The predominant soil series within the harvest boundary is the Lyonsville-Jiggs complex. The soils are well-drained with moderate to rapid permeability. Soils in the Lyonsville-Jiggs complex series make up about 95% of the soil types in the plan area.

Lyonsville-Jiggs Complex

(LgE) – About 45% of this complex is Lyonsville stony sandy loam and 45% is Jiggs gravelly sandy loam on 10-50% slopes. The remaining 10% is inclusions of Windy soils. The lyonsville soil has moderate permeability. Available water capacity is 2 to 5 inches. Weathered dacited is at a depth of 20-40 inches. Stones and cobblestones cover 3 to 15 percent of the surface. The jigs soil has moderate rapid permeability. Available water capacity is 2 to 4 inches. Dacite is at a depth of 20-40 inches and exposed dacite bedrock outcrops cover 5-10% of the surface. Runoff is medium to rapid and the hazard of erosion is moderate to high.

(LhE) – Similar to LgE. Lyonsville has an increased in water capacity of 4-7 inches and the Jiggs soil has an increased capacity of 3 to 6.5 inches. Runoff is medium to rapid and erosion is moderate to high. Both soils are deep to 40 to 60 inches.

Windy and McCarthy Stoney SandyLoams (WeD) – This soil is mage up of equal parts Windy and McCarthy. Windy soil has rapid permeability with a water capacity of 5 to 7 inches. The McCarthy soil is moderately rapid permeability with a 4 to 6 inche water capacity. Runoff is medium to rapid in this soil type and the erosion is moderate to high. Bedrock is at a depth of 40- 60 inches. Stones cover 1-3% of the surface.

Windy and McCarthy Very Stoney SandyLoams (WeD) – This soil is mage up of equal parts Windy and McCarthy. Windy soil has rapid permeability with a water capacity of 5 to 7 inches. The McCarthy soil is moderately rapid permeability with a 4 to 6 inches water capacity. Runoff is rapid in this soil type and the erosion is moderate to high. Bedrock is at a depth of 40- 60 inches. Stones cover 3-10% of the surface.

Rock land (RxF) – Shallow soil, rock outcrops. Vegetation, where present, is similar to adjacent soils, except that rockland has less grass and more drought resistant species, such as Manzanita.

The primary factors influencing soil productivity to be assessed are:

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

Organic matter loss

The entire harvest area will be logged by tractor and disturbance of organic matter will occur. Throughout the harvest area there are many existing skid trails that will be utilized for this harvest. Few new skid trails will be constructed. When these skid trails are utilized organic matter will be displaced from them. To minimize disturbance, equipment will utilize designated or existing skid trails and trees will be felled to these skid trails. Replacement of organic matter will occur through logging residue, tree tops and limbs, that will be left behind after harvest and from natural needle fall. Existing skid trails not pertinent to the harvest will not be utilized.

Existing down woody material throughout the harvest area will remain. Retaining unmerchantable material in the harvest area will recruit woody material. In addition to providing wildlife habitat, leaving woody material will add organic matter to the forest floor. Increases of organic matter to the forest floor will also occur from the planned lop and scatter slash treatment throughout the entire plan area.

Surface soil loss

Surface soil loss will occur by displacement of soil from skid trail construction and log skidding. There are many existing skid trails from past harvests and the need to construct new ones is minimal. Only one new landing is planned. The loss of surface soil from construction will be slight. Surface soil loss from erosion will be nominal due to the silvicultural systems being applied, lack of road construction, and installation of waterbreaks on skid trails and landings after completion of use.

Soil Compaction

Soil compaction will occur from the tractor skidding operation. Compaction will be greatest on main skid trials. To reduce compaction over the harvest area and eliminate random wandering by equipment operators, main skid trails will be kept to the minimum needed to carry out the harvest. Skid trails will be designated prior to timber operations and equipment will be required to use designated trails, which will reduce the impact from compaction to the harvest area. Harvest activities will occur when soil moisture is low. When soils are saturated timber operations will be suspended. Timber operations will not occur during the winter period.

Growing Space Loss

Growing space loss from skid trail construction will occur, however, it will be minimal. All roads, landings, and skid trails are considered permanent. New skid trails are constructed so that they can be utilized in future harvests. The use of existing skid trails will be required. There may be a need for the construction of a few new skid trails for this harvest.

Timber may be removed within 100 feet, as measured on the surface of the ground, from the edge of the traveled surface of appurtenant roads used during the harvesting of the THP area for safety reasons (hazard, dead, dying and disease and trees that interfere with the maintenance of the road). The traveled surface of such appurtenant roads is also part of the logging area as defined in CCR 895.1 "Logging Area".

The limited road & landing construction will not significantly expand the area covered by the transportation system within the watersheds. New construction will affect less than 0.001% of the total area within the watersheds. The temporary road construction is approximately 680 feet. Any additional landings will be constructed within the existing transportation system.

D. Biological Assessment

Anadromy

There are no known anadromous salmonids within the biological assessment area. The Beal watershed is listed as a threatened and impaired for Chinook and Steelhead. No anadromous salmonids occur on LaTour nor are there historical records of observations in the Beal Creek Watershed. From information within the *Cow Creek Watershed Assessment* prepared by SHN Consulting Engineers & Geologists Inc. fall run Chinook have occurred in the lower reaches of South Cow Creek below Wagoner Canyon approximately 10 miles west of the Forest. Steelhead were reported at the crossing of South Cow Creek by Ponderosa Way, approximately 9.5 miles west of the plan boundary. Historical data indicates salmon above Wagoner Canyon were scarce due to a natural barrier in the Canyon and a dam constructed across South Cow Creek by PG&E in 1908. The barrier was removed by blasting and a fish ladder was constructed at the dam in the 1970's by the Department of Fish and Game. However, local residents state there was no significant increase in the number of fish above the dam. The Cow Creek report suggests one of the key limiting factors is adequate stream flow to provide passage of adult fish. Water is diverted from South Cow Creek for irrigation and power use during critical passage periods.

No physical barriers exist on South Cow Creek upstream of the Ponderosa Way crossing, as such Steelhead could potentially migrate upstream. It is unlikely they occur within in Bullhock creek due to low flows during the summer and fall.

From dives performed in 2000 for the fish habitat assessment of the SWAG report, only rainbow trout were observed in South Cow Creek, Old Cow Creek and Bullhock Creek on the LDSF.

Per 936.9(b) there will be no significant cumulative watershed effects on the populations and habitat of anadromous salmonids from implementation of this plan nor are any cumulative effects known. The Watershed assessment (section B) addresses sediment, thermal loading, large woody debris, and peak flow. Mitigation in the water drafting plan will prevent a take if Steelhead are present in Atkins Creek. Harvesting activities along watercourses have been conservative in the past to provide good shade cover. With the implementation of the protection afforded the watercourses in the plan coupled with the requirements of the Forest Practice act and Board of Forestry rules there should be no adverse cumulative impact to aquatic species or habitat.

Scoping

The Natural Diversity Data Base (NDDB) was used as a scoping tool to check if any rare, threatened, endangered, or special concern species and/or their habitat are located on or surrounding the THP area. A nine quadrangle query was conducted, which included Viola 7.5 minute quad, its surrounding eight quads. Section III Item #32 contains a list of rare, threatened, endangered species, and/or their habitat that occurs within the THP area. There are no recorded occurrences of threatened or endangered species on LDSF.

Habitat types

Timber types and WHR habitat types for LDSF have been determined through aerial photo interpretation, vegetation inventory, and the use of a database program written by the Forest Staff which determines WHR types from forest inventory data. Plot data from the inventory represents a 2.5-acre area and the WHR type was determined for each plot. Within the plan area the tree size classes ranged from 3 to 5 and with a range of canopy closure from open to dense. The predominant WHR types were Sierra Mixed Conifer and White Fir 4D and 4M. WHR 5M, 5D exist in the plan area. However, these stands are scattered and do not have the continuity to qualify as late succession forest stands per rule definition. The desired forest structure on LDSF is described within *LDSF 2008 Management Plan*, "The overall goal is to maintain LDSF as a mid-seral forest type characteristic of the southern Cascades. Early and late seral stands will be represented but overall the Forest will maintain the characteristics of a mid-seral forest. This goal is not discretionary, but rather follows directly from the research and demonstration mandate for LDSF. Rather than a park or reserve, the legislated mandate for the Forest is that of a working forest property for demonstration and research purposes, serving a clientele of small to medium size land owners.

In order to remain relevant as a research forest, LDSF aims to create and maintain a wide range of forest types, ages, size classes, successional stages and structural characteristics. It is going to be very difficult to maintain pure stands of each of these characteristics on a Forest the size of LDSF. As a result, LDSF's approach will be to incorporate a continuum of types, age classes, successional stages and structures mixed within stands across the Forest as far as possible."

Snags and large down woody material are present on the THP and within the assessment area. Additional recruitment of snags and downed woody material will be accomplished through the retention of green cull trees and unmerchantable material in the forest stands.

Hardwoods

Hardwoods are not a large component of the stands on the LDSF, which is true for the THP area. The THP is located above 5400 feet in elevation, which is generally above the upper elevation limit at which oaks grow. Harvesting of oak will not occur within the THP area.

Road density

Road density, which can have a potential effect on wildlife, are moderate on LDSF and within the assessment area. The average density per section is 4 to 5 miles of seasonal and rocked seasonal roads on LDSF. Although accessible to the public, these roads receive little traffic most of the year. The only new road construction proposed is temporary and will be blocked to the standards specified in the Forest Practice Rules.

E. RECREATIONAL ASSESSMENT

The recreational activities that normally occur in the recreational assessment area is deer hunting, camping, fishing, snowmobile riding, and site seeing. Mountain bike riders occasionally use the forest but are rare and infrequent. Additionally, the forest is used by the public for fuelwood cutting. Harvesting will occur along the South Cow Creek Road. The road may be blocked to traffic for short periods of time during active timber operations. A sign will be posted on the Bateman road at the west entrance to the LDSF to warn the public of logging activities in the area and the Licensed Timber Operator will be advised to watch for recreationists and to allow thru traffic on South Cow Creek and the Bateman Road.

The primary use within the recreational assessment area is deer hunting. Impact to hunting may occur during any year the THP is operated since, for safety reasons, no hunting will be permitted in the vicinity of timber operations

An agreement exists with the Lassen National Forest to allow the grooming of approximately 30 miles of Forest roads during the winter for snowmobile use. This recreational activity will not be adversely affected by timber operations.

F. VISUAL RESOURCE ASSESSMENT

This timber harvest cannot be seen by significant numbers of people since the harvest area is not visible from any well-traveled roads or communities. The closest paved public road is the paved section of Bateman Road, 6-1/2 miles to the west of the LDSF boundary. Adjacent ownerships are accustomed to timber production, however, one home is approximately 1/4 mile west of LDSF boundary. The harvest area cannot be viewed from the home, however, logging traffic will likely travel by the home enroute to/from Redding. There will be no adverse effect on the visual resource. The prescribed silviculture will not adversely change the visual aspect of the assessment area. The greatest visual impact will be from within the stand after harvest.

G. VEHICULAR TRAFFIC IMPACTS

Forest products from the harvest area will be hauled out over two potential routes. This will cause a slight increase in vehicular traffic.

a. Cutter Road and the Lassen National Forest Road A 16

This road network has a gravel surface with permanent culverts at watercourse crossings. Those portions of the road network which are not graveled have high coarse fragment contents in the native soil; these roads will not be used when soils are saturated. These roads will only be used during the non-winter months and a maintenance agreement and permit will be obtained prior to use for all private or federally owned roads. These roads will be graded as needed and watered during the operation (if used for log hauling).

b. Bateman Road.

This haul route will result in traveling down the Bateman Road. The Bateman Road is a private road and is graveled from Atkins Creek (end of the county road) to the harvest boundary. The one homeowner on the graveled portion of the road has posted 10 MPH signs near his home. The LTO will be advised to comply with the 10 MPH limit when passing by the home. The primary use of the road is from logging operations, recreation and access to the residence. Eleven miles of dirt and gravel roads will be used following this route. Bateman road will be graded as needed and watered during the operation (if used for log hauling).

Since the main use of these haul routes is logging traffic the impact to people who use them on a regular basis will be almost non-existent. The greatest impact from the increase in traffic will be on recreationists using these roads. Since weekend operations are not planned the impact will be minor.

H. OTHER

Climate Change and Forestry Practice

This THP complies with LDSF approved Management Plan, Mitigated Negative Declaration and Option A analysis. The following information is part of LDSF Mitigated Negative Declaration for LaTour Demonstration State Forest (SCH#2008062009) and the LDSF Management Plan:

> In 2007 the State of California passed the Global Warming Solutions Act (AB 32), which set targets to reduce greenhouse gas emissions to 1990 levels by 2020 and 80 percent below 1990 levels by 2050. The California Air Resources Board was tasked with obtaining compliance with the cap through regulatory and market approaches. Planning is currently underway and definitive decisions by the Board have not yet been taken, however, it appears that forests will play a significant role in non-regulated strategies to meet targets. This is anticipated to occur both as offsets within a cap and trade system and through voluntary measures.
>
> Recognized strategies to mitigate GHG emissions and enhance terrestrial sequestration include reforestation, forest management and fuels treatments to avoid catastrophic losses. LDSF will contribute to the targets of AB32 by increasing the resiliency of the Forest to catastrophic mortality by improving the general health of stands, pre-fire implementation of a shaded fuel break and maintenance of firefighting infrastructure such as roads, signage and water sources. The long-term carbon stocks of the Forest are anticipated to increase over time. For example, the Option A Plan indicates that the timber inventory on the Forest will increase from about 22.7 MBF per acre in 2005 to 34.4 MBF per acre in 2105.
>
> Forest products produced from LDSF will sequester carbon during their life cycle. Biomass fuels produced on the Forest also provide an opportunity to replace fossil fuels with an alternative energy source that is close to carbon neutral.
>
> This analysis evaluates whether climate change and greenhouse gas (GHG) issues related to management of LDSF have the potential to be a significant environmental effect, either on a project basis or cumulatively. Table 2 summarizes estimated net carbon dioxide sequestration levels under proposed management at LDSF over a 100-year planning interval[1].The analysis shows substantial positive carbon sequestration benefits. Proposed management at LDSF will sequester a net CO_2 equivalent of 3,773,000 tons of carbon at the end of 100 years.

Table 2. Estimated carbon sequestration at LDSF over the next 100 years.

1	2	3	4	5	6	7
Current standing inventory	CO2 stored in current standing timber[2]	Standing inventory at end of 100-year planning interval	CO2 stored in standing timber at end of 100-year planning interval	Total harvest over 100-year planning interval	Total CO2 sequestered in forest products at end of 100-year planning interval	Total net CO2 sequestered at end of 100-year planning interval (4-2+6)
MBF*	M* tons	MBF	M tons	MBF	M tons	M tons
196,931	1,575	308,096	2,465	360,460	2,884	3,773

* MBF is thousand board feet and M is thousand.

Accounting for emissions from the Forest includes vehicles and buildings used by the Department that are associated with management. It also includes emissions from harvesting and manufacturing. We chose to do the downstream accounting. This will be the most conservative accounting approach because we are not including the negative substitution effect that occurs when alternative higher-GHG-impact building materials such as steel and concrete are used instead of wood products. Emissions from vehicles and buildings are estimated as follows:

Vehicles: 0.02 thousand (M) tons per year x 100-year planning horizon = 2 M tons

Building: 0.00003 M tons per year x 100-year planning horizon = 0.003 M tons

This is a total of 2.003 M tons for the 100-year planning horizon.

Harvesting emissions include in-woods emissions from equipment and vehicles and transportation to a mill. Mill emissions estimates from processing are included because long-term storage of wood products is included in the analysis. Mill emissions include sawing, drying, energy generation, and planing. Also, transport to final destination is included. The entire life cycle for green-dried lumber is included (Puettmann and Wilson 2005). This results in a total emission estimate of 0.13 metric tons CO_2 equivalent per thousand board feet (MBF).

Given the total harvest of 360,460 MBF over the 100-year planning horizon in table 1, this equates to 46,859 tons of CO_2 equivalent from harvesting emissions. Including vehicle and building emissions, the total GHG emissions estimate for LDSF is 46,861 tons of CO_2 equivalents.

These emissions including full life-cycle of wood, vehicle, and building emissions, represent 1.24 percent of the total carbon sequestered (column 7 in Table 2), The conclusion from the above analysis is that there is a substantial positive carbon sequestration benefit and a net negative emission of GHGs at LDSF under the guidance of the Project. Orders of magnitude more biomass is being conserved than is being harvested. In other words, the management plan proposes to harvest less biomass (and to emit less CO_2) than growth.

Climate change science is still in its infancy. There are likely wide error bars around the above estimates, given the general level of the analysis and the relatively new estimation equations in the literature. The result that positive sequestration benefits exceed emissions by orders of magnitude however, lends validity to the general conclusion that sequestration will be much greater than emissions. Our conclusion is also supported by estimates from the Air Resources Board, which indicate that forest land use in California results in a net decrease in atmospheric carbon, not an increase (http://www.arb.ca.gov/cc/inventory/data/tables/net_co2_flux_2007-11-19.pdf).

Since the net amount of carbon that would be sequestered under the Project is greatly higher than the amount of carbon that will be released by LDSF management activities, there are no potential significant adverse environmental impacts, single or cumulative. In fact, significant beneficial impacts of net carbon sequestration will occur.

[2] A conversion factor of 8.0 was used to convert thousand board feet to tons of CO2 including soil root biomass, duff, litter, canopy and non-bole tree parts (Smith et al, 2002, GTR NE-298).
[2] A 100-year look-ahead period is necessary in forested ecosystems, where trees can take more than 50 years to reach maturity. The 100-year planning interval allows a minimum period necessary to evaluate long-term steady-state behavior of forested ecosystem while not exceeding the range of applicability of mathematical simulation models.

I. CONCLUSION

This harvest will not have any significant cumulative impacts to the resources.

I. REFERENCE MATERIAL

PERSONS:

Pete Johnson, Forester
W.M. Beatty and Associates
P.O. Box 898
Redding, CA 96099 Ph: (530) 243-2783

Kelly Dreesmann, Division Chief
CAL FIRE
875 Cypress Ave
Redding, CA 96001, (530) 225-2418

LITERATURE AND MODELS

California Wildlife Habitat Relationship SystemVersion 7.0
Cow Creek Watershed Assessment, prepared by SHN Consulting Engineers & Geologist, Inc.
LaTour Demonstration State Forest Watershed Monitoring Project; Stream Channel and Fish Habitat Assessment, Final Report, prepared by Sacramento Watershed Action Group.
A Guide to Wildlife Habitats of California California Wildlife - Volumes II & III
Pine Marten - Pacific Fisher Study Phase II Report 1992
Dept. of Fish and Game Natural Diversity Data Base
Soil Survey of Shasta County., U. S. Dept. of Agriculture
CDF Timber Harvest Plan Records
Aerial Photographs - Latour Demonstration State Forest
LaTour Demonstration State Forest Option A
LaTour Demonstration State Forest Management Plan 2008
Mitigated Negative Dec. (SCH# 2008062009), LaTour Demonstration State Forest Management Plan 2008
American Marten, Fisher, Lynx, and Wolverine: Survey Methods for their detection, U. S. Dept. of Agriculture PSW-GTR-157.

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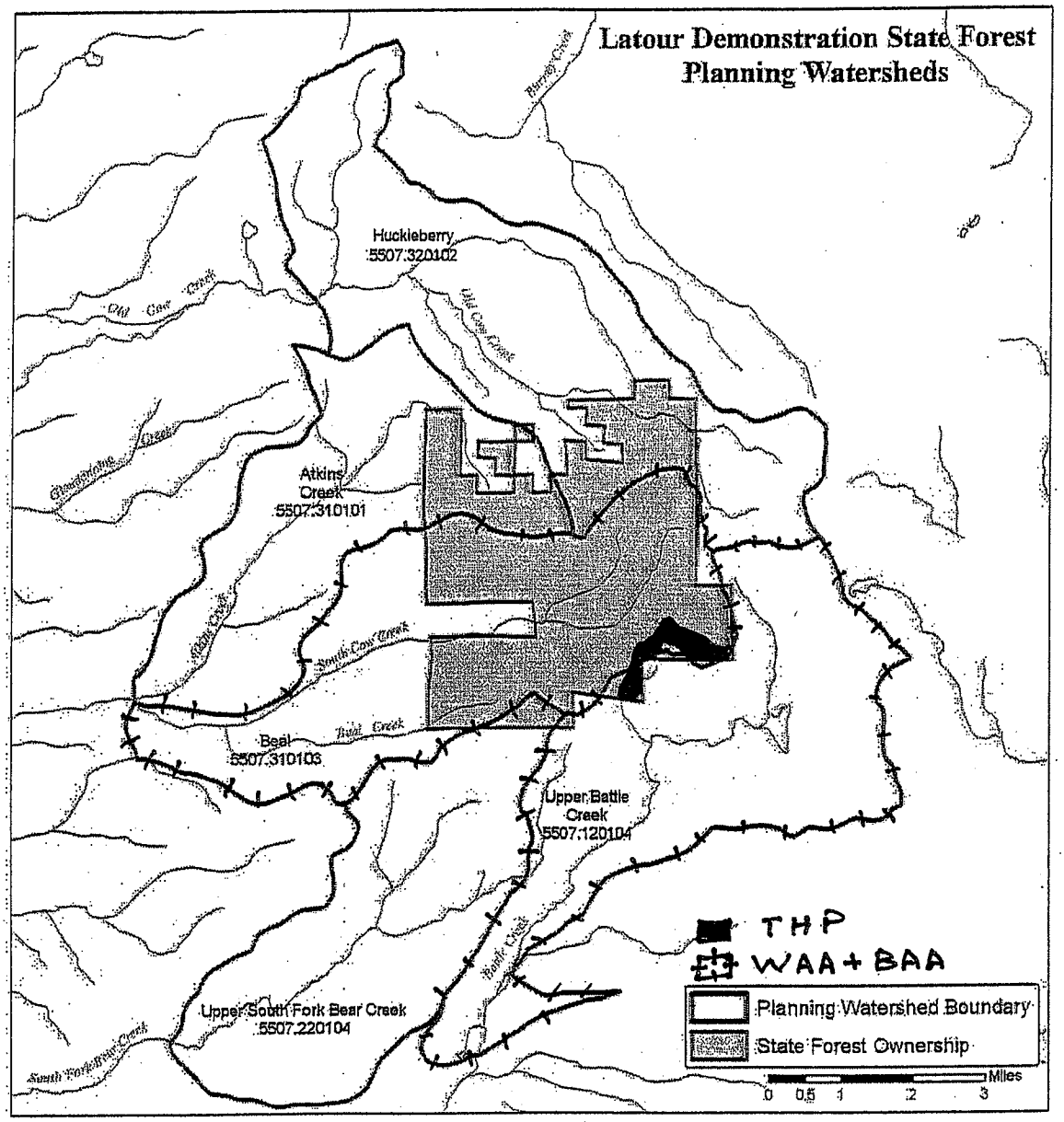
Latour Demonstration State Forest
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Atkins
Creek
5507.310101
Beal
5507.310103
Upper Battle
Creek
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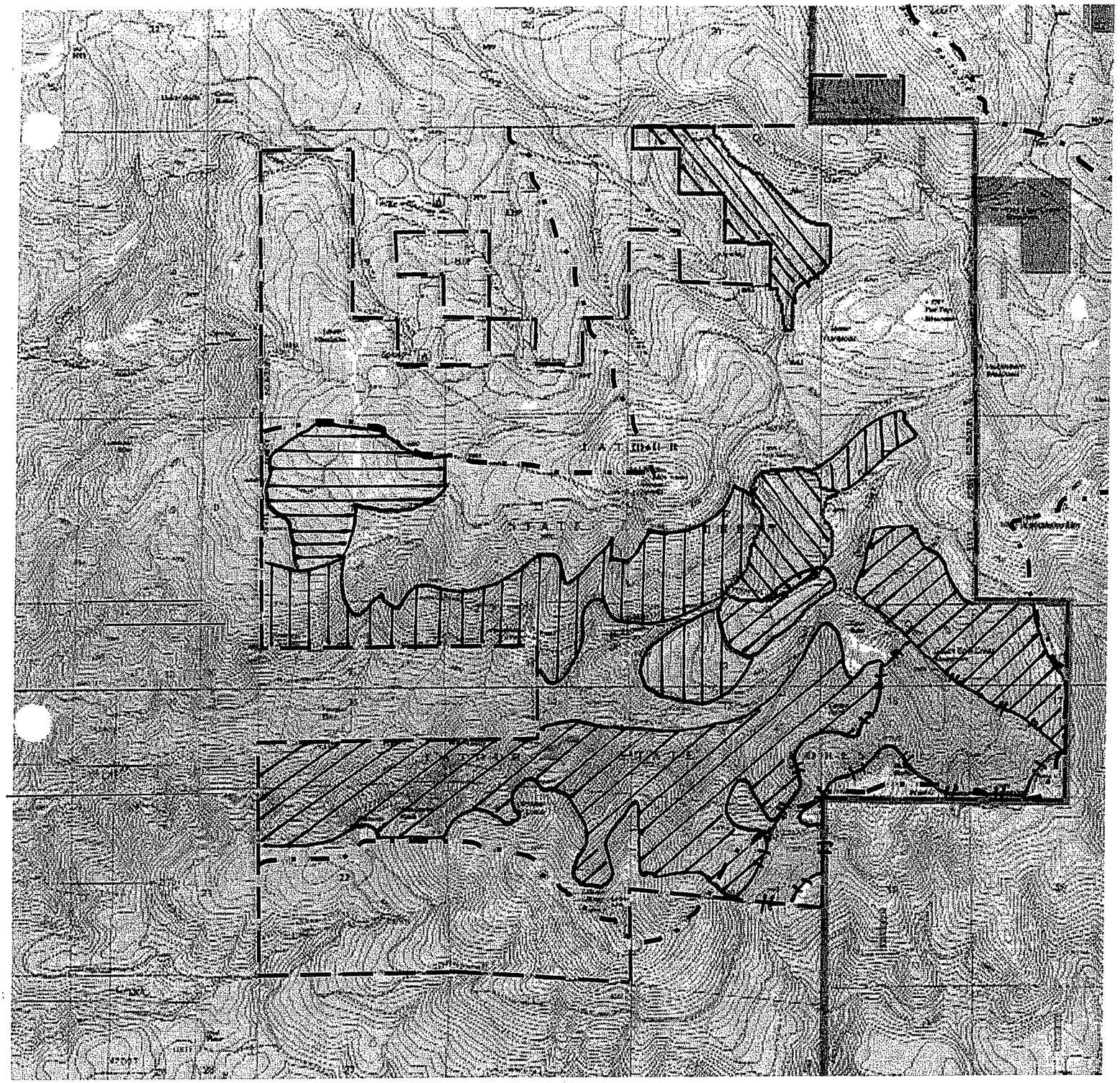
Upper South Fork Bear Creek
5507.220104
THP
WAA + BAA
Planning Watershed Boundary
State Forest Ownership
Miles
0 0.5 1 2 3



AB 47 Cumulative Map

THP Boundary

LDSF Boundary

Watershed Assessment Area

THP 02-187 SHA

THP 01-161 SHA

THP 08-071 SHA

THP 99-253 SHA

Scale: 1 mile

N

SECTION V
Reference Documents

- Adjacent Property Landowners
- LTO/RPF/PS/ TLO Responsibilities
- EHR Worksheet
- Soil Classification Map & Descriptions
- Domestic Water Letters
- Water Drafting Letters
- Copy of NOI

Adjacent Property Owners

Sierra Pacific Industries
Sierra Pacific Holding Company
PO Box 496014
Redding, CA 96049

USDA Service Center
Lassen National Forest
2550 Riverside Drive
Susanville, CA 96130

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 Section 1035.3 Title 14, CCR)

Harvesting Plan Number:_____

Licensed Timber Operator Information

Name: California Department of Forestry & Fire Protection

Street Address/PO Box: 875 Cypress Ave City: Redding Zip Code: 96001

Telephone Number: 530-225-2432 LTO Number: C-1275

As the LTO listed above I acknowledge responsibility for the following:

1) Inform the responsible RPF or plan submitter orally or in writing of any site conditions which in The LTO's opinion prevent implementation of the approved plan and amendments.
2) Be responsible for the work of his or her employees and familiarize all employees with the intent and details of the operational and protection measures of the plan and amendments that apply to their work.
3) Keep a copy of the applicable approved plan and amendments available for reference at the site of active timber operations.
4) Comply with all provisions of the Act, Board rules and regulations and the applicable approved plan, and amendments.
5) Attend an on-site meeting or discuss archaeological site protection with the RPF or supervised designee familiar with on-site conditions.
6) To inquire of the plan submitter, timberland owner or their authorized agent, RPF who wrote the plan, or the supervised designee, if any mitigation measures or specific operating instructions are contained in the Confidential Archaeological Addendum or any other confidential addendum to the plan.
7) Provide the RPF responsible for professional advice throughout the timber operations, the name, address and phone number of an on-site contact employee authorized by the LTO to receive RPF advice.
8) Keep the RPF responsible for professional advice throughout the timber operations advised of the status of timber operation activity.
9) Within 5 days before, and not later than the startup of timber operations, notify the RPF of the start of timber operations.
10) Within 5 days before, and not later than the shutdown of a timber operation, the LTO shall notify the RPF of the shutdown of timber operations.
11) Cease operations, except for emergencies and operations needed to protect water quality, upon receipt of written notice of an RPF's withdrawal of professional services from the plan. The LTO shall not resume operations until written notice is received from the plan submitter that another RPF has visited the site and accepts responsibility for providing advice regarding the plan as the RPF of record.
In addition to the above, I have specific responsibilities for the following:_____

I have read and understand my responsibilities as the Licensed Timber Operator summarized above and specifically described in 14 CCR 1035.3. I certify that I will fulfill my legal obligation as stated in the forest practice rules, and agree to fulfill my responsibilities as described above.

LTO Signature: Bruce W Beck Title: Acting Unit Forester

Responsible On-Site Contact (if different)

Name: Gabriel Schultz

Printed Name: Gabriel Schultz Date: 8/25/09

Street Address/PO Box #: 875 Cypress Ave City: Redding
Zip: 96001

Telephone Number: 530-225-2506

REGISTERED PROFESSIONAL FORESTER (RPF) RESPONSIBILITY ACKNOWLEDGEMENT

(As per Section 1035.1 Title 14, CCR)

RPF Certified to Provide Professional Advice:

Name: Gabriel Schultz

Street Address/PO Box: 875 Cypress Ave City: Redding Zip Code: 96001

Telephone Number: 530-225-2506 RPF Number: 2749

As of January 1, 2001, 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.

[X] 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: _____

PLAN SUBMITTER RESPONSIBILITY ACKNOWLEDGEMENT

(As per Section 1035 Title 14, CCR)

Plan Submitter

Name: Cal Fire / California Department of Forestry and Fire Protection

Street Address/PO Box: 875 Cypress Ave City: Redding Zip Code: 96001

Telephone Number: 530-225-2505

As of January 1, 2001, I have read and understand my responsibilities as Plan Submitter as described under 14 CCR 1035. I certify that I have fulfilled my legal obligation as stated in the forest practice rules, and agree to fulfill my responsibility as the plan submitter as it pertains to this plan.

[X] Yes [ ] No I have retained the services of an RPF to provide professional advice to the LTO and timberland owner upon request throughout active timber operations regarding: (1) the plan, (2) the forest practice rules, (3) and other associated regulations pertaining to timber operations.

[ ] Yes [X] No I have authorized the timberland owner, _____ to perform the services of a professional forester, understanding that the services will be provided personally on lands owned by the timberland owner.

Plan Submitter Signature: _____

TIMBERLAND OWNER RESPONSIBILITY ACKNOWLEDGEMENT

(As per Section 1035(d)(2)(B) Title 14, CCR)

Timberland Owner

Name: Cal Fire / California Department of Forestry and Fire Protection

Street Address/PO Box: 875 Cypress Ave City: Redding Zip Code: 96001

Telephone Number: 530-225-2505

I have read and understand my responsibilities as timberland owner as described under 14 CCR 1035(d)(2)(A – C). I certify that I have fulfilled my legal obligation as stated in the forest practice rules, and agree to fulfill my responsibilities as the timberland owner as it pertains to this plan.

I understand that I have been authorized by the plan submitter to perform the services of a professional forester pursuant to the Landowner exception in Public Resources Code Section 757, and such services will be personally performed only on those lands that I own.

Timberland Owner's Signature: _____

ESTIMATED SURFACE SOIL EROSION HAZARD

RM-87 (4/84)

STATE OF CALIFORNIA
BOARD OF FORESTRY

I. SOIL FACTORS

A. SOIL TEXTURE	Fine	Medium	Coarse	FACTOR RATING BY AREA D	E	F
1. DETACHABILITY	Low	Moderate	High			
Rating	1-9	10-18	19-30	23	23	23
2. PERMEABILITY	Slow	Moderate	Rapid			
Rating	5-4	3-2	1	1	1	1

D – LgE > 30% slope

E – LhE < 30% slope

F – LhE > 30% slope

B. DEPTH TO RESTRICTIVE LAYER OR BEDROCK

	Shallow	Moderate	Deep			
	1"-19"	20"-39"	40"-60 (+)			
Rating	10-6	5-3	3-1	4	4	4

C. PERCENT SURFACE COARSE FRAGMENTS GREATER THAN 2 MM 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	5	5	5	D	E	F
						⇨ SUBTOTAL	33	33	33

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	13	3	13

III. PROTECTIVE VEGETATIVE COVER REMAINING AFTER DISTURBANCE

	Low	Moderate	High			
	0-40%	41-80%	81-100%			
Rating	15-8%	7-4	3-1	4	4	4

IV. TWO-YEAR, ONE-HOUR RAINFALL INTENSITY (Hundredths 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
				⇨ TOTAL SUM OF FACTORS	62	52	62

EROSION HAZARD RATING

<50	50-65	66-75	>75			
LOW (L)	MODERATE (M)	HIGH (H)	EXTREME (E)			
			⇨ THE DETERMINATION IS	H	M	H

ESTIMATED SURFACE SOIL EROSION HAZARD

RM-87 (4/84)

STATE OF CALIFORNIA
BOARD OF FORESTRY

I. SOIL FACTORS

A. SOIL TEXTURE	Fine	Medium	Coarse	FACTOR RATING BY AREA A	B	C
1. DETACHABILITY	Low	Moderate	High			
Rating	1-9	10-18	19-30	23	23	23
2. PERMEABILITY	Slow	Moderate	Rapid			
Rating	5-4	3-2	1	1	1	1

A – WeD > 30% slope

B – WfE < 30% slope

C – LgE < 30% slope

B. DEPTH TO RESTRICTIVE LAYER OR BEDROCK

	Shallow	Moderate	Deep			
	1"-19"	20"-39"	40"-60 (+)			
Rating	10-6	5-3	3-1	3	3	4

C. PERCENT SURFACE COARSE FRAGMENTS GREATER THAN 2 MM IN SIZE INCLUDING ROCKS OR STONES cx

	Low	Moderate	High				FACTOR RATING		
	(-)10-39%	40-70%	71-100%				BY AREA		
Rating	10-6	5-3	2-1	5	5	5	A	B	C
						⇨ SUBTOTAL	**32**	**32**	**33**

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	13	3	6

III. PROTECTIVE VEGETATIVE COVER REMAINING AFTER DISTURBANCE

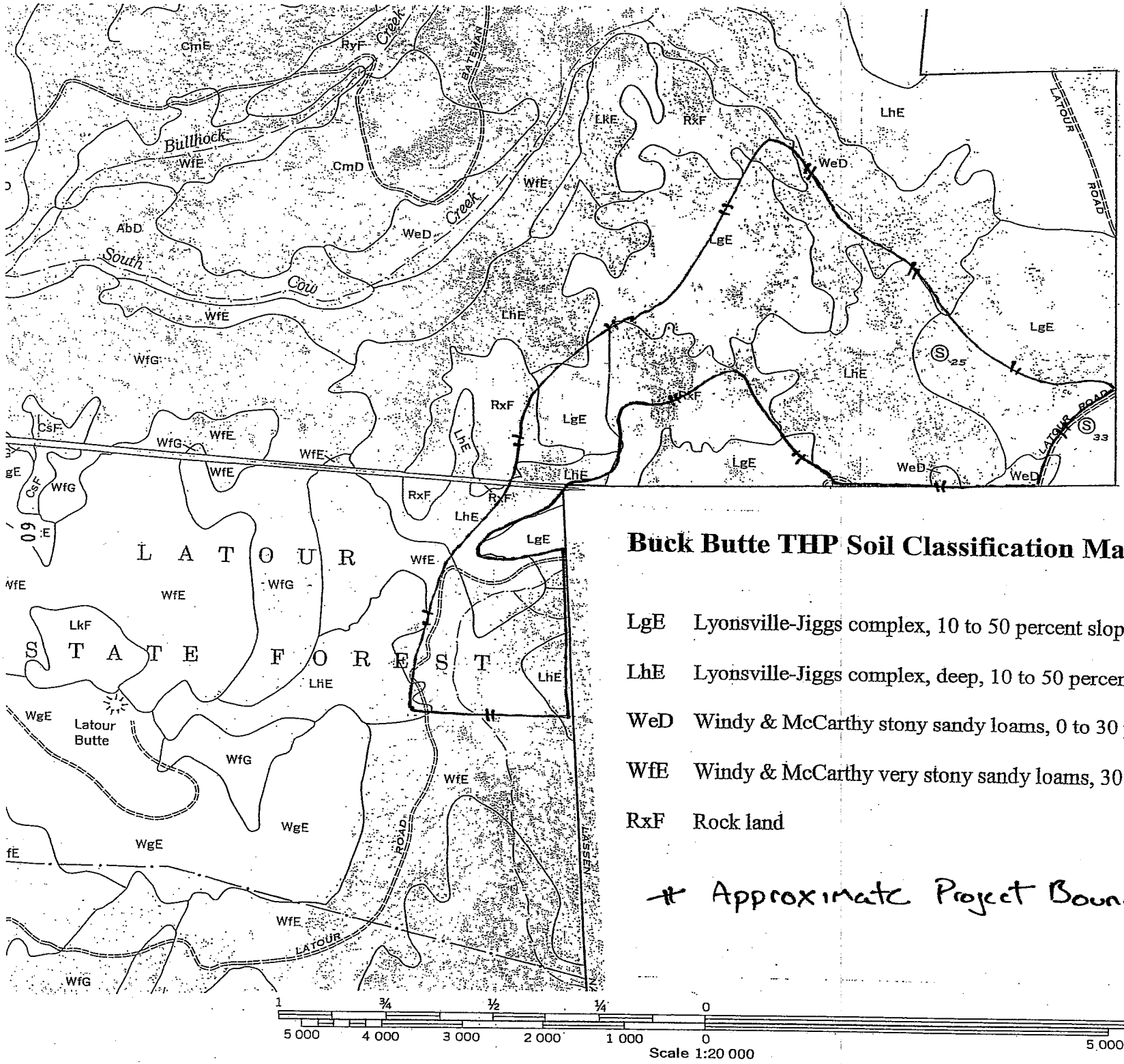
	Low	Moderate	High			
	0-40%	41-80%	81-100%	4	4	4
Rating	15-8%	7-4	3-1			

IV. TWO-YEAR, ONE-HOUR RAINFALL INTENSITY (Hundredths Inch)

	Low	Moderate	High	Extreme			
	(-) 30-39	40-59	60-69	70-80 (+)	12	12	12
Rating	1-3	4-7	8-11	12-15			
				⇨ TOTAL SUM OF FACTORS	**61**	**51**	**55**

EROSION HAZARD RATING

<50	50-65	66-75	>75			
LOW (L)	MODERATE (M)	HIGH (H)	EXTREME (E)			
			⇨ THE DETERMINATION IS	**H**	**M**	**M**



Buck Butte THP Soil Classification Map

LgE	Lyonsville-Jiggs complex, 10 to 50 percent slopes
LhE	Lyonsville-Jiggs complex, deep, 10 to 50 percent slopes
WeD	Windy & McCarthy stony sandy loams, 0 to 30 percent slopes
WfE	Windy & McCarthy very stony sandy loams, 30 to 50 percent slopes
RxF	Rock land

* Approximate Project Boundary

gravel is 15 to 30 percent throughout the profile. This soil is well drained, and permeability is moderately slow. Runoff is very slow, and the hazard of erosion is none to slight. Available water capacity is 7 to 9 inches. Roots can penetrate to a depth of more than 60 inches.

Included with this soil in mapping were small areas of Houn, Molinos, and Vina soils.

This Los Robles soil is used mainly for irrigated and dryland hay and as irrigated pasture. Small areas are used for crops. Capability unit IIs-4(17); range site, not assigned; woodland suitability group, not assigned; wildlife group 2.

Lyonsville Series

The Lyonsville series consists of well-drained soils that are underlain by light-colored volcanic rock. These soils are on uplands in the eastern part of the survey area from the Tehama County line to Big Bend. Slopes range from 10 to 70 percent. Elevation ranges from 2,500 to 6,500 feet. The annual precipitation is 40 to 50 inches, and the average annual air temperature is about 44° F. the 32° F. growing season is 100 to 150 days, and the 28° F. growing season is 125 to 175 days. The vegetation is mixed conifers and shrubs.

In a representative profile the surface layer is brown, strongly acid very stony sandy loam and pale-brown, strongly acid gravelly sandy clay loam about 18 inches thick. The subsoil is very pale brown, very strongly acid and strongly acid gravelly sandy clay loam. The substratum at a depth of 30 inches is light-gray, strongly acid very gravelly heavy sandy loam. Weathered dacite is at a depth of 33 inches.

The areas of Lyonsville soils are used as woodland and wildlife habitat and for water supply.

Representative profile of Lyonsville very stony sandy loam, 10 to 50 percent slopes, in an area of Lyonsville-Jiggs complex, 10 to 50 percent slopes, in Latour State Forest on Rim Road, 2½ miles northeast of Latour Butte Lookout in SE¼SW¼ sec. 17, T. 32 N., R. 3 E.:

O1—3 inches to 1 inch, litter from woody shrubs and conifer cover.

O2—1 inch to 0, humus.

A11—0 to 1 inch, brown (10YR 5/3) very stony sandy loam, dark brown (10YR 3/3) moist; strong, very fine, granular structure; soft, very friable, nonsticky and slightly plastic; many very fine roots and few fine and coarse roots; many very fine interstitial pores; strongly acid; abrupt, smooth boundary.

A12—1 to 12 inches, pale-brown (10YR 6/3) gravelly light sandy clay loam, dark grayish brown (10YR 4/2) moist; strong, very fine, granular structure; soft, very friable, nonsticky and slightly plastic; many very fine roots and few fine and coarse roots; many very fine interstitial pores; strongly acid; clear, smooth boundary.

A13—12 to 18 inches, pale-brown (10YR 6/3) gravelly sandy clay loam, dark brown (10YR 4/3) moist; strong, very fine, granular structure; soft, very friable, nonsticky and slightly plastic; common very fine roots and few fine and coarse roots; many very fine interstitial pores; strongly acid; clear, smooth boundary.

B21—18 to 25 inches, very pale brown (10YR 7/3) gravelly sandy clay loam, dark grayish brown (10YR 4/2) moist; brownish-yellow stains; strong, very fine, granular structure; slightly hard, friable, nonsticky and slightly plastic; common very fine roots and few fine and coarse roots; many very fine interstitial pores; very few thin clay films in pores; very strongly acid; abrupt, smooth boundary.

B22—25 to 30 inches, very pale brown (10YR 8/4) gravelly sandy clay loam, brown (10YR 5/3) moist; strong, very fine, granular structure; slightly hard, friable, nonsticky and slightly plastic; common very fine roots and few fine and medium roots; many very fine interstitial pores; very few thin clay films in pores; strongly acid; clear, smooth boundary.

C—30 to 33 inches, light-gray (10YR 7/2) very gravelly heavy sandy loam, brown (10YR 5/3) moist; massive; very hard, very firm nonsticky, slightly plastic; very few, fine, flattened roots; many very fine vesicular and interstitial pores; strongly acid; clear, smooth boundary.

R—33 inches, weathered dacite; some soil material in fracture planes; massive.

The A horizon ranges from 10 to 20 inches in thickness, from grayish brown or brown to light yellowish brown or pale brown in color, from gravelly sandy clay loam to very stony sandy loam in texture, and from slightly acid to strongly acid in reaction. The B2 horizon ranges from 10 to 20 inches in thickness, from light yellowish brown to very pale brown in color, from gravelly heavy sandy loam to sandy clay loam in texture, and from medium acid to very strongly acid in reaction. The C horizon ranges from 3 to 20 inches in thickness, and from gravelly sandy loam to very gravelly sandy loam in texture. Rhyolite, dacite, or andesite rock is at a depth of 20 to 60 inches. This soil is 20 to 40 inches deep in most places; however, as mapped in the Shasta Area, some areas are as deep as 60 inches over hard rock.

In Shasta County Area Lyonsville soils are mapped only in complexes or in undifferentiated units with Jiggs soils.

Lyonsville Jiggs complex, 10 to 50 percent slopes (LgE).—About 45 percent of this complex is Lyonsville very stony sandy loam, 10 to 50 percent slopes, and about 45 percent is Jiggs gravelly sandy loam, 10 to 50 percent slopes. The remaining 10 percent consists of inclusions of Windy soils. The Lyonsville and the Jiggs soil each has the profile described as representative for its respective series.

The Lyonsville soil has moderate permeability. Available water capacity is 2 to 5 inches. Weathered dacite is at a depth of 20 to 40 inches. Stones and cobblestones cover 3 to 15 percent of the surface.

The Jiggs soil has moderately rapid permeability. Available water capacity is 2 to 4 inches. Dacite is at a depth of 20 to 40 inches. Exposed dacite bedrock outcrops cover 5 to 10 percent of the surface.

Runoff is medium to rapid on the soils of this unit. The hazard of erosion is moderate to high.

The areas of these soils are used as woodland and wildlife habitat and for watershed. Capability unit VIs-1 (22); range site, not assigned; woodland suitability group 5; wildlife group 9.

Lyonsville-Jiggs complex, deep, 10 to 50 percent slopes (LhE).—About 45 percent of this complex is Lyonsville very stony sandy loam, deep, 10 to 50 percent slopes, and about 45 percent is Jiggs gravelly sandy loam, deep, 10 to 50 percent slopes. The remaining 10 percent consists of inclusions of Windy soils and grayish-brown soils that formed on volcanic rocks. The Lyonsville and the Jiggs soil each has a profile similar to that described as representative for its respective series.

The Lyonsville soil has moderate permeability. Available water capacity is 4 to 7 inches. Stones cover 3 to 15 percent of the surface.

The Jiggs soil has moderately rapid permeability. Available water capacity is 3 to 6.5 inches. Exposed

dacite bedrock outcrops cover 5 to 10 percent of the surface.

Runoff is medium to rapid on the soils of this unit. The hazard of erosion is moderate to high. Both the Lyonsville and the Jiggs soils are 40 to 60 inches deep, which is deeper than the soils of their respective series recognized elsewhere in California.

The areas of these soils are used as woodland and wildlife habitat and for watershed. Capability unit VIs–1(22); range site, not assigned; woodland suitability group 3; wildlife group 8.

Lyonsville and Jiggs soils, 50 to 70 percent slopes (LkF).—This undifferentiated group consists of areas of Lyonsville very stony sandy loam, 50 to 70 percent slopes, and Jiggs rocky sandy loam, 50 to 70 percent slopes. The Lyonsville soil is on the lower parts of the slopes, and the Jiggs soil is on the upper or higher parts. The proportion of each soil varies from one area to another, but each soil generally makes up about 45 percent of the group. The remaining 10 percent consists mainly of inclusions of Windy soils. The Lyonsville and the Jiggs soil each has a profile similar to that described as representative for its respective series.

The Lyonsville soil has moderate permeability. Available water capacity is 2 to 5 inches. Stones cover 3 to 10 percent of the surface.

The Jiggs soil has moderately rapid permeability. Available water capacity is 2 to 4 inches. Exposed dacite bedrock outcrops cover 5 to 10 percent of the surface.

Runoff is very rapid on the soils of this group. The hazard of erosion is very high. Both soils are 20 to 40 inches deep to bedrock.

The areas of these soils are used as woodland and wildlife habitat and for watershed and recreation. Capability unit VIIs–1(22); range site, not assigned; woodland suitability group 6; wildlife group 8.

Marpa Series

The Marpa series consists of well-drained soils that are underlain by shale or slate. These soils are on uplands in the north-central part of the survey area near French Gulch, Bella Vista, and Ingot. Slopes range from 30 to 75 percent. Elevation ranges from 800 to 4,500 feet. The annual precipitation is 40 to 50 inches, and the average annual air temperature is about 56° F. The 32° F. growing season is 150 to 250 days, and the 28° F. growing season is 200 to 300 days. The vegetation is mixed conifers, oaks, and shrubs.

In a representative profile the surface layer is brown, slightly acid gravelly loam about 6 inches thick. The upper part of the subsoil is brown, slightly acid gravelly loam about 7 inches thick. The lower part of the subsoil is light-brown, strongly acid very gravelly clay loam. Fractured shale is at a depth of about 26 inches.

The areas of Marpa soils are used as woodland and wildlife habitat and for watershed.

Representative profile of Marpa gravelly loam, 50 to 75 percent slopes, about three-fourths mile north of the Mineral School near N¼ corner of sec. 31, T. 34 N., R. 1 W.:

O—1 inch to 0, litter and humus from black oak and Douglas-fir.

A1—0 to 6 inches, brown (7.5YR 5/2) gravelly heavy loam, dark reddish brown (5YR 3/3) moist; moderate, medium, granular structure; soft, very friable, nonsticky and nonplastic; many fine roots, common medium roots, and few coarse roots; many very fine interstitial pores and few fine and medium tubular pores; few, thin, discontinuous clay films; slightly acid; gradual, wavy boundary.

B1—6 to 13 inches, brown (7.5YR 5/4) gravelly heavy loam, dark reddish brown (5YR 3/4) moist; weak, medium, granular structure; soft, friable, nonsticky and nonplastic; common fine and medium roots and few coarse roots; common very fine interstitial pores and few fine and medium tubular pores; common, thin, discontinuous clay films; slightly acid; gradual, wavy boundary.

B2t—13 to 26 inches, light-brown (7.5YR 6/4) very gravelly clay loam, brown (7.5YR 4/4) moist; massive; soft, friable, nonsticky and nonplastic; few fine and medium roots; common very fine interstitial pores and few fine and medium tubular pores; common, discontinuous, thick clay films; strongly acid; abrupt, smooth boundary.

R—26 inches, fractured shale.

The A horizon ranges from 3 to 14 inches in thickness, from brown to pinkish gray in color, and from slightly acid to medium acid in reaction. The B1 horizon is 7 to 12 inches thick. The B2t horizon ranges from 12 to 26 inches in thickness, from light brown to pink in color, and from gravelly loam to very gravelly clay loam in texture. Shattered shale bedrock is at a depth of 20 to 40 inches.

Marpa soils generally are near areas of Auburn, Goulding, Josephine, Maymen, Sheetiron, Sites, and Stonyford soils.

Marpa gravelly loam, 30 to 50 percent slopes (MaE).—This soil has moderate permeability. Runoff is rapid, and the hazard of erosion is high. Available water capacity is 2.5 to 6 inches. Fractured shale is at a depth of 20 to 40 inches.

Included with this soil in mapping were areas of Josephine, Maymen, and Sheetiron soils.

This Marpa soil is used as woodland and wildlife habitat and for watershed. Capability unit VIe–1(22); range site, not assigned; woodland suitability group 5; wildlife group 8.

Marpa gravelly loam, 50 to 75 percent slopes (MaG).—This soil has the profile described as representative for the series. Permeability is moderate. Runoff is very rapid, and the hazard of erosion is very high. Available water capacity is 2.5 to 6 inches. Fractured shale is at a depth of 20 to 40 inches.

Included with this soil in mapping were small areas of Josephine, Maymen, and Sheetiron soils.

This Marpa soil is used as woodland and wildlife habitat and for watershed. Capability unit VIIe–1(22); range site, not assigned; woodland suitability group 6; wildlife group 8.

Maymen Series

The Maymen series consists of somewhat excessively drained soils that are underlain by sedimentary or metasedimentary rock. These soils are on uplands in the western part of the survey area near French Gulch, Ono, and Platina. Slopes range from 30 to 80 percent. Elevation ranges from 1,000 to 4,500 feet. The annual precipitation is 30 to 40 inches, and the average annual air temperature is about 56° F. The 32° F. growing season is 150 to 200 days, and the 28° F. growing season is 200 to 300 days. The vegetation is shrubs and a sparse cover of annual grasses and forbs.

more than 5 feet. The substratum is mottled, but otherwise the profile is similar to that described as representative for the series. This soil is moderately well drained. Permeability is moderate. Water ponds on the surface, and erosion is not a hazard. Available water capacity is 9.5 to 11 inches. Roots can penetrate to a depth of more than 60 inches.

Included with this soil in mapping were small areas of Honn, Los Robles, and Molinos soils and areas of other Vina soils.

This Vina soil is used for irrigated hay and as irrigated pasture. Small areas are used for other irrigated crops and for orchards. Capability unit IIw–2(17, 22); range site, not assigned; woodland suitability group, not assigned; wildlife group 2.

Vina gravelly loam, 3 to 8 percent slopes (VgB).—This soil has a profile similar to the one described as representative for the series, except that the content of gravel is 15 to 30 percent throughout the profile. This soil is well drained. Permeability is moderate. Runoff is slow, and the hazard of erosion is slight. Available water capacity is 6 to 8 inches. Roots can penetrate to a depth of more than 60 inches.

Included with this soil in mapping were areas of Honn, Los Robles, and Molinos soils.

This Vina soil is used for irrigated and dryland hay and as irrigated pasture. Small areas are used as dryland pasture. Capability unit IIe–1(17, 18); range site, not assigned; woodland suitability group, not assigned; wildlife group 2.

Wet Alluvial Land

Wet alluvial land (Wa) is somewhat poorly drained or poorly drained, is dark colored, and is loamy or clayey. It is nearly level to gently sloping and is in drainageways and basins in the central part of the survey area, mainly on terraces southeast of Anderson. Elevation ranges from 400 to 500 feet. The annual precipitation is about 25 inches, and the average annual air temperature is about 62° F. The 32° F. growing season is 200 to 250 days, and the 28° F. growing season is 300 to 325 days. The vegetation is sedges, wiregrass, cattail, and willows.

Permeability is slow. Runoff is slow, and the hazard of erosion is slight. Available water capacity is 6 to 9 inches. Roots can penetrate to a depth of 36 to 48 inches.

Wet alluvial land generally is near areas of Perkins, Churn, Reiff, and Moda soils.

This land type is used as pasture. The quality of forage is poor and consists mainly of rushes and sedges. In places production can be improved by careful irrigation management of adjoining fields and by improving surface drainage. Capability unit IIIw–5(17); range site, not assigned; woodland suitability group, not assigned; wildlife group 2.

Windy Series

The Windy series consists of well-drained soils that are underlain by basic volcanic rock. These soils are on uplands in the eastern part of the survey area from Viola to Latour State Forest and Hatchet Mountain. Slopes range from 0 to 75 percent. Elevation ranges from 4,000 to 7,000 feet. The annual precipitation is 40 to 50 inches, and the average annual air temperature is about 44° F. The 32° F. growing season is 100 to 150 days, and the 28° F. growing season is 150 to 175 days. The vegetation is mixed conifers and brush.

In a representative profile the surface layer is very dark grayish-brown, strongly acid stony sandy loam and loamy sand about 8 inches thick. It is underlain by brown, very strongly acid sandy loam about 6 inches thick. The subsoil is light yellowish-brown, very strongly acid very gravelly sandy loam about 34 inches thick. Basic volcanic rock is at a depth of about 48 inches.

The areas of windy soils are used as woodland (fig. 8) and wildlife habitat and for watershed.

Representative profile of Windy stony sandy loam in an area of Windy and McCarthy stony sandy loams, 0 to 30 percent slopes, in Latour State Forest about 2 miles northwest of McMullen Mountain in E¼ sec. 3, T. 32 N., R. 2 E.:

A11—0 to 4 inches, very dark grayish-brown (10YR 3/2) stony sandy loam, black (10YR 2/1) moist; strong, very fine, granular structure; soft, very friable, nonsticky and nonplastic; many fine roots; many very fine interstitial pores; much charcoal; strongly acid; clear, smooth boundary.

A12—4 to 8 inches, very dark grayish-brown (10YR 3/2) loamy sand, very dark brown (10YR 2/2) moist; moderate, very fine, granular structure; soft, very friable, nonsticky and nonplastic; many fine roots; many fine interstitial pores; strongly acid; clear, wavy boundary.

A3—8 to 14 inches, brown (10YR 5/3) sandy loam, very dark brown (10YR 2/3) moist; moderate, very fine, granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; very strongly acid; gradual, smooth boundary.

B21—14 to 30 inches, light yellowish-brown (10YR 6/4) very gravelly sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; few coarse roots; many very fine interstitial pores and common very fine tubular pores; very strongly acid; discontinuous, gradual, and broken boundary.

B22—30 to 48 inches, light yellowish-brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few coarse roots; many very fine interstitial pores and common very fine tubular pores; very strongly acid; discontinuous, broken boundary.

R—48 inches, basic volcanic rock.

The A horizon ranges from 10 to 20 inches in thickness, from very dark grayish brown to brown in color, from stony to very stony sandy loam or loam in texture, and from slightly acid to very strongly acid in reaction. The B horizon ranges from 20 to 40 inches in thickness, from light yellowish brown to very pale brown in color, from very gravelly sandy loam to loam in texture, and from medium acid to very strongly acid in reaction. Basic volcanic rock is at a depth of 40 to 60 inches. All areas of this soil are stony or very stony.

Windy soils generally are near areas of Jiggs, Lyonsville, and McCarthy soils. They are mapped in this survey area only in undifferentiated groups or complexes with McCarthy and Nanny soils.

Windy and McCarthy stony sandy loams, 0 to 30 percent slopes (WeD).—This unit is made up of Windy and McCarthy soils in about equal proportions. Windy stony sandy loam has north-facing and east-facing slopes, and McCarthy stony sandy loam has south-facing and west-facing slopes. Small areas of shallower soils were included in mapping.

The Windy soil has the profile described as representative for the Windy series. Permeability is rapid. Available water capacity is 5 to 7 inches.

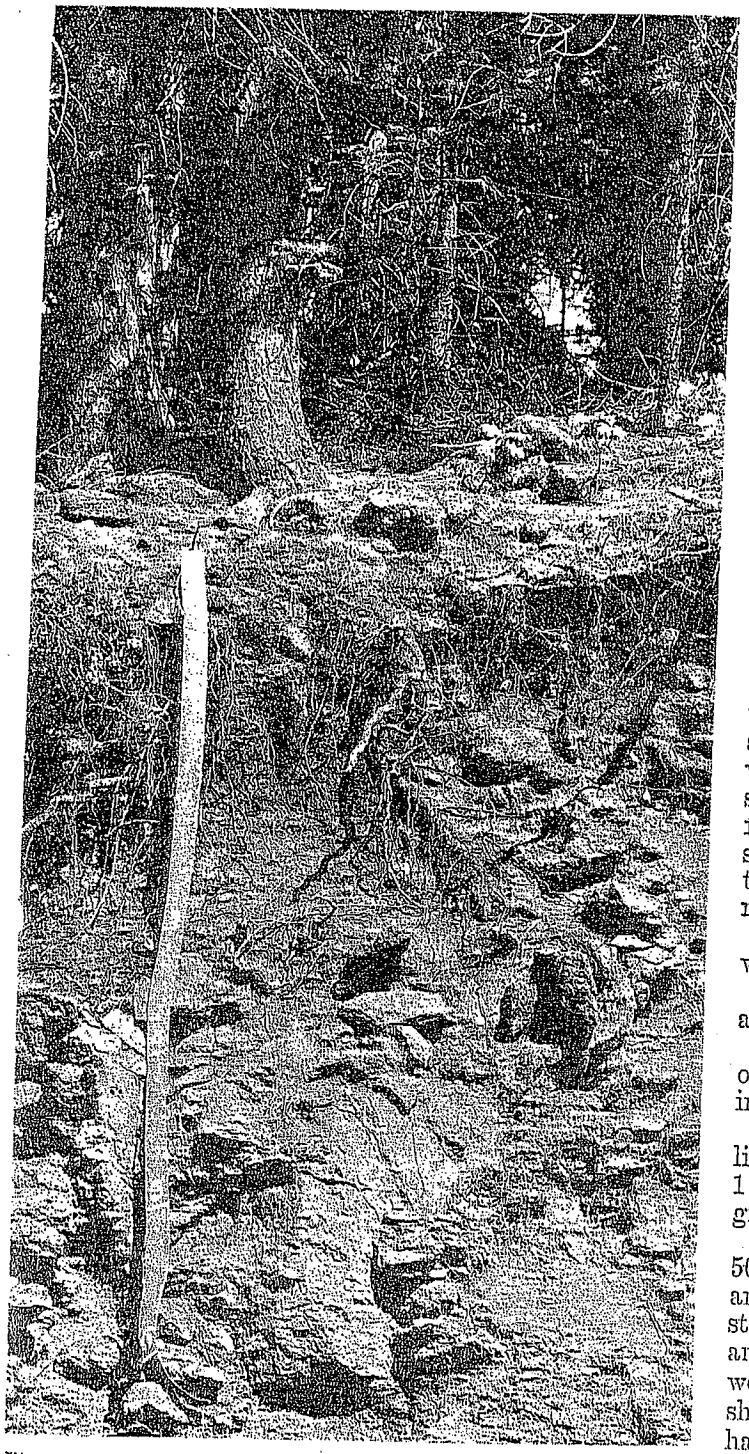


Figure 8.—Profile of Windy stony sandy loam, 0 to 30 percent slopes, in a wooded area.

The McCarthy soil has a profile similar to the one described as representative for the McCarthy series. It has moderately rapid permeability. Available water capacity is 4 to 6 inches.

Runoff is medium to rapid on the soils of this unit. The hazard of erosion is moderate to high. Bedrock is at a depth of 40 to 60 inches. Stones cover 1 to 3 percent of the surface.

490-726—74——6

The areas of these soils are used as woodland and wildlife habitat and for watershed. Capability unit VIe-1(22); range site, not assigned; woodland suitability group 5; wildlife group 8.

Windy and McCarthy very stony sandy loams, 30 to 50 percent slopes (WfE).—This unit is made up of Windy and McCarthy soils in about equal proportions. Windy very stony sandy loam has north-facing and east-facing slopes, and McCarthy very stony sandy loam has south-facing and west-facing slopes. Included in mapping were small areas of shallower soils. The Windy and the McCarthy soil each has a profile similar to that described as representative for its respective series.

The Windy soil has rapid permeability, and its available water capacity is 5 to 7 inches.

The McCarthy soil has moderately rapid permeability, and its available water capacity is 4 to 6 inches.

Runoff is rapid on the soils of this unit. The hazard of erosion is high. Bedrock is at a depth of 40 to 60 inches. Stones cover 3 to 10 percent of the surface.

The areas of these soils are used as woodland and wildlife habitat and for watershed. Capability unit VIs-1(22); range site, not assigned; woodland suitability group 5; wildlife group 8.

Windy and McCarthy very stony sandy loams, 50 to 75 percent slopes (WfG).—This unit is made up of Windy and McCarthy soils in about equal proportions. Windy very stony sandy loam has north-facing and east-facing slopes, and McCarthy very stony sandy loam has south-facing and west-facing slopes. Included in mapping were small areas of shallower soils. The Windy and the McCarthy soil each has a profile similar to the one described as representative for its respective series.

The Windy soil has rapid permeability, and its available water capacity is 5 to 7 inches.

The McCarthy soil has moderately rapid permeability, and its available water capacity is 4 to 6 inches.

Runoff is very rapid on the soils of this unit. The hazard of erosion is very high. Bedrock is at a depth of 40 to 60 inches. Stones cover 3 to 10 percent of the surface.

The areas of these soils are used as woodland and wildlife habitat and for watershed. Capability unit VIIs-1(22); range site, not assigned; woodland suitability group 6; wildlife group 6.

Windy and McCarthy very rocky sandy loams, 8 to 50 percent slopes (WgE).—This unit is made up of Windy and McCarthy soils in about equal proportions. Windy stony sandy loam has north-facing and east-facing slopes, and McCarthy stony sandy loam has south-facing and west-facing slopes. Included in mapping were areas of shallower soils. The Windy and the McCarthy soil each has a profile similar to that described as representative for its respective series.

The Windy soil has rapid permeability, and its available water capacity is 5 to 7 inches.

The McCarthy soil has moderately rapid permeability, and its available water capacity is 4 to 6 inches.

Runoff is medium to rapid on the soils of this unit. The hazard of erosion is moderate to high. Bedrock is at a depth of 40 to 60 inches. Stones cover 1 to 3 percent of the surface. Exposed bedrock outcrops cover 10 to 25 percent of the surface.

The areas of these soils are used as woodland and wild-

15 to 35 percent throughout the profile. This soil is well drained and has moderately rapid permeability. Runoff is very slow, and the hazard of erosion is none to slight. Available water capacity is 7 to 8.5 inches. Roots can penetrate to a depth of more than 60 inches.

Included with this soil in mapping were areas of soils that have a cobbly loam or a gravelly sandy loam surface layer and areas of other Reiff soils.

This Reiff soil is used for irrigated hay and as irrigated pasture. A few small areas are used for other irrigated crops and for orchards. Capability unit IIs–4(17); range site, not assigned; woodland suitability group, not assigned; wildlife group 2.

Reiff gravelly loam, slightly wet, 0 to 3 percent slopes (RoA).—This soil has a profile similar to the one described as representative for the series, except that it has mottles that are faint to distinct and yellowish brown to pale brown. Also, the content of gravel is 15 to 35 percent throughout the profile. Permeability is moderately rapid in this soil. Runoff is very slow or water ponds on the surface. Erosion is not a hazard. Available water capacity is 7 to 8.5 inches. Roots can penetrate to a depth of more than 60 inches.

Included with this soil in mapping were areas of Anderson soils and of other Reiff soils.

This Reiff soil is used for irrigated hay and as irrigated and dryland pasture. Small areas are used for other irrigated crops. Capability unit IIw–2(17, 22); range site, not assigned; woodland suitability group, not assigned; wildlife group 2.

Riverwash

Riverwash (Rw) is nearly level or gently sloping and is in stream channels and adjacent areas. It is subject to continuous or frequent flooding, so plants do not become established. Most of this land type is in the central part of the survey area from Cottonwood to Redding and Bella Vista. Elevation ranges from 350 to 600 feet. Willow, cottonwood, interior live oak, valley oak, and wild grape and blackberry plants are along the channel banks in most places.

This land type is excessively drained and has rapid permeability. Runoff is very slow, and the hazard of erosion is very high.

Riverwash has little or no potential for farming. It is a source of sand and gravel for roads and for construction work. It is also used for recreation. Capability unit VIIIw–1(17); range site, not assigned; woodland suitability group, not assigned; wildlife group 10.

Rock Land

Rock land (RxF) is nearly level to very steep and is on uplands in the mountainous parts of the survey area. Elevation ranges from 700 to 6,900 feet. Rock outcrops cover 25 to 90 percent of the surface. The appreciable amount of rock outcrop and the very shallow soil in the areas submerge the other characteristics of the soil. The rock consists of shale, sandstone, conglomerate, limestone, greenstone quartz diorite, andesite, basalt, rhyolite, schist, gneiss, serpentine, or peridotite.

The vegetation, where present, is similar to that on adjacent soils, except that Rock land has less grass and more drought-resistant plant species, such as canyon live oak, manzanita, toyon, buckeye, and yerba santa.

Small areas of adjacent soils commonly were included with this unit in mapping. Rock land is used as watershed and for recreation. Capability unit VIIIs–1(15, 18, 22); range site, not assigned; woodland suitability group, not assigned; wildlife group 8.

Rubble Land

Rubble land (RyF) is nearly level to very steep and is on uplands in the eastern part of the survey area southeast of Round Mountain. Elevation ranges from 3,000 to 5,000 feet. Stones and boulders cover 90 percent or more of the surface. The vegetation is open stands of shrubs, white fir, Douglas-fir, and incense cedar.

This land type generally is near areas of Cohasset, Cone, and McCarthy soils. Included in mapping were small areas of these soils.

This land type generally is used for water supply. A few trees grow in places. Capability unit VIIIs–1(15, 18, 22); range site, not assigned; woodland suitability group, not assigned; wildlife group 8.

Sehorn Series

The Sehorn series consists of well-drained soils that are underlain by sedimentary rocks. These soils are on uplands in the eastern and western parts of the survey area along the tributaries of Cow Creek east of Millville and Bella Vista and in the Bald Hills south of Ono. Slopes range from 3 to 70 percent. Elevation ranges from 800 to 1,600 feet. The annual precipitation is 25 to 35 inches, and the average annual air temperature is about 62° F. The 32° F. growing season is 200 to 250 days, and the 28° F. growing season is 275 to 325 days. The vegetation is grasses or, in a few places, grass-oak.

In a representative profile the surface layer is light olive-brown, slightly acid silty clay about 20 inches thick. The substratum is mottled, grayish-brown, light olive-brown, and yellowish-brown, neutral silty clay loam. Weathered calcareous shale is at a depth of about 28 inches.

The areas of Sehorn soils are used as range, dryland pasture, and wildlife habitat and for watershed.

Representative profile of Sehorn very stony silty clay, 8 to 30 percent slopes, eroded, about 5 miles northeast of Millville, 300 feet south of N¼ corner of sec. 20, T. 32 N., R. 2 W.:

A11—0 to 1 inch, grayish-brown (2.5Y 5/2) very stony heavy clay loam, olive brown (2.5Y 4/4) moist; weak, thin, platy structure; very hard, firm, slightly sticky and plastic; many very fine roots; many very fine tubular pores; cracks about ½ inch to 1½ inches wide; medium acid; abrupt, smooth boundary.

A12—1 to 11 inches, light olive-brown (2.5Y 5/4) silty clay, olive brown (2.5Y 4/4) moist; strong, very coarse, prismatic structure; extremely hard, very firm, sticky and very plastic; common very fine roots; common very fine tubular pores; slightly acid; clear, smooth boundary.

A13—11 to 20 inches, light olive-brown (2.5Y 5/4) silty clay, olive brown (2.5Y 4/4) with vertical streaks of yellowish brown, ½ to ¾ inch wide, along cracks moist; strong, very coarse, prismatic structure; extremely hard, very firm, slightly sticky and very plastic; com-

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
875 CYPRESS AVE
REDDING, CA 96001
Website: www.fire.ca.gov
(530) 225-2506

July 28, 2009

USDA Service Center
Lassen National Forest
2550 Riverside Drive
Susanville, CA 96130

To Whom it May Concern:

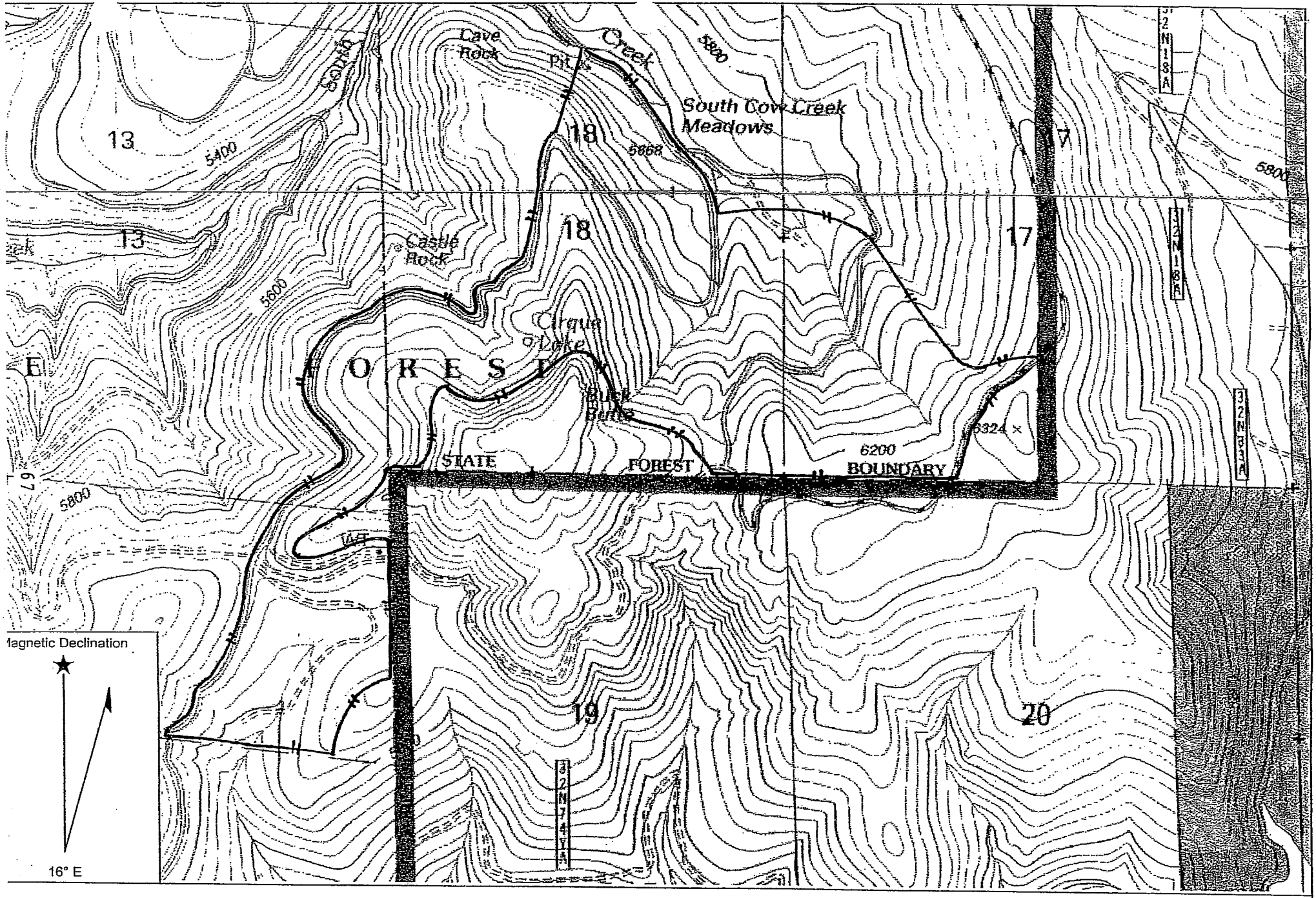
LaTour Demonstration State Forest is in the process of preparing a Timber Harvesting Plan (THP). The location of the THP is in Shasta Country, in Sections 13 and 24, T 32N, R 2 E, and Sections 17, and 18, T 32 N, R 3 E; Mount Diablo Base Meridian. The THP is approximately 13 air miles east of the community of Whitmore, California, 22 miles south of Burney and Seventeen miles northeast of Lassen Volcanic National Park.

The California Code of Regulations, Title 14 Section 1032.10 requires that the THP Submitter provide notice by letter to all other landowners within 1000 feet downstream of the THP Boundary whose ownership adjoins or includes a Class I, II or IV watercourse which receives surface drainage from the proposed timber operations.

This notice is to request information about surface domestic water use from South Cow Creek , Beal Creek and Upper Battle Creek and within 1000 feet of the THP boundary. If you have any information about domestic water use in the area specified, please contact Bruce Beck, Ben Rowe or Gabriel Schultz within 10 days of receipt of this notice at the address or phone number listed below.

Thank you very much,

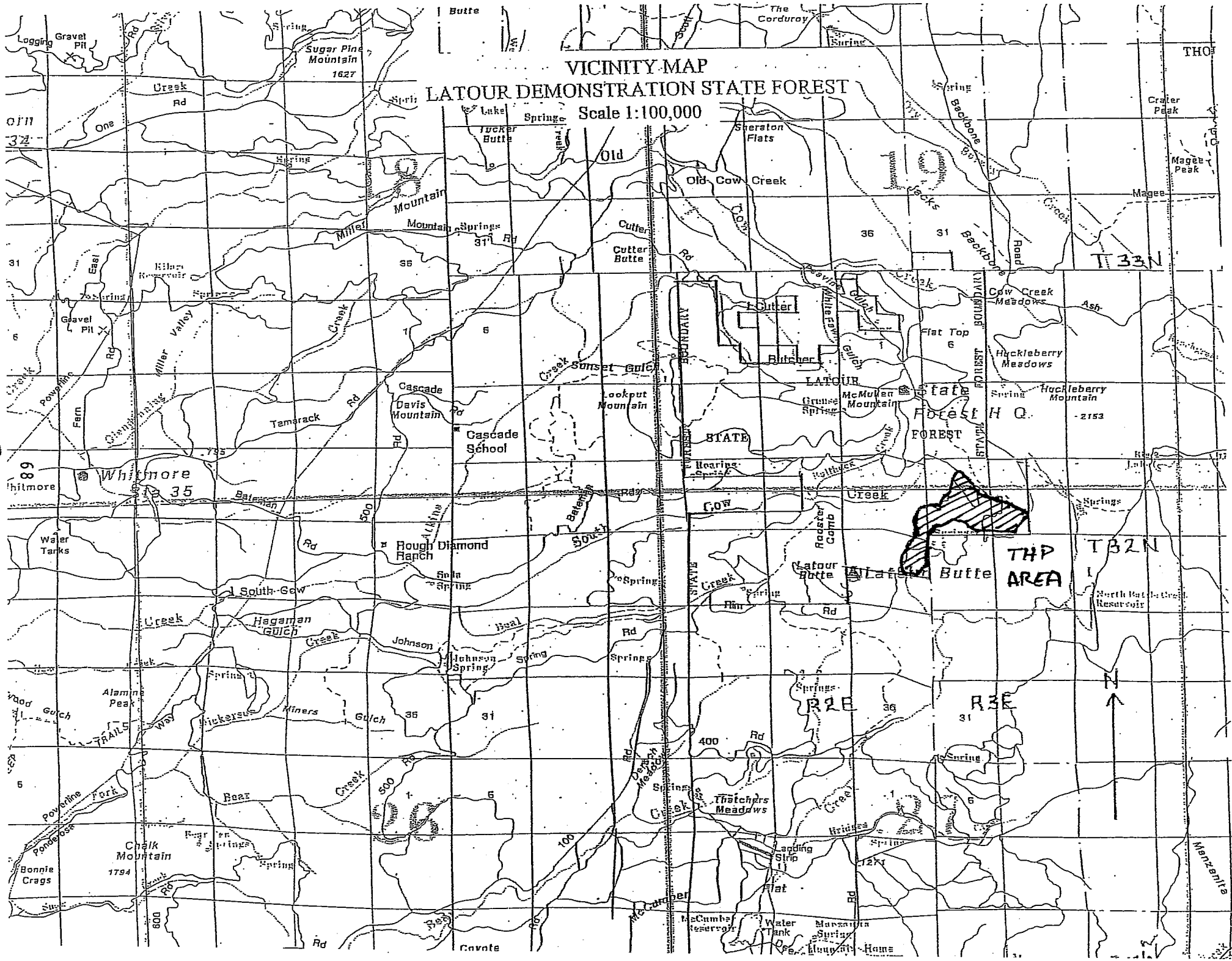
GABRIEL V. SCHULTZ
Forester I RPF#2749
Shasta-Trinity Unit, Redding
875 Cypress Ave.
Redding, CA 96001
530-225-2506



Name: VIOLA
Date: 6/22/2009
Scale: 1 inch equals 1333 feet

Location: 040° 37' 03.03" N 121° 40' 37.87" W NAD27
Caption: LDSF, Buck Butte THP
T 32 N, R 2 3 E, Sect 7, 13, 1 7, 18, 24.

VICINITY MAP
LATOUR DEMONSTRATION STATE FOREST
Scale 1:100,000



DEPARTMENT OF FORESTRY AND FIRE PROTECTION
875 CYPRESS AVE
REDDING, CA 96001
Website: www.fire.ca.gov
(530) 225-2506

July 10, 2009

Sierra Pacific Industries
Sierra Pacific Holding Company
PO Box 496014
Redding, CA 96049

To Whom it May Concern:

LaTour Demonstration State Forest is in the process of preparing a Timber Harvesting Plan (THP). The location of the THP is in Shasta Country, in Sections 13 and 24, T 32N, R 2 E, and Sections 17, and 18, T 32 N, R 3 E; Mount Diablo Base Meridian. The THP is approximately 13 air miles east of the community of Whitmore, California, 22 miles south of Burney and Seventeen miles northeast of Lassen Volcanic National Park.

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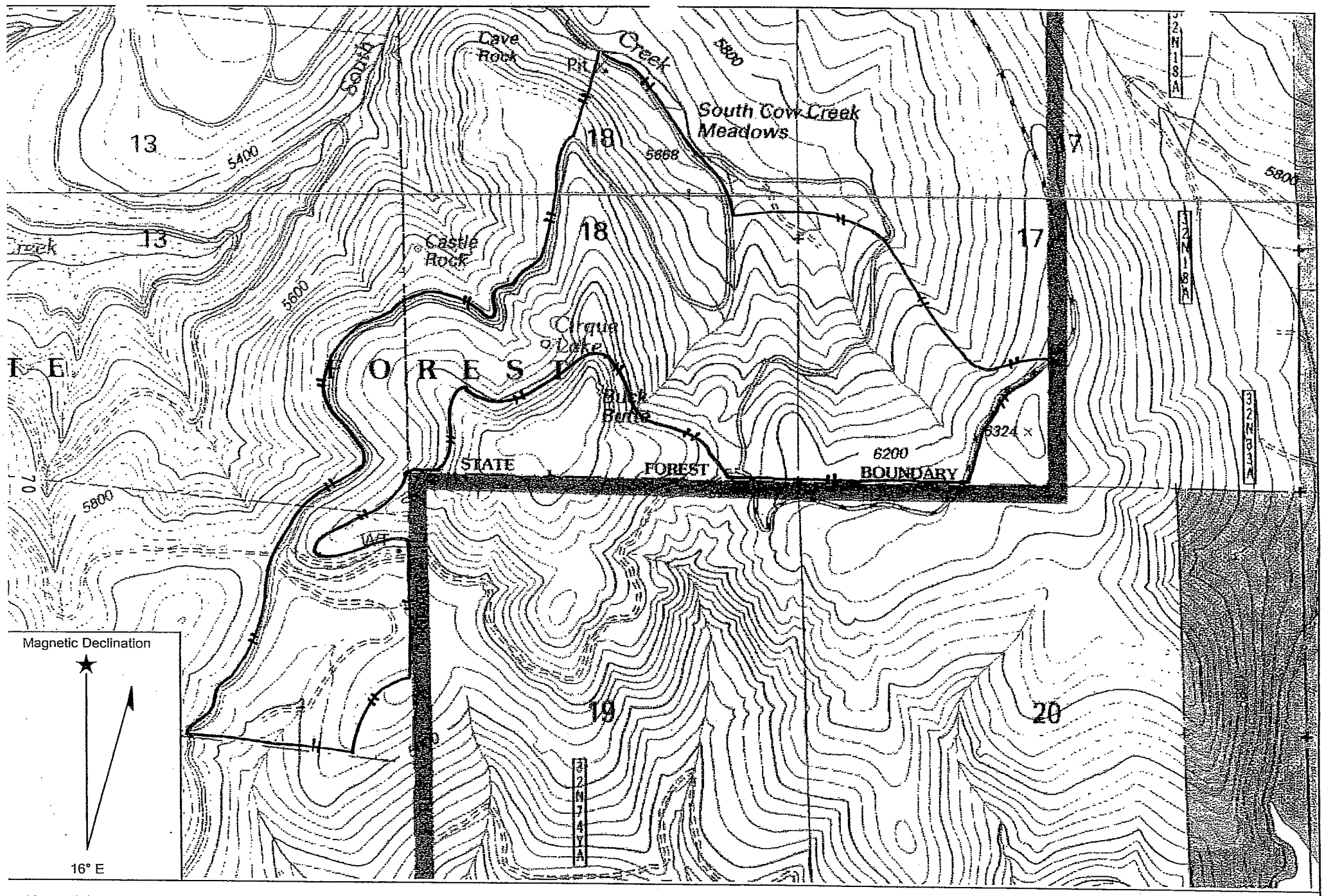
Thank you very much,

GABRIEL V. SCHULTZ
Forester I RPF#2749
Shasta-Trinity Unit, Redding
875 Cypress Ave.
Redding, CA 96001
530-225-2506



Name: VIOLA
Date: 6/22/2009
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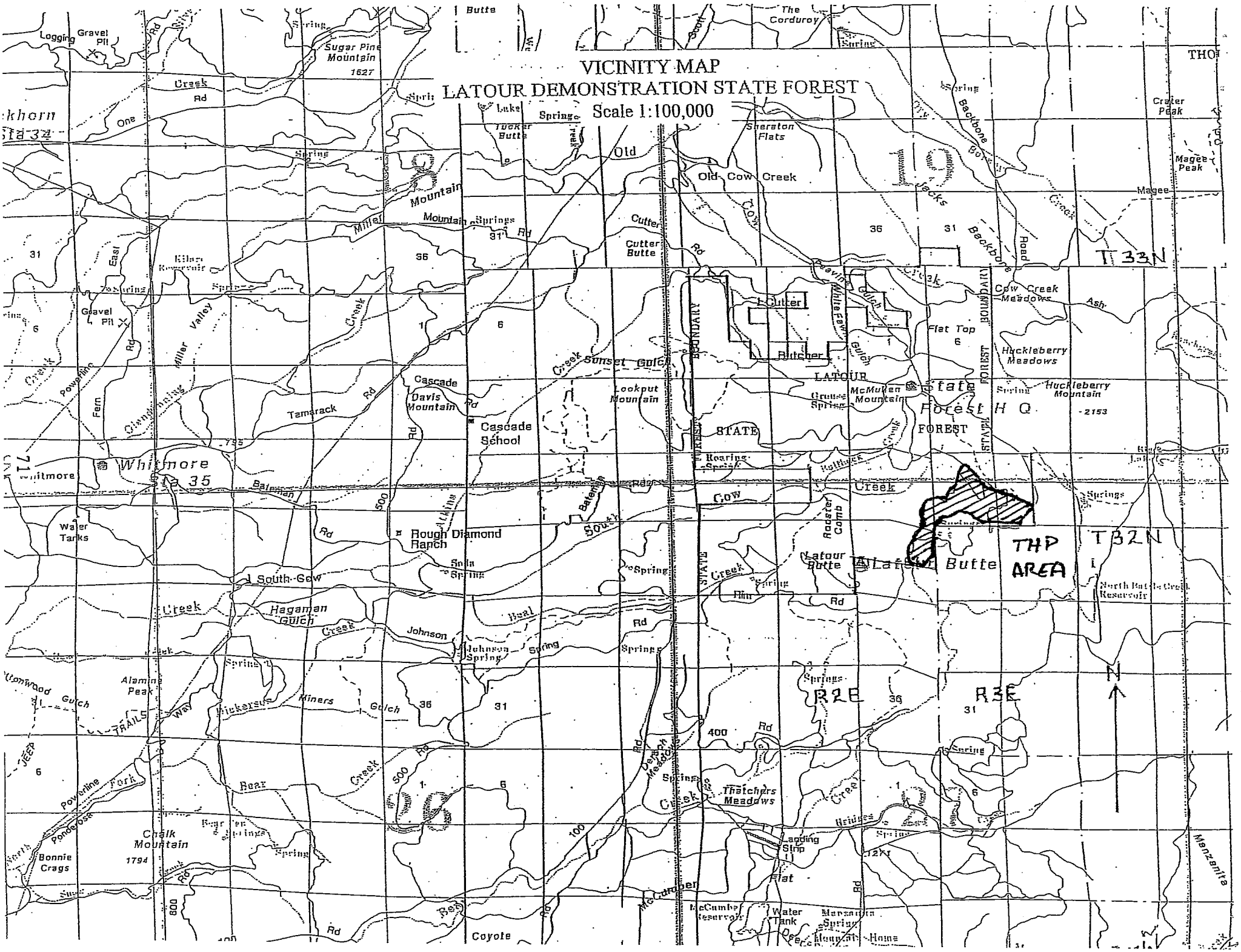
Location: 040° 37' 03.03" N 121° 40' 37.87" W NAD27
Caption: LDSF, Buck Butte THP
T 32 N, R 2 3 E, Sect 7, 13, 1 7, 18, 24.



VICINITY MAP

LATOUR DEMONSTRATION STATE FOREST

Scale 1:100,000

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
875 CYPRESS AVE
REDDING, CA 96001
Website: www.fire.ca.gov
(530) 225-2506

July 10, 2009

Carl J. and Jo Ann Davis
PO Box 142
Whitmore, CA 96069

Certified Mail, Return Receipt Requested
7007 2560 0003 2533 2735

Dear Jack & Jo:

As part of LaTour's next timber harvest plan that I am preparing, the licensed timber operator will once again, as many years in the past, be using Roaring Springs as a drafting location to maintain Bateman Road. The use of Roaring Springs is required for both dust abatement and maintaining the roads surface in a stable condition. The Fore Practice Rules require you to be included as a timberland owner on LaTour Demonstration State Forest "Buck Butte" timber harvest plan. Your inclusion as a timberland owner assumes no responsibility for timber operations on your part and is for water drafting only as Roaring Springs along Bateman Road. Water drafting is considered timber operations per Public Resource Code 4527 and as such all timberland owners where water drafting will occur must b included in the plan.

Per Public Resource Code 4582, if the person filing the plan is not the owner of the timberland, the plan submitter shall notify the timberland owner by certified mail that the plan has been submitted and shall certify that mailing to the Department.

As the Registered Professional Forester preparing this plan I am required to inform you of your responsibilities as the timberland owner. The Department of Forestry & Fire Protection has a right-of-way agreement for the use of Bateman Road. This agreement requires the Department to maintain the road in good condition. As such, the Department will assume the erosion control maintenance for the use of the water drafting location used under this THP.

All water drafting operations performed under this THP on your property will conform to the Forest Practice Act and Board of Forestry Rules. Note that the Department of Forestry & Fire Protection has adjudicated water rights to Roaring Springs under the Cow Creek Adjudication Decree No. 38577 of the Superior Court for Shasta County.

Sincerely,

GABRIEL V. SCHULTZ
Forester I RPF#2749
Shasta-Trinity Unit, Redding
875 Cypress Ave.
Redding, CA 96001
530-225-2506

7007 2560 0003 2533 2735

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Sent To: Carl & JoAnn Davis
Street, Apt. No.; or PO Box No. P.O. Box 142
City, State, ZIP+4 Whitmore, CA 96069

PS Form 3800, August 2006 See Reverse for Instructions

STATE OF CALIFORNIA
DEPARTMENT OF
FORESTRY AND FIRE PROTECTION
RESOURCE MANAGEMENT
875 CYPRESS AVENUE
REDDING, CA 96001

SENDER: COMPLETE THIS SECTION

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Carl and JoAnn Davis
P.O. Box 142
Whitmore, CA 96069

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by (Printed Name) C. Date of Delivery

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3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service) 7007 2560 0003 2533 2735

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

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Carl and JoAnn Davis
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DEPARTMENT OF FORESTRY AND FIRE PROTECTION
875 CYPRESS AVE
REDDING, CA 96001
Website: www.fire.ca.gov
(530) 225-2506

July 10, 2009

Pete Johnson
C/O W.M. Beaty & Associates
Brooks Walker et. Al.
PO Box 990898
Redding, CA 96099

Certified Mail, Return Receipt Requested
7007 2560 0003 2533 2742

Dear Pete:

As discussed, W.M. Beaty & Associated will be included as a timber land owner on LaTour Demonstartions State Forest "Buck Butte" timber harvest plan. The inclusion of W.M. Beaty & Associates is for water drafting at one location along Bateman Road at Atkins Creek in the Brooks Walker ownership. Water drafting are considered timber operations per Public Resources Code 4527 and as such all timberland owners must be included in the plan.

Per Public Resource Code 4582, if the person filing the plan is not the owner of the timberland, the plan submitter shall notify the timberland owner by certified mail that the plan has been submitted and shall certify that mailing to the Department.

As the Registered Professional Forester preparing this plan I am required to inform you of your responsibilities as the timberland owner. LaTour Demonstration State Forest will assume the erosion control maintenance for the use of the water drafting location used under this THP. The Department of Forestry & Fire Protection has a right of way agreement for the use of the Bateman Road. This agreement requires the Department to maintain the road in good condition.

All water drafting operations performed under this THP on property managed by W.M. Beaty & Associates will conform to the Forest Practice Act and Board of Forestry Rules and you Programmatic Streambed Alteration Agreement with the Department of Fish & Game.

Sincerely,

GABRIEL V. SCHULTZ
Forester I RPF#2749
Shasta-Trinity Unit, Redding
875 Cypress Ave.
Redding, CA 96001
530-225-2506

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Sent To: Pete Johnson C/O Wm Beaty & Assoc
Street, Apt. No.; or PO Box No.: P.O. Box 990898
City, State, ZIP+4: Redding, CA 96099

PS Form 3800, August 2006 — See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Pete Johnson
C/o Wm Beaty & Assoc.
Brooks Walker et.AL
P.O. Box 990898
Redgn CA 96099

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service lat. 7007 2560 0003 2533 2742

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FORESTRY AND FIRE PROTECTION
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