

Memorandum

To: Mr. Ken McLean, Chief
North Coast - Region 1
California Department of Forestry
and Fire Protection
135 Ridgway Avenue
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SantaRosaReviewTeam@fire.ca.gov

Date: March 10, 2006

From : Robert W. Floerke, Regional Manager 
Department of Fish and Game - Central Coast Region, Post Office Box 47, Yountville, California 94599

Subject : Department of Fish and Game Pre-Harvest Inspection Report for Timber Harvesting
Plan 1-05-187 SCR (RMC 2006-2007)

DESCRIPTION

Plan number:	1-05-187 SCR
Timberland Owner:	RMC Pacific Materials, Inc.
County:	Santa Cruz
Quadrangle:	Davenport
Calwater:	3304.110203 (San Vicente Creek) 3304.110201 (Big Creek)
Streambed Alteration Agreement:	Notification required for: Watercourse crossings and water drafting
Legal Description:	MDB&M, T 09S, R 3W, Section 36 MDB&M, T 10S, R 3W, sections 1, 2, 3, 10, 11, 15
Total Acreage:	580
Silviculture:	Selection [14 CCR § 913.8(a)] Alternative [14 CCR § 913.8(b)]
Winter Operations:	Yes, per winter operation plan
Erosion Hazard Rating:	moderate
Proposed In-Lieu Practices:	14 CCR § 916.3(c) - use of landing DD 14 CCR § 916.3(c) - use of road within WLPZ
Yarding Method:	Tractor Rubber tired skidder Skyline cable

PHI Dates and Attendees:	<p>November 28, 2005 Gary Paul, RPF Richard Sampson, CDF Chuck Whatford, CDF C. Michael Huyette, CGS Donna Bradford, County of Santa Cruz Clare Golec, DFG Richard Fitzgerald, DFG</p> <p>January 26, 2006 Gary Paul, RPF Richard Sampson, CDF John Martinez, CDF Donna Bradford, County of Santa Cruz Rachel Lather, County of Santa Cruz Lee Otter, California Coastal Commission Julia Dyer, CCRWQCB Richard Fitzgerald, DFG</p>
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This report includes Department of Fish and Game (DFG) recommendations based on the review of the THP and participation in the Pre-harvest Inspection (PHI). These recommendations are focused on avoiding or minimizing the proposed project's effects on fish, wildlife, and botanical resources. DFG recommendations do not necessarily reflect the opinion of other government agencies. DFG participation in the PHI was a reconnaissance level survey without quantitative sampling of fish, wildlife, aquatic invertebrates, rare and endangered plants, sediment, large woody debris (LWD), snags, canopy, vegetation composition, or stream flow. DFG recommendations provide the basis for adequate short- and long-term fish, wildlife, native plant, and habitat protection, conservation, and management. DFG requests that these recommendations be included as enforceable conditions in the approved THP. Findings and recommendations made in this report should be applied to the review of all other documents related to this project prepared and reviewed pursuant to the California Environmental Quality Act (CEQA).

The initial PHI was held on November 28, 2005. During the PHI, review team participants noted numerous deficiencies in the THP relating to watercourse and wet area identification, watercourse classification, identification of suitable marbled murrelet habitat, and application of the Forest Practice Rules. Due to the need for further information on watercourse classification, proposed Watercourse and Lake Protection Zone (WLPZ) operations, and crossing y, the review team determined that an additional PHI would be necessary. A second PHI was held January 26, 2006. During this PHI,

the review team again noted numerous deficiencies in the THP and revised materials including watercourse and wet area identification, application of the Forest Practice Rules (FPR), and an undisclosed archaeological site.

The THP site is in Santa Cruz County, principally within the San Vicente Creek watershed. A small portion of the northeastern unit drains into the Big Creek watershed (see Figure 1). The plan area is roughly four air miles north-northeast of the town of Davenport. Aspects on the plan area are variable. Elevations range from 1,120 to 2,580 feet above sea level.

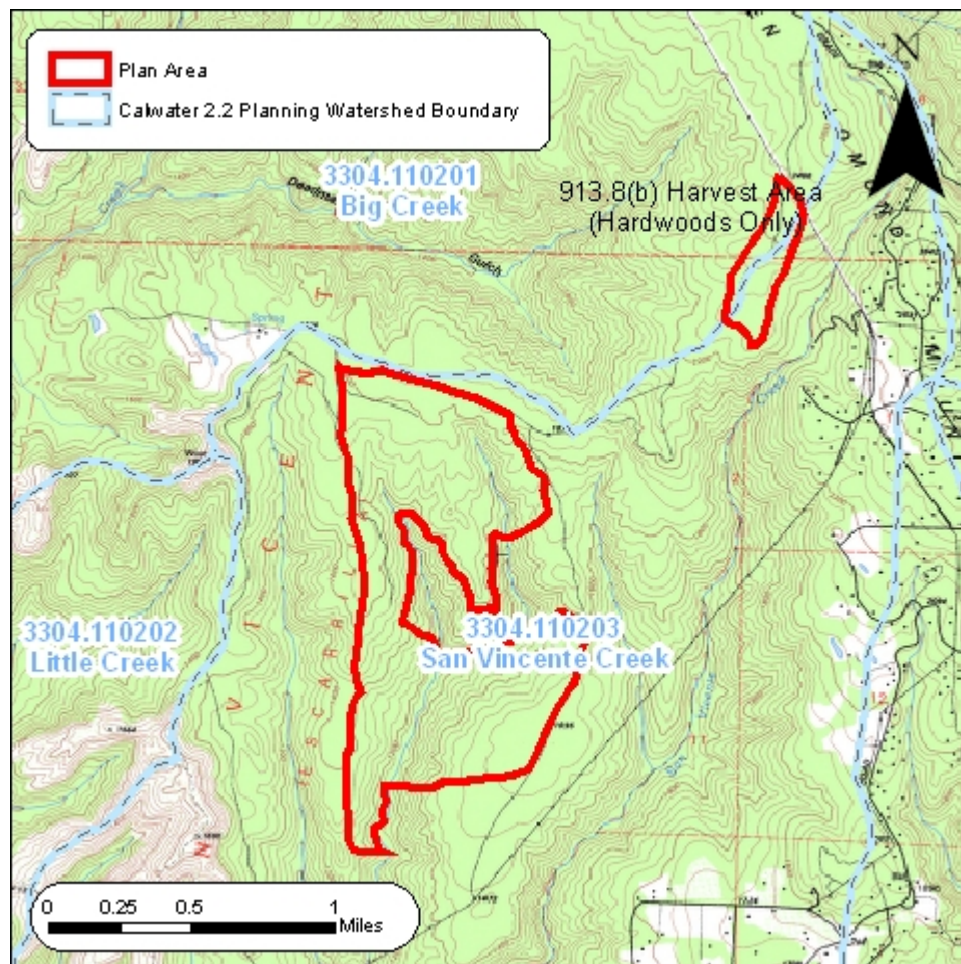


Figure 1. Plan area and Calwater 2.2 planning watersheds

The THP proposes the harvest of sawlogs, fuelwood, and burls through the application of the selection and alternative methods for the Southern Sub-District, Title 14, California Code of Regulations (14 CCR) § 913.8(a, b). Operations also include water drafting and the construction or modification of watercourse crossings.

Vegetation on the plan area includes a variety of types including redwood forest, broadleaved upland forest, coast live oak woodland on the ridgelines, scattered forest grassy openings, and small inclusions of maritime chaparral. Areas under these vegetation types include mesic and hydric areas. These types are consistent with redwood, montane hardwood, coastal oak woodland, annual grassland, and mixed chaparral as described in A Guide to Wildlife Habitats of California (Mayer and Laudenslayer 1988) and North Coast coniferous forest, broadleaved upland forest, cismontane woodland, valley and foothill grassland, and chaparral as described in the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2001). Larger and older dominant conifers are present within the plan area and were particularly noted in the northeastern hardwood control unit [see THP page 18.1 "Rule 913.8(b) Harvest Area (Hardwoods Only)."]

Coho salmon and steelhead are present in San Vicente and Big Creeks downstream of the plan area (Circuit Rider Productions Inc. 2004). The San Vicente and Big Creek watersheds are within the Central California Coast Evolutionarily Significant Units for steelhead and coho salmon within which both species are listed as threatened under the Federal Endangered Species Act (FESA). Coho salmon in waters south of Punta Gorda are listed as endangered under the California Endangered Species Act (CESA). As such, 14 CCR § 916.9 et. seq. applies to these portions of the THP and operations in this plan should be consistent with the State's recovery goals for coho salmon. Fish and Game Code § 2055 establishes that it is the policy of the State that all State agencies, boards, and commissions shall seek to conserve endangered and threatened species and shall utilize their authority for such purposes.

Watercourse and Wet Area Identification and Classification

During the November 28th PHI, the review team observed an unmapped ditch relief culvert leading directly to an unmapped watercourse on the haul road between crossings dd and x. The RPF's December 30th revisions describe this as crossing gg and show the watercourse as a class II watercourse.

The THP describes crossing cc as a dip crossing for spring flow. The THP map shows a spring immediately upslope of this WLPZ skid trail crossing. During the November 28th PHI, our representative observed a channel upslope from the spring. During the January 26th PHI, the review team observed an unmapped culvert crossing

of an unmapped watercourse on the haul road at mile post 1.8 between crossings dd and hh. It is likely that these features are part of the same watercourse. Based on the presence of indicators (see Lucke 2000; Valentine 1997) of aquatic habitat for non-fish aquatic species including the presence of small pools and giant chain fern (*Woodwardia fimbriata*) (Reed 1998), this watercourse should be designated as a class II watercourse. Recently delivered fine sediment was observed in the channel downstream of the culvert crossing. Rilling and cutbank erosion was observed on the northern road approach to the crossing. DFG recommends identifying this watercourse and crossing in the THP and establishing the required protective measures of the FPRs (**Recommendation 1**).

During the November 28th PHI, the review team inspected the location of the class I/class II transition shown on the THP maps. Based on documentation within the THP of fish observations upstream of this location, prior knowledge of review team members of fish upstream of this location, and the absence of channel features which would present permanent barriers through the range of normally expected seasonal flows, the review team determined that the transition point was improperly located. The RPF was asked to re-determine an appropriate class I/class II transition point based on channel characteristics and other available evidence. The December 30th revised pages moved the transition point upstream of the plan boundaries on both tributaries. The transition was not flagged in the field for the January 26th PHI. The transition point identified by the RPF was not associated with any permanent barrier. The review team examined that channel upstream of the transition point and did not find any significant permanent barriers. Based on overall channel gradient, the class I/class II transition should be located about 500 feet upstream of the point shown in the December 30th revised pages (**Recommendation 2**). This is roughly consistent with the intersection of the stream and the 1,240-foot contour line as shown on the Davenport USGS 7.5-minute quadrangle.

During the November 28th PHI, the review team observed a broad wet area adjacent to the western tributary upstream of crossing y. The THP describes this as crossing z and specifies creating a dip and slash packing and seeding following use. This area appears to periodically receive overflow from the main channel and may be referred to as a "flood prone area" (Riparian Protection Committee 2005). The review team requested that the RPF provide a map detail of this area. A detail map was provided in the December 30th revisions (see Figure 2). During the January 26th PHI, the review team observed two unmapped watercourses within the wet area. These watercourses are not mapped as watercourses on the wet area detail map (see Figure 2) and do not appear on other THP maps. During the January 26th PHI, the review team determined that the detail map provided by the RPF did not adequately describe the flood prone area. The area subject to periodic inundation likely includes

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the entire area between the base of slope and the western bank of the channel (see Figure 2). The map provided by the RPF shows two extensions, presumably representing the location of the unidentified watercourses, to the watercourse. This area is a depositional area and it is likely that these channel positions will shift in response to fluvial events.

The THP and revised pages do not specify what activities will take place in or around the wet area. DFG recommends that the THP include a revised map detail and all of the information required by 14 CCR 916.4 for this flood prone area (**Recommendation 3**). We suggest that this area be flagged and avoided by operations.

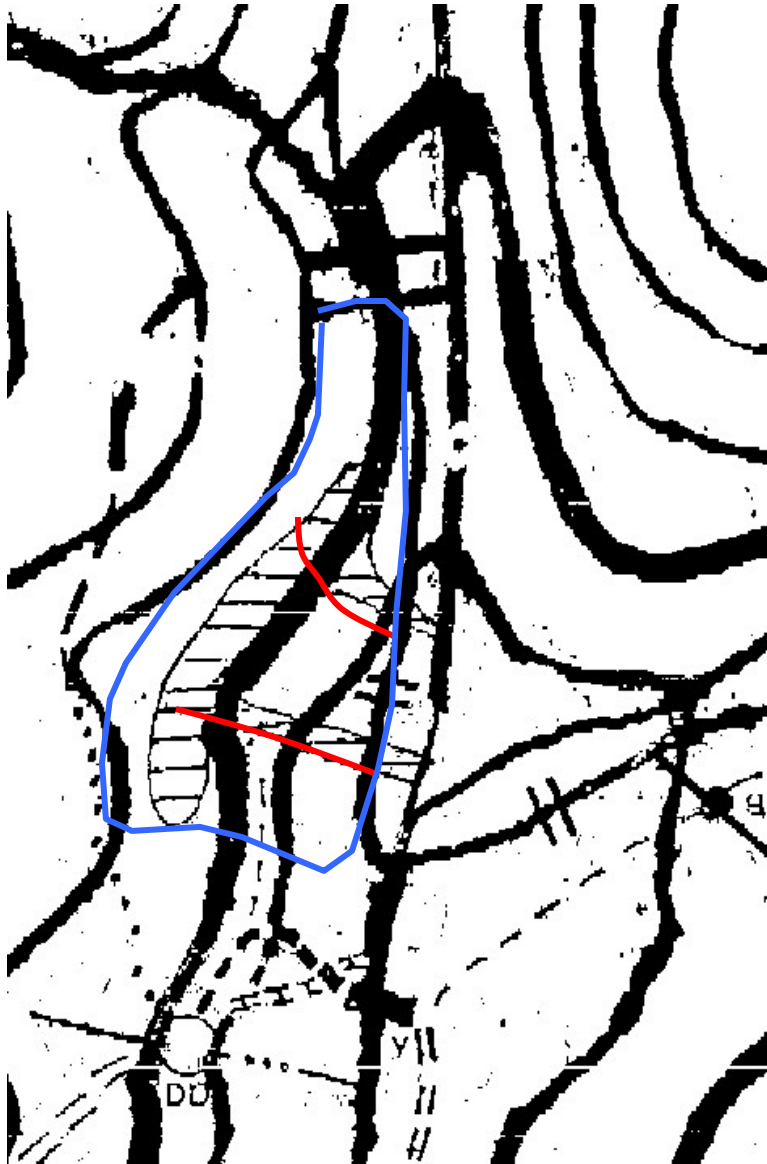


Figure 2. Detail map of wet area by crossing y. From revised page 18.2. Approximate location of unmapped watercourses is shown in red. Approximate boundaries of flood prone area are shown in blue.

During the November 28th PHI, our representatives observed a wet area in the vicinity of landing I. Typical hydrophytes such as rushes and sedges and saturated soils were noted in this location. While it is out of the plan area, this wet area is near a landing and should be identified and operations excluded from it (**Recommendation 4**).

There is a small unmapped wet area 150 feet east of dd. Obligate and facultative wetland plants (Reed 1998) including slough sedge (*Carex obnupta*), giant chain fern (*Woodwardia fimbriata*), and elk clover (*Aralia californica*) are present. (**Recommendation 5**).

Watercourse Crossings

Crossing dd is a 15-inch diameter culvert crossing of a class III watercourse. Rushes and bare moist soil were observed on the road prism surface, suggesting that the culvert is not efficiently draining the inlet. Drainage from road approaches may be contributing. DFG recommends evaluating the culvert's size and replacing it if it is not sufficiently sized to pass the 100-year flow and debris (**Recommendation 6**). Work at this crossing requires notification to DFG for a Lake and Streambed Alteration Agreement (SAA).

During the November 28th PHI, the culvert inlet at crossing gg (see above) was plugged. DFG recommends cleaning out this culvert and maintaining it as necessary to ensure proper function (**Recommendation 7**).

At crossing y, the THP proposes the installation of a permanent 32-foot long steel bridge. The THP states that the bridge will be placed on log footings and the bridge will be six feet above stream the level. This bridge will be used for THP operations as well as all-season access. The THP appropriately identifies the bridge installation as requiring notification to DFG for an SAA and indicates that the THP is to serve as the CEQA document for such an agreement.

Fish and Game Code § 1611 allows THPs to serve as notification documents for Lake and Streambed Alteration Agreement if specific information is provided in the THP, including:

- (a) The volume, type, and equipment to be used in removing or displacing any one or combination of soil, sand, gravel, or boulders.
- (b) the volume of water, intended use, and equipment to be used in any water diversion or impoundment, if applicable.
- (c) the equipment to be used in road or bridge construction or reconstruction.
- (d) the type and density of vegetation to be affected and an estimate of the area involved.
- (e) a diagram or sketch of the location of the operation which clearly indicates the stream or other water and access from a named public road. Locked gates shall be indicated. The compass direction must be shown.
- (f) a description of the period of time in which operations will be carried out.

The THP includes a filled out Lake and Streambed Alteration Agreement questionnaire, but the required information noted above is absent.

During the November 28th PHI, the RPF was asked to provide further detail on the placement of the footings for the bridge. No further detail has been provided. Improper bridge design and installation may result in the accelerated delivery of fine sediments to aquatic habitat. DFG recommends that the THP include additional information for crossing y (**Recommendation 8**).

Erosion Potential on Roads, Skid Trails, and Landings

During the January 26th PHI, the access road from Empire Grade (Warrenella Road) had several locations with standing water and saturated soil conditions. Use of pick-up trucks by the review team resulted in rutting and splashing of turbid water into road ditches in these locations. It is not known, but presumed likely, that these ditches deliver to class III tributaries of class I and II watercourses down slope.

The haul road has a steep segment between Warrenella Road and landing AA. During the January 26th PHI, the review team used this road segment to access the lower haul road. In this road segment, our representative's vehicle lost traction on this section. Use of pick-up trucks on this road segment resulted in rutting of the road surface.

Observations of road rutting by pick-up vehicles during the PHI provide clear evidence of likely impacts associated with winter period and wet weather road use. DFG recommends that the winter operation plan prohibit the use of pick-up trucks or heavy equipment following two inches of cumulative rainfall and between April 16 and May 1 (**Recommendation 9**).

Rilling was observed on the northern approach to the unmapped culvert crossing between dd and hh (see above). This section of the haul road is in a throughcut. Water and sediment are transported down the road surface from the cutbank at the break in slope. Fresh deposits of fine sediments were observed in the channel downstream of the crossing. DFG recommends rocking this portion of the haul road from the crossing to the break in slope (**Recommendation 10**).

Rilling was observed on the northern approach to crossing cc. Signs of fine sediment delivery to a drainage relief ditch and to crossing dd were observed. DFG recommends that the THP specify appropriate erosion control at this location (**Recommendation 11**).

The THP describes landing DD as located in a class III watercourse and proposes to use the landing when the watercourse is dry followed by dipping, seeding, and mulching. This practice is in-lieu of 14 CCR § 916.3(c).

The site of proposed landing DD includes an unstable and eroding class III (see Figure 3). Flow currently runs across the haul road. The proposed landing site also includes an area adjacent to the watercourse which was seeping water during the January 26th PHI. Water emerging at this site contributes to road drainage and erosion problems on the haul road (see below).

The in-lieu use of landing DD is not acceptable to DFG. This site is already part of a larger road drainage problem. Use of the site as a landing, which will damage vegetation, compact soils, and disturb soils in a location where there is at least a seasonal flow of water, is likely to perpetuate erosive conditions and result in a sediment load increase to watercourses. DFG recommends deleting the proposed use of landing DD from the THP (**Recommendation 12**).

During the January 26th PHI, the review team discussed alternative locations for landing DD. A site on the other side of the haul road was discussed. This would be at least partially within the WLPZ of a class I watercourse. DFG recommends that the THP fully describe any new landing sites, including a detail sketch showing the landing, haul road, watercourses, WLPZ boundaries, and any unstable features (**Recommendation 12**).



Figure 3. Class III watercourse at site of proposed landing DD.

On the January 26th PHI, the northern road approach to landing DD was saturated (see Figure 4) as a result of water from a class III watercourse and the seeps at landing DD. The RPF and CDF representatives discussed abandoning this portion of road and constructing a new section of road upslope.



Figure 4. Northern approach to landing DD.

Water from the saturated road section continues down the road and combines with another seep and continues down the road to a waterbar. The waterbar directs water to an outfall on the bank of a class I watercourse. The outfall has a significant drop, presenting a risk of headward migration of the outfall. DFG recommends abandoning this section of road, packing it with slash, maintaining the waterbar, and armoring the outfall with rock (**Recommendation 13**).

The in-lieu WLPZ tractor road east of the class I watercourse and south of crossing f closely approaches the top of the bank of the class I watercourse, creating a potential for fine sediments to be delivered into the watercourse. DFG recommends installing a crib log on the outside edge of the road at this location (**Recommendation 14**).

The cumulative impacts section does not address potential or on-going sediment delivery associated with the existing road system or its use. The haul road and appurtenant roads associated with this THP are subject to all-season use. The maintenance of all-season access may promote successful erosion control by facilitating identification, monitoring and remediation of erosion hazards and sensitive receptors. However, net benefits will not be realized if erosion risks associated with the

infrastructure and its use offset the benefits of access. The number of existing erosion hazard sites and the incompleteness of the THP's assessment of these sites and sensitive receptors suggest that a property-wide road maintenance and planning effort would be beneficial. This was discussed during the PHI and agreed to by the RPF (**Recommendation 15**).

Large Woody Debris recruitment

The western tributary of the class I watercourse flowing through the site of crossing y was examined to determine watercourse classification. Large woody debris in this reach is sparse. The majority, if not all, of pools in this reach are formed by woody material. This reach is heavily embedded with fine sediments and additional measures are warranted to promote the storage and metering of fine sediments. DFG recommends that additional measures be specified to enhance the recruitment of LWD in this reach (**Recommendation 16**). This could include the retention of the 10 largest confiers within 50 feet of the channel per 330 feet of stream channel length along the class II portions of this watercourse.

Water Drafting

The THP proposes diverting water upstream of crossing y for purposes of dust abatement. The THP correctly identifies this activity as requiring notification to DFG for an SAA. The THP does not include a water drafting plan. Title 14 CCR 916.9(r)(2) requires a water drafting plan to be provided when the RPF determines that certain criteria are met, including bypass flows less than two cubic feet per second (cfs). In first review, DFG requested bypass flow information from the RPF. The RPF responded by stating that "the flow is healthy throughout the summer." The THP asserts that bypass flows will exceed 2.0 cfs during drafting.

During the November 28th PHI, the review team inspected the proposed drafting site. Based on ocular estimate, the instream flow at this time was about 0.5 cfs with a maximum water depth of 0.6 feet.

Available records from the USGS gauging station of the San Vicente Creek in Davenport, well downstream of the plan area, show summer flows less than 2.0 cfs for part or all of the summer for 5 out the 10 years for which data is available (for example see Figure 5). While the relationship between instream flow at the drafting site and the gauging station is not known, this data suggests that the summer flow at the proposed drafting site can be reasonably expected to drop below 2.0 cfs in some, if not all years. DFG recommends that the THP include a water drafting plan as required by 14 CCR § 916.9(2) (**Recommendation 17**).

Passive drafting as proposed may be acceptable provided that water withdrawals do not adversely impact or contribute to adverse impacts to aquatic habitat. DFG will make further comments on proposed water drafting through the SAA.

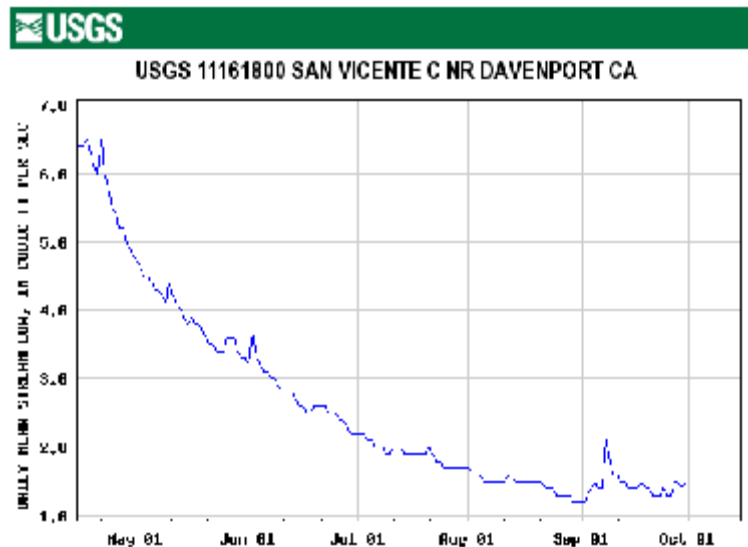


Figure 5. 1985 Gauging record.

Lake and Streambed Alteration Agreement Notification

In addition to proposed water drafting and bridge installation, notification to DFG for an SAA is also required for any work at crossing cc. As discussed above, in order for the THP to serve as the notification document, it must include all information required by Fish and Game Code § 1611.

Incorrect or incomplete information was found in the THP with respect to SAA activities. As described above, an accurate description of summer flow and bypass flows at the diversion point is required. In addition, the SAA Project Questionnaire included in the THP states shows a “No” answer to the question regarding the potential presence of endangered or threatened species. However, the THP elsewhere describes the potential presence of California red-legged frogs in the same portion of the plan area where the bridge installation is proposed. DFG recommends that the RPF review all information in the THP related to SAA notification and revise as necessary (**Recommendation 18**).

Marbled Murrelet

The THP discusses marbled murrelets (*Brachyramphus marmoratus*) under Section II, Item 32 and elsewhere in the plan. The THP states that suitable habitat is absent from the plan area and unknown adjacent to the plan area.

The marbled murrelet is listed as threatened under FESA and as endangered under CESA. The FESA and CESA prohibit unauthorized take of listed species. Title 14 CCR § 898.2(d) requires disapproval of plans which will result in take of a listed species, unless such take is authorized by a jurisdictional wildlife agency. Title 14 CCR § 919.11 requires the Director of CDF to consult with DFG or the U. S. Fish and Wildlife Service (USFWS) as to whether the THP will result in take or jeopardy of marbled murrelet. This section also requires the Director to disapprove a plan if DFG determines that jeopardy or take will occur as a result of proposed operations unless take is authorized by DFG or the USFWS. Title 14 CCR § 1036.1 requires the plan submitter to consult with DFG or USFWS and develop and amend protection measures upon discovery of an active murrelet site or other potential for impacts to murrelets on an active harvesting plan.

DFG has records of detections, including occupation behavior, of marbled murrelets approximately two miles east of the plan area in Henry Cowell Redwoods State Park and approximately 2.25 miles west of the plan area in the Big Creek drainage (see Figure 6). A historical detection is recorded less than a mile away in the upper Big Creek drainage. DFG also has records of marbled murrelet detections at the mouths of San Vicente Creek, Waddell Creek, Scott Creek, Majors Creek, and other nearby coastal drainages. The plan area is approximately 4-6 air miles from the coast.

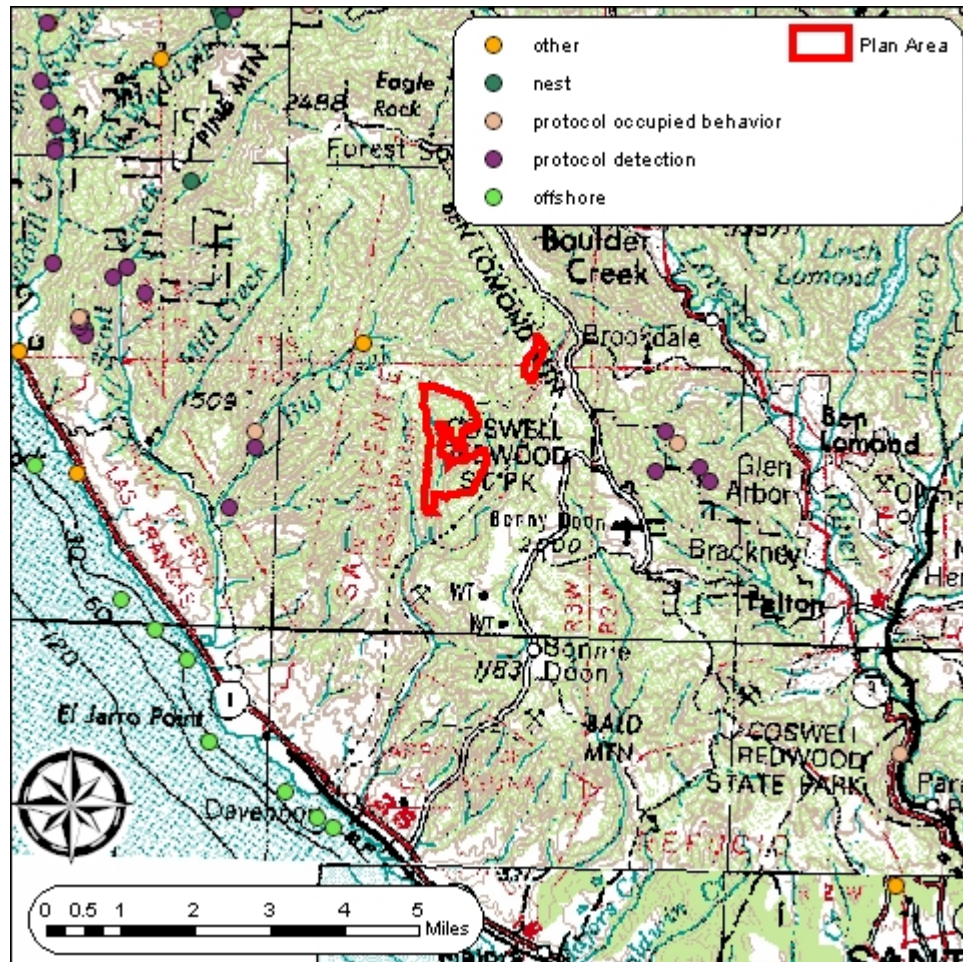


Figure 6. Marbled murrelet detections in vicinity of plan area (CDFG 2003).

During the November 28th PHI, our representatives noted the presence of dominant large diameter Douglas-fir in the upper hardwood treatment unit which may have suitable structure for marbled murrelet nesting. One tree in particular was noted just west of Warrenella Road within 100 feet of Gate 3 (Figure 7).



Figure 7. Douglas-fir with suitable platforms for marbled murrelet nesting.

Proposed operations may result in take of marbled murrelets if suitable habitat on or within ¼-mile of the plan area is occupied and if operations occur within 300 feet of occupied areas or within ¼-mile of occupied areas during the breeding period. DFG recommends that the RPF consult with DFG regarding the need for surveys and/or protection measures to avoid take of marbled murrelets. No operations shall commence until consultation with DFG is completed and any necessary protection measures are included in the THP (**Recommendation 19**).

Raptors and Nesting Birds

The THP specifies measures to be applied in the event that the occupied nest of a listed species is detected during operations. Fish and Game Code 3505.5 prohibits the destruction of nests or eggs of raptors and owls. DFG recommends that the measures specified are expanded to cover nests of non-listed raptors and owls such as Cooper's hawks and sharp-shinned hawks (**Recommendation 20**).

Rare Plants

The THP specifies that no operations shall occur until a seasonally appropriate plant survey is performed and requires protection of any detected plants, including the amendment of specific protection measures. DFG recommends that botanical surveys be completed according to the Department's "Guidelines for Assessing Effects of Proposed Projects on Rare, Threatened and Endangered Plants and Natural Communities," (CDFG 2000) available on DFG's website at <http://www.dfg.ca.gov/whdab/html/plants.html> (**Recommendation 21**).

Based on association with North Coast coniferous forest (CNPS 2001), the THP identifies the following species as having the potential to occur on the plan area: Santa Cruz manzanita, Dudley's lousewort, maple-leaved checkerbloom, Santa Cruz microseris, Santa Cruz clover, and Santa Cruz mountains beardtongue. However, as described above, the plan area includes several different habitat types. DFG recommends expanding the list of potentially occurring rare, threatened, or endangered plant species to include the following taxa (**Recommendation 22**):

1. *Amsinckia lunaris* bent-flowered fiddleneck
2. *Anomobryum julaceum* slender silver-moss
3. *Arctostaphylos andersonii* Santa Cruz manzanita
4. *Arctostaphylos pajaroensis* Pajaro manzanita
5. *Arctostaphylos regismontana* Kings Mountain manzanita
6. *Arctostaphylos silvicola* Bonny Doon manzanita
7. *Arenaria paludicola* marsh sandwort
8. *Campanula californica* swamp harebell
9. *Carex comosa* bristly sedge
10. *Carex saliniformis* deceiving sedge
11. *Chorizanthe pungens* var. *hartwegiana* Ben Lomond spineflower
12. *Chorizanthe robusta* var. *robusta* robust spineflower
13. *Cupressus abramsiana* Santa Cruz cypress
14. *Eriogonum nudum* var. *decurrens* Ben Lomond buckwheat
15. *Erysimum teretifolium* Santa Cruz wallflower

16. *Horkelia cuneata* ssp. *sericea* Kellogg's horkelia
17. *Malacothamnus arcuatus* arcuate bush mallow
18. *Microseris paludosa* marsh microseris
19. *Pedicularis dudleyi* Dudley's lousewort
20. *Penstemon rattanii* var. *kleei* Santa Cruz Mountains beardtongue
21. *Plagiobothrys chorisianus* var. *chorisianus* Choris's
22. *Sidalcea malachroides* maple-leaved checkerbloom
23. *Trifolium buckwestiorum* Santa Cruz clover
24. *Usnea longissima* long-beard lichen

Santa Cruz manzanita (*Arctostaphylos andersonii*) is a rare and endemic (regional restricted) manzanita of the Santa Cruz Mountains that has only 24 recorded occurrences in the California Natural Diversity Database (CDFG 2005). Fourteen of these occurrences are historical (greater than 20 years old). The CNDDDB assigns this taxon a global rank of "G2" and a State rank of "S2?" (endangered with 6-20 element occurrences, 1,000-3,000 individuals, or 2,000-10,000 acres). Santa Cruz manzanita is on the CNPS List 1B ("rare, threatened, or endangered in California and elsewhere," CNPS 2001). This species can be locally common, but is limited in distribution statewide.

The THP describes the presence of 26 occurrence areas of Santa Cruz manzanita on the plan area. The THP states that these occurrence areas will be shown to the Licensed Timber Operator (LTO) and that the LTO will attempt to avoid disturbing the plants. The THP identifies five occurrence areas where plants will be flagged and avoided by operations. Revised pages include a map of the five areas where Santa Cruz manzanita will be protected from disturbance.

DFG recommends that the THP specify the following for Santa Cruz manzanita (**Recommendation 23**):

1. A 50-foot buffer shall be established around the five Santa Cruz manzanita retention areas. Timber shall be felled away from the retention areas. The buffer may be an Equipment Exclusion Zone (EEZ), or Equipment Limitation Zone (ELZ) if there are existing roads or skid trails that will need to be used. Activities within the ELZ should only entail light grading and use of the running surface, and reinstallation of existing waterbars. Other activities or new waterbars in retention areas shall not occur without consultation with DFG.
2. A map showing the location and a description of the shape and area(s) of each occurrence area. Highly scattered occurrence areas should be broken out from concentrated occurrence areas.

3. The number of individual plants in each occurrence area. If occurrence is greater than 100 plants, an estimate of the number of individuals.
4. Estimated percent of plants in reproductive condition and percent of seedlings in each occurrence area.
5. Foreseeable activities and post-harvest stand condition within 50 feet of each occurrence area.
6. Percent of each occurrence area which will be avoided by operations.
7. If greater than 25 percent of the plants will be impacted, monitoring at one to two and three to five years post-harvest should be prescribed in the THP¹. The monitoring should include two seasonally appropriate census and mapping of the occurrence areas, and brief discussion and comparison of post-harvest and pre-harvest conditions and number of plants.
8. The completion and submission of a CNDDDB field form and copy included in the THP².
9. All subsequent surveys and proposed mitigation or monitoring should be submitted to DFG at least 10 working days prior to operations or submission as an amendment.

Exotic and Invasive Plant Species

A small number of pampas grass (*Cortaderia* spp.) plants were noted along the haul road. These plants aggressively compete with native plant species (Bossard and others 2000). Proposed activities are likely to contribute to the growth and spread of these pampas grass plants by disturbing soils and decreasing shade in close proximity to extant seed sources. We recommend that the THP specify measures to destroy existing pampas grass plants and minimize the growth and spread of this invasive species (**Recommendation 24**). At a minimum, these measures should include pre-operational treatment, evaluation and, if necessary, follow-up treatment during the life of the THP. The California Invasive Plant Council website (www.cal-ipc.org) is a good source of information on invasive plants and includes recommendations for control treatments. We suggest reviewing information on this site during development of erosion control measures.

¹ Pursuant to CEQA § 21081.6 and Guidelines Section 15097, when a lead agency adopts mitigation for significant effects, the agency is required to adopt either a monitoring or reporting program for the mitigation measures in order to ensure compliance during project implementation.

² It is the intent of CEQA (§ 21003) to make sure relevant information (such as sensitive species occurrences) is not only disclosed but is available for subsequent environmental reports and review through a data base. CNDDDB is the State clearing house set up for this purpose by DFG, and is available to State agencies and the public. CNDDDB facilitates not only future project development and review, but also provides important biological data on range, habitat and status.

Snag/Nest/Den Trees

Snags (standing dead or mostly dead trees) are important forest habitat features which provide for nesting, foraging, and roosting by a variety of bird species and denning for many mammal species. According to the "Department of Fish and Game Snag Resource Evaluation" (Richter 1993) a mean value of three snags per acre should be retained across the landscape.

Large-diameter living trees are also important wildlife elements for species which utilize forested habitats. Much of the habitat value of these elements is provided by mast production, dominant canopy position, and the presence of structural characteristics including cavities, reiterated crowns, basal fire scars, platforms, dead tops, and particularly basal hollows (Mazurek and Zielinski 2004). Young second-growth conifers in smaller diameter classes tend to have relatively simple architecture: a single main bole with a crown comprised of small diameter horizontal lateral branches. Due to both increased light availability resulting from dominant canopy position and crown injuries attendant to age, older conifers may develop multiple re-sprouted trunks arising from other trunks and branches. In older redwoods, the resulting complex crowns promote biological diversity by providing a substrate for organic material and humic development, a substrate for vegetation, habitat for soil and terrestrial fauna, and food sources for birds (Sillett and Pelt 2000). In the redwood region, large-old Douglas-fir have particular value as habitat elements due to their susceptibility to cavity decay and tendency to develop large limbs, moss accumulation, and complex crown structure at a younger age than redwood. Disclosure and evaluation of potentially significant impacts to large old trees is a requirement of the FPRs (Shintaku 2005).

There is a common misconception that the selection method automatically provides for adequate snag/nest/den tree retention and recruitment. While selection forestry facilitates snag/nest/den tree recruitment by maintaining green trees necessary to replace hard snags, further consideration is necessary to ensure that trees are retained through senescence and mortality. Recruitment may be interrupted through thinning or felling of stems in the upper size classes.

The THP describes snag, nest, and den trees as present on the plan area and states that all present shall be retained. The THP does not provide information on the density or distribution of snag/nest/den trees.

East of crossing p, there is a small stand of ponderosa pine which is the remains of a planting experiment in the 1970s. These trees are closely spaced and have fruiting bodies of wood decay fungi on the boles. Retention of these trees to allow the recruitment of soft snags would provide valuable and scarce structural elements for wildlife.

In order to comply with 14 CCR § 913.11(b)(2), meet the objectives of 14 CCR §§ 897(b)(1)(B and C), and otherwise provide for continuity, replacement, and recruitment of snag/nest/den trees at adequate densities through future harvest rotations, measures beyond what are currently specified in the THP are necessary. DFG recommends that the THP include more specific enforceable conditions to ensure the retention and recruitment of snag/nest/den trees through future harvests and management actions (**Recommendation 25**). We suggest the following:

- retention of Ponderosa pine east of crossing “p”
 - retention of all trees with basal hollows
 - retention of all snags except for those which present unavoidable safety hazards
 - no salvage operations of material greater than 18 inches diameter on the THP area
 - a table and a map of all trees marked with a “W” showing species, diameter, height to 8-inch diameter, and a description of defects or other characteristics suitable for wildlife:
 - minimum average three trees per acre
 - may only include hard snags
 - include all large-diameter, large-limbed dominant/co-dominant Douglas-fir
 - include all old-growth and residual redwoods
 - no conifer less than 36 inches diameter at breast height (d.b.h.)
 - no hardwood greater than 24 inches
 - for each “W” tree damaged during operations, a suitable replacement tree of equivalent or greater diameter and age shall also be retained.

California Red-legged frogs

The THP describes the potential presence of California red-legged frogs on the plan area and recorded observations downstream of the plan area. The California red-legged frog is listed under FESA. Title 14 CCR 898.2(d) requires disapproval of plans which will result in take of a listed species, unless such take is authorized by a jurisdictional wildlife agency.

The THP refers to sediment control measures, seasonal restrictions, WLPZ restrictions, and time-of-day restrictions as providing protection for the frog. The THP includes a completed 1996 checklist form³ and a copy of a letter sent to the USFWS. DFG will defer judgment to the USFWS regarding the potential for and appropriate measures to avoid take of California red-legged frogs. However, review of the completed checklist and the 1996 *Interim Guidelines* (U.S. Fish and Wildlife Service 1996) indicates that the checklist was improperly completed. The last two items on the checklist ask whether there are riparian and upland habitats within the plan area which may be affected by timber harvest activities. The RPF has checked “no” to these items and not included all of the specified mitigations even though the THP elsewhere recognizes the presence of these habitat types within and adjacent to the plan area. These errors appear to arise from the RPF’s interpretation of “affect” to mean “significantly alter.” It should be noted that mitigations specified in the *Interim Guidelines* for “yes” answers to these items refer to activities which occur outside of channels and may not, in and of themselves, “significantly alter” riparian or upland habitats.

At this time the THP is inconsistent with the *Interim Guidelines* project conditions for avoiding take of California red-legged frogs. This is principally due to the proposed use of haul and tractor roads around the area by crossing y. The THP may avoid disapproval required by 14 CCR 898.2(d) by one of the following options:

- Adoption of all mitigation measures specified in the *Interim Guidelines*.
- Performance of protocol site assessment and surveys by qualified persons (see U.S. Fish and Wildlife Service 2005) which demonstrate that red-legged frogs are not likely to be present on the plan area.
- Incorporating the terms of an incidental take authorization from the USFWS into the THP.

Need for Additional PHI

Due to the incompleteness of information at the time of the PHIs and the ensuing need for a large number of recommendations, including many which were made for compliance with 14 CCR § 897(b)(3) and to avoid disapproval required by 14 CCR 898.2(c) (see recommendations 1-8, 11-17, 23, 25, and 26), DFG believes that the PHI should be held open and an additional site visit is necessary in order to consider the

³ In 2005, the USFWS issued a revised guidance on field assessment and survey for California red-legged frogs U.S. Fish and Wildlife Service. 2005. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog. p 26. .

effects of the THP based on complete information and to confirm the proper incorporation of these recommendations.

Recommendations

DFG recommends the following site-specific and feasible mitigation measures be incorporated as enforceable provisions of the harvesting plan:

1. **Prior to the next site visit**, the class II watercourse and associated culvert crossing at mile post 1.8 and between crossings dd and hh shall be identified in the THP and afforded the full protective measures of the FPR.
2. **Prior to the next site visit**, the class I/class II transition point on the western tributary of San Vicente Creek shall be moved 500 feet upstream of the location shown in the December 30 revisions.
3. **Prior to the next site visit**, the detail map of the flood prone area west of crossing y shall be revised to include the areas between the base of slope to the west and the class I watercourse to the east. The watercourse channels shall be identified and mapped. All of the information required by 14 CCR 916.4 shall be provided. We suggest that the area be flagged and avoided by all operations.
4. **Prior to the next site visit**, the wet area in the vicinity of landing I shall be identified in the THP. The THP shall specify that this area will be flagged and avoided by operations.
5. **Prior to the next site visit**, the THP shall identify the wet area approximately 150 feet east of dd. The THP shall specify that this area will be flagged and avoided by operations or detail alternate protection measures.
6. **Prior to the next site visit**, the THP shall demonstrate that the culvert at crossing dd is properly sized for a 100-year flow and debris. If culvert size is insufficient, the culvert shall be replaced. Appropriate corrective work to the road drainage shall be specified.
7. **Prior to the Review Team Meeting**, the THP shall specify periodic cleaning, monitoring, and appropriate maintenance of the culvert at gg.
8. **Prior to the next site visit**, the THP shall provide further detail on crossing y. This shall include:
 - (a) all information required under Fish and Game Code § 1611
 - (b) detailed sketch of bridge installation showing the footings, watercourse channel and road approaches
 - (c) design showing lowest point of bridge at least 3 feet above 100-year water surface elevation
9. **Prior to the Review Team Meeting**, the winter operation plan shall prohibit the use of pick-up trucks or heavy equipment following 2 inches of cumulative rainfall and between April 16 and May 1.

10. **Prior to the next site visit**, the THP shall specify that the haul road will be rocked from the unmapped culvert crossing at mile post 1.8 to the first break in slope to the north.
11. **Prior to the next site visit**, the THP shall specify appropriate erosion control measures for the northern approach to crossing dd.
12. **Prior to the next site visit**, the THP shall delete the proposed use of landing DD. If the RPF wishes to establish the landing at a different site, the THP shall fully describe the site, including a detail sketch showing the landing, haul road, watercourses, WLPZ boundaries, and any unstable features.
13. **Prior to next site visit**, the THP shall provide detail of erosion control measures to be implemented on the haul road north of landing DD. Treatment shall include road abandonment, slash packing, maintenance of waterbar, and armoring of the waterbar outfall with appropriately sized rock.
14. **Prior to the next site visit**, the THP shall specify the placement of a crib log where the in-lieu tractor road south of crossing f is adjacent to the top of bank of the watercourse.
15. **Prior to the next site visit**, the THP shall include a property-wide erosion control plan.
16. **Prior to the next site visit**, the THP shall specify additional measures to promote the recruitment of LWD into the western tributary of the watercourse flowing through crossing y.
17. **Prior to the next site visit**, the THP shall include a water drafting plan.
18. **Prior to the next site visit**, the RPF shall review all information in the THP related to Lake and Streambed Alteration Agreement notification and revise as necessary.
19. **Prior to the Review Team Meeting**, the THP shall state that no operations shall occur until consultation with DFG for marbled murrelets is completed and any necessary protection measures are included in the THP.
20. **Prior to Review Team Meeting**, the THP shall include all raptors and owls in the nest protection measures specified under Section II, Item 32.
21. **Prior to Review Team Meeting**, the THP shall specify that no operations shall occur until seasonally appropriate and floristic surveys in sensitive plant habitat areas in a manner consistent with the *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities* have been conducted.
22. **Prior to the Review Team Meeting**, the list of potentially occurring rare, threatened, or endangered plant species shall be expanded to include the following:
 - (a) *Amsinckia lunaris* bent-flowered fiddleneck
 - (b) *Anomobryum julaceum* slender silver-moss
 - (c) *Arctostaphylos andersonii* Santa Cruz manzanita

- (d) *Arctostaphylos pajaroensis* Pajaro manzanita
- (e) *Arctostaphylos regismontana* Kings Mountain manzanita
- (f) *Arctostaphylos silvicola* Bonny Doon manzanita
- (g) *Arenaria paludicola* marsh sandwort
- (h) *Campanula californica* swamp harebell
- (i) *Carex comosa* bristly sedge
- (j) *Carex saliniformis* deceiving sedge
- (k) *Chorizanthe pungens* var. *hartwegiana* Ben Lomond spineflower
- (l) *Chorizanthe robusta* var. *robusta* robust spineflower
- (m) *Cupressus abramsiana* Santa Cruz cypress
- (n) *Eriogonum nudum* var. *decurrens* Ben Lomond buckwheat
- (o) *Erysimum teretifolium* Santa Cruz wallflower
- (p) *Horkelia cuneata* ssp. *sericea* Kellogg's horkelia
- (q) *Malacothamnus arcuatus* arcuate bush mallow
- (r) *Microseris paludosa* marsh microseris
- (s) *Pedicularis dudleyi* Dudley's lousewort
- (t) *Penstemon rattanii* var. *kleei* Santa Cruz Mountains beardtongue
- (u) *Plagiobothrys chorisianus* var. *chorisianus* Choris's
- (v) *Sidalcea malachroides* maple-leaved checkerbloom
- (w) *Trifolium buckwestiorum* Santa Cruz clover
- (x) *Usnea longissima* long-beard lichen

23. Prior to next site visit, the THP shall specify the following for Santa Cruz manzanita:

- (a) A 50-foot buffer shall be established around the five Santa Cruz manzanita retention areas. Timber shall be directional felled away from the retention areas. The buffer can be an Equipment Exclusion Zone (EEZ), or Equipment Limitation Zone (ELZ) if there are existing roads or skid trails that will need to be used. Activities within the ELZ should only entail light grading and use of the running surface, and reinstallation of existing waterbars. Other activities or new waterbars in retention areas shall not occur without consultation with DFG.
- (b) A map showing the location and a description of the shape and area(s) of each occurrence area. Highly scattered occurrence areas should be broken out from concentrated occurrence areas.
- (c) The number of individual plants in each occurrence area. If occurrence is greater than 100 plants, an estimate of the number of individuals.
- (d) Estimated percent of plants in reproductive condition and percent of seedlings in each occurrence area.
- (e) Foreseeable activities and post-harvest stand condition within 50 feet of each occurrence area.
- (f) Percent of each occurrence area which will be avoided by operations.

- (g) If greater than 25 percent of the plants will be impacted, monitoring at one to two and three to five years post-harvest should be prescribed in the THP. The monitoring should include two seasonally appropriate census and mapping of the occurrence areas, and brief discussion and comparison of post-harvest and pre-harvest conditions and number of plants.
 - (h) The completion and submission of a CNDDDB field form and copy included in the THP.
 - (i) All subsequent surveys and proposed mitigation or monitoring should be submitted to DFG at least 10 working days prior to operations or submission as an amendment.
24. **Prior to the Review Team Meeting**, the THP shall specify measures for pre-operational control and post-operations assessment and re-treatment of pampas grass.
25. **Prior to the next site visit**, the THP shall include more specific enforceable conditions to ensure the retention and recruitment of snag/nest/den trees through future harvests and management actions.
26. **Prior to the next site visit**, the THP shall demonstrate that take of California red-legged frogs is unlikely through one or more of the following:
- (a) Adoption of all mitigation measures specified in the *Interim Guidelines*.
 - (b) Performance of protocol site assessment and surveys by qualified persons (see U.S. Fish and Wildlife Service 2005) which demonstrate that red-legged frogs are not likely to be present on the plan area.
 - (c) Incorporating the terms of an incidental take authorization from the USFWS into the THP.

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