

**OFFICIAL RESPONSE TO SIGNIFICANT ENVIRONMENTAL
POINTS RAISED DURING THE TIMBER HARVESTING PLAN
EVALUATION PROCESS**

**FROM THE DIRECTOR OF THE CALIFORNIA DEPARTMENT OF
FORESTRY AND FIRE PROTECTION (CAL FIRE)**

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| TIMBER HARVESTING PLAN (THP) No: | 1-21-00031 HUM |
| SUBMITTERS: | Humboldt Redwood Company LLC 3030 Ranch LLC Co. |
| COUNTY: | Humboldt |
| END OF PUBLIC COMMENT PERIOD: | June 7, 2021 |
| DATE OF RESPONSE AND APPROVAL: | July 28, 2021 |

The California Department of Forestry and Fire Protection (CAL FIRE) serves as the lead agency in the review of Timber Harvesting Plans. These plans are submitted to CAL FIRE, which directs a multidisciplinary review team of specialists from other governmental agencies to ensure compliance with environmental laws and regulations. As a part of this review process, CAL FIRE accepted and responded to comments, which addressed significant environmental points raised during the evaluation of the plan referenced above. This document is the Director's official response to those significant environmental points, which specifically address this Timber Harvesting Plan. Comments, which were made on like topics, have been grouped together and addressed in a single response. Remarks concerning the validity of the review process for timber operations, questions of law, or topics and concerns so remote or speculative that they could not be reasonably assessed or related to the outcome of a timber harvesting operation, have not been addressed.

Sincerely,



Dominik Schwab
Forester III, Forest Practice
RPF #2823

Staff Forester / JR

cc: RPF, Unit, File; Timber Owner, Timberland Owner and/or Submitter
CP, CDFW, DPR, & RWB (through <https://caltreesplans.resources.ca.gov/caltrees/caltrees.aspx>)

PUBLIC NOTIFICATION

To inform the public of this proposed Timber Harvesting Plan (THP) and determine if there were any concerns with the plan the following actions were taken:

- Notification of the receipt of a timber harvesting plan was sent to the adjacent landowner(s).
- Notice of the receipt of the plan was submitted to the county clerk for posting with other environmental notices.
- Notice of the plan was posted at the Department's local office and also at the regional office in Santa Rosa.
- Notice of the receipt of the THP was sent to those organizations and individuals on the Department's list for notification of plans in the county.
- A "Notice of the Intent to Harvest Timber" was posted near the plan site.

THP REVIEW PROCESS

The laws and regulations that govern the Timber Harvesting Plan review process are found in Statute law in the form of the Forest Practice Act which is contained in the Public Resources Code (PRC) and Administrative law in the rules of the Board of Forestry and Fire Protection (the Forest Practice Rules) which are contained in the California Code of Regulations (CCR).

The Forest Practice Rules are lengthy in scope and detail and provide explicit instructions for permissible and prohibited actions that govern the conduct of timber operations in the field. The major categories covered by the rules include:

- Timber Harvesting Plan contents and the Timber Harvesting Plan review process
- Silvicultural methods
- Harvesting practices and erosion control
- Site preparation
- Watercourse and lake protection
- Hazard reduction
- Fire protection
- Forest insect and disease protection practices
- Coastal Commission Special Treatment Areas
- Use, construction and maintenance of logging roads and landings
- County-specific rules

When a THP is submitted to the Department, it undergoes a multidisciplinary review consisting of several steps. In addition to CAL FIRE, the Review Team members include representatives of the California Department of Fish and Wildlife (CDFW); the appropriate Regional Water Quality Control Board (RWQCB or RWB); California Geological Survey (CGS); the Department of Parks and Recreation (DPR); the appropriate County Planning office; and if within their jurisdiction, the Coastal Commission (CC) (14 CCR §1037.5(a)). Once submitted the Director determines if the plan is accurate, complete, and in proper order, and if so, files the plan (14CCR §1037). In addition, the Review Team determines whether a Pre Harvest Inspection (PHI) is necessary, and what areas of concern are to be examined during the inspection (14 CCR §1037.5(g)(1)).

If the plan is accepted for filing, and a PHI is determined to be needed, a field review is conducted to evaluate the adequacy of the THP. All agency personnel who comprise the multidisciplinary Review Team are invited to attend the PHI as well as other experts and agency personnel whom the Department may request. During this field review, additional mitigation and/or recommendations may be formulated to provide greater environmental protection. These recommendations are forwarded to the RPF along with the Review Team member's PHI Report. The RPF will respond to the recommendations made and forward these to the Region office and Second Review Team Chair.

A Second Review Team meeting is held where members of the multidisciplinary Review Team meet to review all the information in the plan, and develop a recommendation for the Director (14 CCR §1037.5(g)(2)). Prior to and/or during this meeting they examine all field inspection reports, consider comments raised by the public, and discuss any additional recommendations or changes needed relative to the proposed THP. These recommendations are forwarded to the RPF. If there are additional recommendations, the RPF will respond to each recommendation, and forward his responses to the regional office in Santa Rosa.

The representative of the Director of the Department reviews all documents associated with the proposed THP, including all mitigation measures and plan provisions, written correspondence from the public and other reviewing agencies, recommendations of the multidisciplinary Review Team, and the RPF's responses to questions and recommendations made during the review period. Following consideration of this material, a decision is made to approve or deny a THP.

If a THP is approved, logging may commence. The THP is valid for up to five years, and may be extended under special circumstances for a maximum of two more years, for a total of seven years.

Prior to commencing logging operations, the Registered Professional Forester must meet with the licensed timber operator (LTO) to discuss the THP (CCR §1035.2); a CAL FIRE representative may attend this meeting. The Department makes periodic field inspections to check for THP and rule compliance. The number of inspections depends upon the plan size, duration, complexity, and the potential for adverse impacts. Inspections include but are not limited to inspections during operations pursuant to Public Resources Code (PRC) section 4604, inspections of completed work pursuant to PRC section 4586, erosion control monitoring as per PRC section 4585(a), and stocking inspection as per PRC section 4588.

The contents of the THP, the Forest Practice Act, and rules, provide the criteria which CAL FIRE inspectors use to determine compliance. While the Department cannot guarantee that there will be no violations, it is the Department's policy to vigorously pursue the prompt and positive enforcement of the Forest Practice Act, the Forest Practice Rules, related laws and regulations, and environmental protection measures that apply to timber operations on non-federal land in California. This enforcement is directed primarily at preventing forest practice violations, and secondarily at prompt and adequate correction of violations when they occur.

The general means of enforcement of the Forest Practice Act, the rules, and other related regulations range from the use of violation notices, which require corrective action, to criminal proceedings through the court system. Timber operator and Registered Professional Forester

licensing action may also be pursued. Most forest practice violations are correctable and the Department's enforcement program assures correction. Where non-correctable violations occur, criminal action is usually taken. Depending on the outcome of the case and the court in which the case is heard, some sort of environmental corrective work is usually done. This is intended to offset non-correctable adverse impacts.

Once harvesting operations are finished, a completion report must be submitted certifying that the area meets the requirements of the rules. CAL FIRE inspects the area to verify that all aspects of the applicable rules and regulations have been followed, including erosion control work. Depending on the silvicultural system used, the stocking standards of the rules must be met immediately or in certain cases within five years. A stocking report must be filed to certify that the requirements have been met.

FOREST PRACTICE TERMS

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| BOF | California Board of Forestry and Fire Protection | HRC | Humboldt Redwood Company LLC |
| CAL FIRE | Calif. Dept. of Forestry & Fire Protection | LTO | Licensed Timber Operator |
| CCR | California Code of Regulations | MATO | Master Agreement for Timber Operations |
| CDFW | California Department of Fish and Wildlife | MSP | Maximum Sustained Production of High Quality Timber Products |
| CEG | Certified Engineering Geologist | NCRWQCB | North Coast Water Quality Control Board |
| CEQA | California Environmental Quality Act | NSO | Northern Spotted Owl |
| CESA | California Endangered Species Act | OR | Official Response |
| CIA | Cumulative Impacts Assessment | PC | Public Comment |
| CGS | California Geological Survey | PHI | Pre-Harvest Inspection |
| CSDS | Controllable Sediment Discharge Sources | PRC | Public Resources Code |
| DBH/dbh | Diameter Breast Height | RMZ | Riparian Management Zone |
| DDD | Director's Determination Date | RWB | Regional Water Quality Control Board |
| DPR | Department of Pesticide Regulation | RPF | Registered Professional Forester |
| ECP | Erosion Control Plan | STZ | Special Treatment Zone |
| EEZ | Equipment Exclusion Zone | THP | Timber Harvesting Plan |
| EHR | Erosion Hazard Rating | TPZ | Timber Production Zone |
| FPR | California Forest Practice Rule | USFWS | U.S. Fish and Wildlife Service |
| GEO | Geology | WAA | Watershed Assessment Area |
| GHG | Greenhouse Gas | WDR | Waste Discharge Requirements |
| HCP | Habitat Conservation Plan | WLPZ | Watercourse and Lake Protection Zone |

BACKGROUND

Timber Harvesting Plan (THP) # 1-21-00031-HUM "Pint O McGinnis" proposes to harvest timber on 248.2 acres of Humboldt Redwood Company LLC (HRC) timberland using the group selection, selection, variable retention, right-of-way, and no harvest silvicultural methods. The THP was received by CAL FIRE on March 11, 2021, accepted for filing on March 18, 2021, and a Preharvest Inspection (PHI) was conducted on April 8, 2021 and May 6, 2021. Attendees on the PHI included Michael Miles (HRC), Shane Beach (HRC), Jeff Smith (HRC), Becky Lindemann (HRC), Richard Sykes (landowner), Joelle Geppert (RWB), John Oswald (CGS), Sara Gallagher (CGS), Sue Sniado (CDFW), and Tim Meyers (CAL FIRE Inspector). The PHI was extended for a second day on May 6, 2021, to allow DFW to attend and to review additional road construction information. The Final Interagency Review (aka Second Review) occurred on May 27, 2021, where the the Second Review Chair recommended the Plan for approval. The public comment period then ended on June 7, 2021. The initial deadline for the Director's Determination Deadline (DDD) was set for June 28, 2021 per 14 CCR § 1037.4. Three extensions were granted extending the DDD to July 12, 2021, then July 26, 2021, and finally to July 28, 2021 in order to address public comments and generate the Official Response (OR) to concerns brought up by the public.

PUBLIC COMMENT SUMMARY

During the public comment period for this THP as described above, there were 15 public comment letters from 7 individuals received at the CAL FIRE Region Headquarters in Santa Rosa. These public comments brought up concerns that are addressed in this Official Response (OR). Two additional public comments were received after the public comment period closed that raised the same concerns that are addressed in this OR. General concerns are grouped by subject matter and followed by the Department's response. Original text taken directly from the public comments are presented as italicized text. Words that are emphasized in responses have underlined font. Unique individual concerns from a public comment letter are addressed after the general concerns immediately following that comment along with referencing any general comment responses that may be associated with that response. The public comments are identified with the CAL FIRE "PC" code. A copy of the original letters sent to the Department are viewable through the Department's online Forest Practice Database CalTREES.

CalTREES instructions: navigate to <https://caltreesplans.resources.ca.gov/caltrees/caltrees.aspx> Click the search icon at the top of the page, then type the Plan # in the Record Number box (county identifier not needed). Under the Document Number column, select the Plan Number for the "Timber Harvest Plan" Type. Below the "Record Details" should be a list of attachments for the Plan. (Note: if there are a substantial number of attachments, or attachments with large file sizes, it may take some time to load. The Public Comments are labeled under "Record Type" and are in pdf format, usually with a "PC" label.

SUMMARY OF SIGNIFICANT ENVIRONMENTAL GENERAL CONCERNS WITH RESPONSES

1. GENERAL CONCERN: Harvesting Second Growth Forest

There are several comments that have general concerns about harvesting second growth Douglas fir forest and its impact to late seral forest, wildlife habitat, biodiversity, and tree species composition. Most of the comments were general in nature but some were more specific such as:

- There may be discrepancies in the ages of trees list in the THP for unit 4
- The RPF should demonstrate that 10% hardwood composition is the historic level, which is naturally low compared to historic watershed conditions.
- There are very few hardwoods greater than 30" in the THP area. The THP should retain hardwoods greater than 24"
- There will be a late seral reduction in units 1, 3, and 4.
- The watershed is recovering and late seral forest should be retained.
- There is nothing preventing the company from growing older trees and harvesting them later.
- Concern that the silviculture is not harvesting from below to increase average tree size.
- Variable retention is extractive and will not build multiage stands
- Variable retention is closer to Clearcut than to Selection

RESPONSE: This THP proposes to harvest 248.2 acres using 95.6 acres of variable retention, 74.5 acres of selection, 29.5 acres of group selection, 47.6 acres of no harvest, and 1 acre of right-of-way. The THP describes the forest stand conditions on pages 108-109 of the THP:

Unit 1: A north facing, mostly even-aged stand of approximately 60 year old Douglas-fir (85%) and Grand fir (15%) averaging 250 square feet of basal area per acre. Diameters at breast height (dbh) averages 24 inches with a range from 12 to 60 inches. Hardwood is dispersed throughout the stand at an average of 40 sq.ft basal [area] per acre. Grassland encroachment of dense younger Douglas-fir exist along the upper edges of the stand. Overall crown canopy closure averages 95% making for a shaded, open understory. Understory vegetation includes evergreen huckleberry, a variety of ferns, occasional conifer and hardwood regeneration, and grasses and forbs. There is an average of approximately 1.0 to 1.5 snags >30" DBH and 30' tall, and 1.5 large down logs per acre.

Unit 2: A highly variable, north facing stand of mixed conifer-hardwood. The stand is patchy in nature with Douglas-fir (85%) and Grand Fir (15%) basal area ranging from 40 to 300 square feet per acre. Overall average conifer basal area is 135 square feet per acre. The average conifer age is approximately 60 years. Diameters range from 12 to 48 inches with an average 26 inches dbh. Hardwood basal area averages 95 square feet per acre. Crown canopy closure is variable (60-95%) making for areas of dense huckleberry and other brush species intermixed with a more open understory. There is an average of approximately 1.0 to 1.5 snags >30" DBH and 30' tall, and 1.5 large down logs per acre.

Unit 3: A mostly north facing ridgetop unit, stand conditions vary from conifer to hardwood dominated. Douglas-fire (90%) and Grand fir (10%) basal area ranges from 0 to 400

square feet per acre. Hardwoods including tanoak, madrone, and pepperwood dominate the northern half of the unit with an overall average of 175 square feet per acre. While the average conifer age is 60 years, older residual Douglas fir approximately 100 years of age can be found along the southern boundary. Conifer dbh ranges from 6 to 60 inches with an average DBH of 28 inches. Crown canopy closure is variable but generally ranges from 80 to 90 percent making for a typically open understory. The understory consists of evergreen huckleberry, conifer and hardwood regeneration, a variety of fern species and grasses and forbs. There is an average of approximately 1.0 to 1.5 snags >30" DBH and 30' tall, and 1.5 to 2.0 downed logs per acre.

Unit 4: A north facing, mixed conifer-hardwood unit located above McGinnis Creek. Conifer basal area ranges from 0 to 300 square feet per acre with an overall average of approximately 140 sq.ft/acre. Hardwood basal area ranges from 0 to 180 square feet per acre with an overall average of 80 sq.ft/acre. The eastern half of the unit is hardwood dominated transitioning to conifer dominance in the western half. Douglas-fir averages 50 - 60 years of age with diameters ranging from 18 to 48 inches DBH with an average of 22 inches dbh, Crown canopy closure is generally high at 90% making for an open understory. The understory consists of evergreen huckleberry, conifer and hardwood regeneration, a variety of fern species plus grasses and forbs. There is an average of approximately 1.0 to 1.5 snags >30" DBH and 30' tall, and 1.5 large down logs per acre.

The variable retention silviculture is a special prescription under 14 CCR 913.4(d), and is described as follows:

Variable retention is an approach to harvesting based on the retention of structural elements or biological legacies (trees, snags, logs, etc.) from the pre-harvest stand for integration into the post-harvest stand to achieve various ecological, social and geomorphic objectives. The major variables in the variable retention harvest system are retention types, densities, and spatial arrangement of retained structures; aggregated retention is the retention of structures or biological legacies as intact forest patches within the harvest unit; dispersed retention is the retention of structures or biological legacies in a dispersed or uniform pattern. Retained trees may be intended to become part of future stands managed by the Selection regeneration method. Retained trees are often designated as decadent tree or snag recruitment hence not ever intended for harvest. Regeneration after harvest outside of aggregated retention patches may be obtained by direct seeding, planting, sprouting, or by natural seedfall.

This THP proposes 95.6 acres of variable retention in units 2, 3, and 4. The variable retention system is described in detail on pages 126-129 of the THP. The variable retention areas have a high proportion of hardwoods, predominately tanoak. Tanoak is less desirable for commercial purposes and Maximum Sustained Production of High-Quality Timber Products (MSP). The variable retention harvest will allow HRC to maintain structural wildlife components throughout the THP area while improving the proportion of conifer species for long term MSP. These stands will be managed over time and will have no higher fire danger than the current forest. The harvest will break up the current

closed canopy of conifers and hardwoods, creating a mosaic of harvested and unharvested retention areas. It is true that variable retention removes more overstory trees like clearcutting rather than selection which retains trees of various sizes. However, variable retention retains trees from the original stand for the future and opens up the site so that Douglas-fir can be successfully regenerated.

On page 2, item 12, of the CAL FIRE PHI report it states:

Variable retention harvesting is being proposed in units 2,3 and 4. This silvicultural method is a special prescription that leaves 10 to 40% of the stands in dispersed or aggregated pockets of untouched trees and critical refugia with much of the original stand components from the site. This type of harvesting will benefit the shade intolerant Douglas firs that historically were the dominant conifer of the site.

Group selection and single tree selection are unevenaged silviculture and are described in the Forest Practice Rules (14 CCR 913.2):

Unevenaged management is utilized to establish and maintain an unevenaged stand structure. Unevenaged management attributes include the establishment and/or maintenance of a multi-aged, balanced stand structure, promotion of growth on leave trees throughout a broad range of Diameter classes, and encouragement of natural Reproduction.

The THP proposes 29.5 acres of group selection in unit 4. In group selection, ¼ acre to 2.5 acre openings are created in the forest to break up the continuity and to establish an uneven-aged forest. Groups are often used in areas where tanoak is dominant or less desirable species are harvested in clumps. These openings are then replanted with Douglas-fir to rehabilitate a stand to a preferred species composition and create a new age class to develop an uneven-aged forest. This method of harvesting is a way to accelerate a simplified young growth forest to a more diverse forest with a mix of tree size classes while retaining wildlife components. The post-harvest trees grow larger, develop larger limbs, and the gaps in the forest mimic natural disturbance to create diversity.

The THP proposes 74.5 acres single tree selection in unit 1 and throughout the Riparian Management Zones (RMZs) and selected geology areas. Within the single tree selection areas, a minimum of 75 square feet of basal area is retained by selectively cutting trees from all the size classes. Higher retention of 120 square feet of basal area is proposed for unit 1, which is higher than the FPR minimums. On THP page 116, the THP describes the reason selection silviculture was chosen:

This method will retain elements that provide perpetual, multi-aged stand structure, and maintain critical ecological refugia. Selection is being used to thin conifer-dominated stands of Douglas-fir and Grand fir across the range of merchantable diameter classes present. As trees are thinned out and the forest canopy is opened around retained trees, those trees will release and increase in annual growth. This increased growth continues until the residual crowns fill back in and the forest canopy closes. Periodic Selection harvest will maintain steady individual tree growth while allowing for smaller trees to fill in from beneath. Selection is a feasible silvicultural method, meeting the HCP requirements.

Throughout the THP area, unevenaged and variable retention silviculture are proposed to promote a long-term goal of unevenaged management. Variable retention is proposed in areas that are hardwood dominated. In these areas, there is a decision to “let it grow” or to actively manage the stands. HRC has decided that it is more advantageous to manage the hardwood dominated stands than to simply let them grow. Harvesting will open up the canopy to further encourage regeneration and promote uneven-aged forest. The pre-harvest stands all have a component of hardwoods. Selection harvest of these individually or in groups will allow for restoration of a more conifer dominated forest. The forest unit average tree DBH ranged from 22”- 28”. This does not indicate that a mature second growth stand or late seral stand is proposed for harvest. The CAL FIRE Inspector found the silviculture appropriate and that the tree marking was in compliance with the FPRs. Therefore, CAL FIRE concludes that the proposed silviculture is appropriate and the harvesting of second growth forest is not a significant impact.

On page 142 of the THP, HRC describes its Snags and Habitat Structural Components (HCP 6.11.2.2) Information. The HCP requires the retention of snags, live hardwood trees, down woody debris, and green retention trees. Please refer to page 142-144 for details on the HCP requirements. These structural wildlife components are retained to provide current and future wildlife habitat components across the watershed. Since these are currently scarce in the THP area, their retention is crucial.

There was some concern from the public that there were insufficient large hardwoods >30” DBH present and marked for retention (21PC-000000318) and that the RPF’s goal of 10% hardwood composition was not consistent with historical hardwood levels (21PC-000000316). The THP proposes to retain all live hardwood trees over 30 inches DBH that do not constitute a fire hazard. In addition, many smaller hardwoods will be maintained within the RMZs, group selection and selection units, as well as the variable retention areas. These retained hardwoods will benefit from harvesting which will decrease competition and allow them to grow larger faster than if no harvest occurred. No harvest would result in large hardwoods but would take a much longer timeframe. There is no requirement that hardwoods be retained at historic levels so the 10% goal as stated in the THP is reasonable, meets the landowner’s management objectives, and attains MSP. It is clear in the THP that significant hardwoods will be retained post-harvest. On page 194, the THP discusses the importance of hardwoods:

Hardwoods are an important component of wildlife habitat, providing suitable opportunities for roosting and nesting substrate, and food production. Hardwoods are evident throughout the BAA at varying levels and there is no shortage of hardwood cover. Species present in the BAA include tanoak, madrone, pepperwood, and big leaf maple. Hardwoods will be managed in the variable retention areas of the THP to the benefit of conifer occupancy however a full diversity of the species present pre-harvest shall be retained post harvest, including the largest hardwoods found on-site. These hardwoods will develop with the emerging conifer stand. No significant hardwood reduction will occur in riparian areas, or in the BAA as a whole, from THP implementation.

On page 195 of the THP, late seral forest characteristics and late seral forest habitat continuity are discussed. No old growth or late successional forest stands are proposed for harvest. The THP proposes to harvest 55-70 year old young growth forest while retaining a majority of the THP area in a high canopy condition. The THP states:

While no late succession forest stands are proposed for harvest, the THP does have critical wildlife habitat retention elements in place including the retention of individual pre-dominant large trees, snags, and large down wood - see THP items 33 and 34. In addition, Class I and II watercourse HCP Riparian management zones (RMZs) are being managed for late seral forest recruitment over time including substantial canopy retention post harvest, multiple canopy layers, and retention of large down wood - see THP item 26.

On page 145 of the THP, HCP late seral forest stands are discussed. As per the HCP, some of the forest in the THP area is considered late seral because it contains trees over 24" dbh which have begun to develop multi-storied structure. The HCP late seral stands in this THP are young growth forest predominately 55-70 years old. These stands lack functional late successional forest stand characteristics.

CAL FIRE has considered that, if the stands were left unmanaged, they would return to the "old growth" state after hundreds of years. In isolation this argument may have some validity. However, timber management is not a closed system. Timber is harvested to meet a demand. In California, the demand for wood products results in billions of board feet of lumber imports into the state each year, accounting for 80% of California's wood use. Currently, the demand for lumber is so high that lumber imports from other countries is growing. The impact of taking industrial timberlands out of production in California simply shifts the harvest to another state or country. HRC's HCP will achieve improved late seral habitat conditions over time while allowing active forest management. One public commenter (21PC-000000427) stated that there is no reason why HRC couldn't harvest old trees such as ones 300 years old:

Also, as you state, TPZ lands are dedicated to growing timber for commercial purposes and compatible uses, and have made a commitment to timber growing which requires many years for your "crop" to mature before harvest. However there is nothing in the zoning which requires that trees be harvested at prescribed intervals. The age at which much of Humboldt County's timber is harvested is now as young as 40 years, and never older than 90 years. There is nothing in the rules which says you cannot harvest the timber at 300 years, or indeed, older.

Douglas firs of the past commonly lived to a great age, and there are two or three still alive that are 1000 years old or more. They are world-class carbon sequesterers, and will perform this function, using less water per cubic foot, each year, control erosion, harbor wildlife and resist fire until your great great grandchildren generations from now have the pleasure of harvesting them.

This would be maximum sustained production in a comprehensive sense. It would be good business well, as the wood would increase in value.

Currently, HRC policy prohibits the harvest of trees in this age group. In addition, if old trees were proposed for harvest, these would be highly scrutinized by the public that want no harvest of old growth trees. As Douglas-fir age, their wood quality may improve or it may be subject to various diseases that lower wood value. In addition, many current mills are not equipped to handle large logs. There are many areas of HRC lands that are dedicated to growing later seral forest, including the RMZ in the proposed THP.

The no-harvest and single tree selection buffers within RMZs will maintain or enhance forest conditions by selectively harvesting individual trees, which will decrease competition and increase the trajectory of achieving a late seral habitat. Selection and group selection harvest and the variable retention silviculture green trees and aggregate retention areas will promote multi-tiered stand structure.

There was concern from a public comment (21PC-000000423) referring to:

*“California’s Wildfire and Forest Resilience Action Plan” (2021), one of the key actions is to **1.7 Increase Incentives for Timber Harvests that Improve Forest Resilience, ...** The Governor’s plan would build incentives for multi-age stands, increased carbon storage, and biodiversity.*

CAL FIRE does not agree that this proposed harvest plan is in conflict with these goals. As discussed above, HRC has a long-term goal of unevenaged management. Currently, there are thousands of acres of timberland that are not being managed to increase forest resilience. No harvest does not necessarily achieve greater forest resilience. There may be an advantage to conducting “lighter touch” forest harvesting and fuel treatment that would have a greater impact on forest resiliency than the forest practice proposed in the current THP. However, these have been balanced by the landowner to achieve their management goals. CAL FIRE does not believe the current THP will have a long-term significant adverse effect on future forest resiliency.

CAL FIRE has determined that the silviculture methods proposed to harvest the young growth forest will not have a significant adverse effect on biodiversity, late seral forest, or forest composition. The proposed silviculture as well as the structural elements proposed for retention will provide long-term multistoried forests in the watershed. Please see General Concern Climate Change and Carbon Sequestration and General Concern Wildfire for more information.

2. GENERAL CONCERN: Geology and Erosion

There are general concerns that the watershed contains unstable features and that the proposed harvesting could trigger unstable areas and increase erosion. Additionally, the road construction proposed adjacent to McGinnis Creek could lead to activation of unstable areas and increase erosion.

RESPONSE:

The THP includes a geology report entitled, "Geologic Evaluation of McGinnis Timber harvest Plan, Humboldt County, California." The report is authored by Shane Beach, Professional Geologist #7396. The report shall be referred to as geology report and is on pages 278-315. The geology report includes background information on the regional geology setting, the presence of known geologic features, road construction recommendations, and mitigation measures.

In addition, after the first PHI inspection on April 8, 2021, the interagency review team requested more information about the proposed road construction on the Z19 Road adjacent to McGinnis Creek. This report is dated April 27, 2021, and entitled, "Pre-Harvest Request for Additional Information Regarding Z-19 Road Construction Road Points 900-1275 Timber Harvest Plan 1-21-00031 HUM (Pint O McGinnis)." The report is authored by Shane Beach, Professional Geologist #7396.

The THP was reviewed by Sara Gallagher (CGS), Professional Geologist #9461, Engineering Geologist for CGS. The PHI was also attended by John Oswald (CGS), Certified Engineering Geologist #2991. Ms. Gallagher authored a PHI report, dated April 14, 2021. Ms. Gallagher's report will be referred to as the CGS PHI report. The CGS PHI report reviewed the geology report, included PHI field observations, and recommendations. On page 3 of the CGS PHI report, the following observations and conclusions were made and provide a good summary of the geology and proposed THP operations:

The plan attached geologic report (HRC, 2020) included in Section V of the THP characterizes geologic materials, slope stability conditions, and hazards in the plan area and is consistent with guidelines for geologic reports provided in CGS Note 45 (CGS, 2013). Section V also includes an addendum pertaining to the re-establishment of the Z19 Road between road points 900 and 1250 (HRC, 2020; Figure 2, Z19 Road Map). The proposed operations are submitted under prescriptions for the Humboldt Redwood Company (HRC) HCP (HRC, 2004; PALCO, 1999).

Landslides with delivery potential are mitigated with harvest limitations, including selection silviculture and basal area retention requirements, no harvest areas, RMZs, and Geo STZs. The proposed silviculture in Unit 1 is single-tree selection, retaining 120 square feet basal area of conifer per acre. Many of the unstable areas on stream side slopes on the northern end of the plan are fully or partially encompassed within the no-harvest RMZ. Variable retention (VR) is proposed in Unit 2, and unstable areas with delivery potential are within a No Harvest zone. VR is proposed in Unit 3. The ridgetop unit has relatively gentle slopes. The few unstable areas in Unit 3 are road related and do not have delivery potential. Unit 4 proposes multiple silvicultures, including group selection, single tree selection, VR, VR retention, and No Harvest. Unstable areas with delivery potential that need additional retention mitigations are placed within Special Treatment Zones (STZ) with additional retention requirements. In addition to conifer basal area requirements, chemically treating Group B species is prohibited as well. The proposed harvest on unstable areas with delivery potential is mitigated with tree retention intended to preserve root strength and canopy, and ground disturbance is reduced by limiting ground-based operations and minimizing impacts from cable yarding.

Public concern (21PC-000000316) was expressed that treatment of hardwoods would create more openings to dry the slope and retard the stability mechanisms. This combined with the warming climate create stressors for the existing vegetation and their root strength abilities. The CGS geology report discusses that the proposed harvest on unstable areas with delivery potential is mitigated with tree retention intended to preserve root strength and canopy. In some areas, the project geologist provided no-harvest restrictions. Also, hardwood treatment is restricted in certain areas as detailed in the geology report where the geologist determined on-site that hardwood retention was critical for slope stability. A Special Treatment Zone (STZ) was placed on these areas. With a warming climate, forest resiliency is important. CAL FIRE concludes that selective harvest will decrease competition between trees, increasing tree resilience, allowing trees to grow larger root systems and crowns.

The review team agencies reviewed the proposed reconstruction of the Z19 road adjacent to McGinnis Creek. As a result of the field inspection, the review team agencies requested additional information to explain and justify the reconstruction along the Class I RMZ. The CGS PHI report included the following recommendations:

The geologist shall provide a report that includes at a minimum:

- *Cross sections of representative sections of road, at a minimum one in the full bench construction and one in the keyway construction.*
- *Cross sections shall document 1) existing conditions, including the location of the native hillslope materials 2) proposed grading, including maximum cut heights and fill depths, and 3) 100-year flood elevations.*
- *Geologic Materials shall be described and their suitability for the proposed cutslopes and fillslopes shall be evaluated.*
- *A map shall be included that shows section of road where fill will be placed within the RMZ of McGinnis Creek if applicable.*
- *The report shall include compaction standards for fill and how it will be achieved and tested during construction.*
- *The report shall include mitigations to prevent sediment delivery from potential cutbank failures.*

The HRC geologist provided the additional information, dated April 27, 2021, and entitled, "Pre-Harvest Request for Additional Information Regarding Z-19 Road Construction Road Points 900-1275 Timber Harvest Plan 1-21-00031 HUM (Pint O McGinnis)." Subsequently, the second day of the PHI field visit was completed on May 6, 2021. In attendance was CAL FIRE, RWB, CGS, and CDFW. The PHI date was extended to allow CDFW to attend the PHI. The CGS Supplemental PHI report, dated May 10, 2021, provides a review of the site conditions:

General Observations:

Additional information in the report includes soil and bedrock conditions; height and gradients of cutslopes and fillslopes; specific recommendations for cutslopes, fillslopes, rockslope, keyway, and crossings; compaction standards for fill; mitigation measures for cutbank sloughing; and the 100-year flood elevation. The report also contains a road schematic with design details, 5 representative cross-sections, and 100-year discharge calculations.

During the second day of the PHI, we revisited the proposed road segment to evaluate the requested additional information. The outboard edge of the proposed road alignment was staked and the centerline was flagged. We observed the proposed location of the keyway and rock slope (Road Point 950). The proposed keyway location is upslope of the active stream channel and no deep pools were observed in the vicinity. The proposed location for the keyway appears suitable for the conditions observed. Once the rockslope is completed, large woody debris will be placed in the stream channel in front of the toe of the slope, which will help deflect flow away from the rockslope. The road schematic and cross sections appear representative of field conditions. The 100-year flood plain elevation is shown on the cross sections, and it does not appear that any road fill will be placed within the 100-year flood plain. Fill will be placed around the culvert crossing at RP 1275, but it will be armored with rock. To reduce potential sediment delivery from cutbank sloughing, a windrow composed of straw flakes and brow logs will be placed on the outboard edge of the road between RP 900 and 1275. The project geologist and/or designee will be onsite during specified construction activities to ensure conformance.

Conclusion:

HRC provided the additional information requested by CGS. Based on the field inspection conducted on the second day of the PHI, the information appears complete and accurate. The proposed road work seems feasible and mitigations are proposed to reduce potential delivery to McGinnis Creek. CGS has no additional recommendations.

The RWB PHI report, dated May 14, 2021, included observations and conclusions about the road construction on the Z19 road segment:

While typically road construction within riparian zones is discouraged, there are benefits to realigning the existing road system. The road has historically been bladed through the McGinnis Creek active channel. The Mattole Salmon Group (MSG) with partnership from the 3030 Ranch and HRC are actively constructing a series of large wood structures within McGinnis Creek with the intent of adding habitat complexity. McGinnis Creek is a dynamic stream with a braided channel and storm flows utilizing much of the valley floor. The wood structures aim to create a more distinct active channel while building up an active floodplain for winter refugia. The structures located at stations 923, 1125 and 1200 are proposed to be enhanced during road construction. These structures will help deflect high water flows from the road alignment. If the restoration project is successful, the right bank in this reach will ultimately not have low water flow but will be part of the floodplain. Stream surveys conducted following the first-year post construction indicate flows are already being directed away from the right bank. However, the project has yet to experience stressing flow events to assess the long-term projection. The existing wood structures could not feasibly be built larger without some road construction to facilitate equipment necessary to place the wood. The presence of the road will assist in their improvement. The MSG equipment operator, Campbell Thompson, indicate the reason these structures were not larger was due to limitations in placement due the lack of better access. Given the overall benefit of the restoration activities and that it's presence will cease use of the streambed as the road, RWB staff concur the proposed construction with the additional measures outlined in the April 27, 2021 document is appropriate.

One public comment (21PC-000000431) questioned why the road section was not shown as new seasonal road construction? This road section has been designated road reconstruction and is disclosed on page 28, item 24(i), as well as thoroughly discussed on THP pages 96-97 (road points 900-1250 (Z19), and pages 100.3 – 100.20 including mapped diagrams of the road reconstruction shown on revised pages 100.13 and 100.20. The road prism is being moved slightly uphill of the current location. Due to the scale of the map, disclosure of road points 900-1250 and mapped reconstruction provided on pages 100.13 and 100.20 is sufficient for mapping purposes.

CAL FIRE has determined that the geology report is complete and has evaluated the previous as well as current landslides. The THP includes detailed road work prescriptions and mitigation measures as well as an explanation and justification for the proposed road reconstruction on the Z19 road adjacent to McGinnis Creek. CAL FIRE concurs with the interagency review team that the proposed road construction is the superior long-term environmental alternative:

- The reconstruction of the road will eliminate three wet crossings which are chronic sediment sources in McGinnis Creek. These three stream crossings have required annual grading after each winter season to maintain access. A permanent road grade will eliminate this annual direct discharge of sediment in the creek.
- The reconstruction will facilitate access for and better coordination of the restoration projects in McGinnis Creek where heavy equipment such as dump trucks and excavators can operate from the road without crossing the channel. Placement of large wood that is keyed in place is planned. This is not as feasible with a continuously moving channel. With a permanent road, the large wood can be keyed in place.
- The reconstruction will allow access for firefighting equipment such as fire engines, hand crew transports, and dozer tenders. This was confirmed with CAL FIRE Humboldt-Del Norte Unit staff.
- Reconstruction of the road is the best alternative to building more road higher up the slope in a different location while providing access to 1200 acres of HRC ownership.
- No fill will be placed within the 100-year flood plain as requested by the interagency review team.

Therefore, CAL FIRE determined that the proposed timber operations are appropriate based on the entirety of the plan, HRC geologic reports, and the interagency PHI reports.

3. GENERAL CONCERN: Hydrology

There are general concerns about low water flow as a result of timber harvesting and water drafting, especially in McGinnis Creek. A decrease in low water flow could lead to increased stream temperatures and inadequate water volume for aquatic species, especially salmonids.

RESPONSE:

This THP proposes to harvest 248.2 acres using 95.6 acres of variable retention, 74.5 acres of selection, 29.5 acres of group selection, 47.6 acres of no harvest, and 1 acre of right-of-way. The

THP's CIA reports that there has been no recent timber harvest activity in either the Cow Pasture Opening or McGinnis Creek planning watersheds. According to the CAL FIRE Forest Practice Watershed Mapper v2, there has been no recent harvest activity in the 6,613-acre Cow Pasture Opening or 4,690-acre McGinnis Creek planning watershed. The satellite imagery of these watersheds indicates a high canopy density of Douglas-fir and tanoak forests interspersed with prairie areas. The forests are the result of post-WWII logging, which naturally reproduced into dense young forest stands. Historical information in the THP indicates that burning and grazing in the watersheds tried to maintain open prairie but also stimulated tanoak regeneration.

The THP is split between the two planning watersheds. Cow Pasture Opening is 6,613 acres and contains Conklin Creek and Mill Creek, tributaries to the Matttule River. The THP proposes harvesting Unit 1, 2, and a majority of Unit 3 in the Cow Pasture Opening watershed, specifically within the Conklin Creek sub-watershed. This is broken down to approximately 60 acres of variable retention, 36.5 acres of selection, 24 acres of no harvest, and 1 acre of right-of-way. McGinnis Creek is 4,690 acres and is a tributary to the Matttule River. The THP proposes harvesting a small portion of unit 3 and all of unit 4 in the McGinnis Creek watershed. This is broken down to approximately 40 acres of selection, 31 acres of variable retention, 29 acres of group selection, and 22 acres of no harvest. With no recent harvest in either watershed, the proposed THP only proposes operations in 1.8% of the Cow Pasture Opening watershed and 2.7% of the McGinnis Creek watershed. If the no harvest acreage is subtracted, the harvesting area is reduced to 1.4% and 2.2%, respectively. In addition, variable retention and road right-of-way are only proposed in 61 acres, or 0.9%, of Cow Pasture Opening watershed, and 31 acres, or 0.6 %, of McGinnis Creek. These acreages will be discussed further below.

The public comments specifically cited Stubblefield et al, 2012. This research study measured water use of 18 Douglas fir trees over the 2008 dry season in the Matttule watershed. The trees ranged in size from 10 to 91 cm DBH. Two tanoak trees were also measured, but the small sample size did not allow for a statistical regression equation to be developed. Strong relationships were found between sapwood area, DBH, and basal area with water use. The water use relationships were modeled to develop stand level water use using the Forest Stand Vegetation Simulator. Forests were modeled over a 50-year time frame from 2005-2055. During the simulation, no management of the stands occurred, and no major disturbances or climate change occurred. With these assumptions, the model predicted that water use over time would decrease because the high number of small trees would decrease due to stem exclusion. The study states:

Our results strongly support the conclusion that stem suppression will be the dominant trend affecting water use in the Douglas-fir dominated portions of the Matttule river watershed. Water use will be expected to decline in a steady fashion as the number of trees declines. A further implication of this finding is that clearcut harvesting of existing stands would not be beneficial for water yield in the basin beyond the initial regeneration period. It would result in a new crop of dense small trees, and delay the stem exclusion stage that much longer. Selective harvest of small and mid size trees might be expected to increase water yields without producing a thicket of young trees if remnant trees were able to quickly grow into the light gaps.

The results are less conclusive regarding tanoak which is the more dominant species in the Mattole River watershed because only two trees were instrumented. The two trees had similar mean sap flux density values as the Douglas-fir. The water use predictions made using the basal area regression that included tanoak would indicate that stem suppression is also the dominant process affecting water yield for this species over the next fifty years. The numbers of small tanoak in the watershed are quite high.

The study concluded that:

Sapflow measurements in the Mattole River watershed show strong relationships between total seasonal tree water use and basal area, DBH and sapwood basal area for Douglas-fir. Water use measurements combined with stand growth modeling indicate that the water use of Mattole River forests will decline in coming decades as the high numbers of young (< 5 cm DBH) trees decline from canopy closure and stem suppression. Decreased water use is expected to have beneficial effects on aquatic ecosystems.

Some important conclusions were reached in this study but have to be considered in light of the modeling assumptions. Some of the public comments made general statements that small trees use more water than larger trees. This is not true in the study's findings. A large tree uses more water than a small tree. However, large older trees use less water per unit basal area because they have a lower percentage sapwood. As trees age they add heartwood which does not conduct water. So, in general, by comparing two stands of the same basal area, a younger stand will use more water. However, if you compare two stands of different basal areas, with one containing small trees, and one containing large trees, the results will vary depending on all the factors, making it difficult to draw straight-forward conclusion. This study's findings made an important conclusion for the vast majority of the Mattole watershed, which is not managed. The current mixed Douglas-fir and tanoak forests will use less water over time due to stem exclusion and the reduction of the high number of stems/acre that occur with no management. The same conclusion could be made for the majority of the two watersheds in this THP. With such a small harvest area proposed, 1.4% in Cow Pasture Opening, and 2.2% in McGinnis Creek, the majority of the watershed will continue to use less water. The other stands are currently naturally selecting through stem exclusion, reducing the number of stems per acre, and reducing the amount of water use as they age. The current THP is on industrial timberland where the landowner actively manages their timberland through precommercial thinning and selection harvest. A reduction in basal area in the selection and group selection areas will reduce water use in those portions of the THP area. Water use for the variable retention area is expected to decrease immediately after harvest and then increase back to preharvest conditions as the stand develops over the next 50 years. The variable retention area makes up less than 1% of either watershed. It is expected that the landowner will selectively harvest the post-harvest stands to maintain lower tree densities and thereby decreasing water use.

Stubblefield et al, 2012, used individual tree measurements to model water use. However, many other studies have measured low water flow after timber harvesting. Coble et al, 2020, conducted a robust systematic review of past research on long-term hydrological response to forest harvest on low flow. The study reviewed 25 watersheds studies with between 17% and 100% overstory removal. Riparian buffers were retained in only five of the watersheds. In general, the study found three distinct time periods after harvest 1) immediately after harvest increase in low flow due to reduction

in canopy leaf area and low evapotranspiration 2) young forests increase canopy cover and evapotranspiration and have small, mixed, or variable results on low flow 3) low flow declines as young forests reach maximum canopy leaf area and have high evapotranspiration. Note, the amount of overstory removal in these studies is much higher than is proposed in the current THP, where less than 1% of the watershed assessment area would be impacted by overstory reduction through variable retention and right-of-way harvesting. The studies also involved historic treatments including large clearcuts, high intensity broadcast burning, and regeneration by seeding. Across large scale watersheds, increase in low flows had greater increases when overall disturbance was higher. The findings were in line with prior conclusions that disturbance must exceed 25% before a low flow response is observed. Because this proposed THP involves very little intensive overstory removal, it is unlikely that a response in low flow will be observed. In fact, an argument could be made that additional timber harvesting that reduces stems per acre systematically implemented over the next few years could accelerate the transition of the current stands towards the stands modeled in Stubblefield et al, 2012, and increase summer low flows quicker than natural selection.

One public comment (21PC-000000316) commented that young stands use more water than old growth stands, taken from Stubblefield et al, 2012:

"Previous research supports our finding of diminished water use with stand age. A sap/low study in western Oregon {Moore et al. 2004} determined that young mature Douglas-fir stands {40 yr} had 3.27 times higher water use than old growth Douglas-fir {450 yr} stands for a similar time period (June to October 2000)"

Moore et al. 2004, found that young stands used more water because older trees have different hydraulic conductance, less percentage sapwood in old growth trees/basal area, and the species composition of the stand changes in old growth forests. As the old growth forest develops, multistory canopy and shade tolerant species with lower water use become established. Coble et al, 2020, also found that more mature stands used less water during summer low flows than thrifty young stands. However, the proposed THP is not proposing to harvest old growth forest and convert it to young forest, which would likely decrease summer low flow. The THP is proposing to manage the current young forest at a small scale in each watershed. With no recent harvest in either watershed, the proposed THP only proposes operations in 1.8% of the Cow Pasture Opening watershed and 2.7% of the McGinnis watershed. This is unlikely to have a significant effect on summer low flow.

There was also concern that the THP would need to water roads to minimize dust and stabilize the road surface. Potential drafting from McGinnis Creek, Conklin Creek, or the Mattole River would have to be done under compliance with the company's HCP under 6.3.4.4.3. The THP includes water drafting restrictions on page 235 of the THP, which prohibits pumping rate that exceeds 10% of the overall streamflow. In addition, HRC has a California Department of Fish and Wildlife Master Agreement for Timber Harvesting Operation (MATO) Lake and Streambed Alteration Agreement (LSA) #1600-2009-0279-R1. This agreement includes water drafting general requirements and monitoring under item H. These requirements are much more specific than the HCP requirements. The following requirements are for Class I watercourses:

13. *Screens shall be installed on intakes wherever water is drafted. Intakes shall be at least 6 inches above the bottom of the channel and away from submerged vegetation, where*

practicable. Where not practicable, intakes shall maximize these clearances. When in place, screens and intakes shall be inspected weekly, kept in good repair, and kept clean and free of accumulated algae, leaves, or other debris or obstructions.

- a. *Class I watercourse water drafting intake screens shall:*
 - 1) *Be designed so that approach velocity is no more than 0.1 feet per second (fps);*
 - 2) *Have at least 7.8 square feet of wetted, unobstructed screen for a diversion rate of 350 gallons per minute (gpm), or use the 6.75 square foot "PALCO-350" screen (accepted by the HCP Wildlife Agencies including CDFW after testing, as documented in a letter dated July 12, 2002); and*
 - 3) *Be constructed of wire mesh, perforated plate, or pipe with at least 27 percent open area. Round openings in the screen shall not exceed 3/32 inch (2.38 mm) in diameter. Slotted openings shall not exceed 1/16 inch (1.75 mm) horizontally (providing a maximum diagonal opening of 3/32 inch).*
 - b. *Openings in Class II watercourse drafting intakes screens shall not exceed 1/8 inch diameter (horizontal for slotted or square openings) or 3/32 inch for round openings.*
14. *At the end of drafting operations each season, drafting pipe intakes shall be plugged, capped, or blocked using a shut-off valve, and removed from the flood prone area during the winter period.*
 15. *If CDFW determines water drafting from a site is, or may result in, significant adverse impacts to fish or wildlife resources, drafting operations shall cease until a site-specific plan to reduce the impacts is developed and this Agreement is amended to include these measures.*
 16. *Each calendar year, HRC shall take a temperature and source flow measurement taken within the 7 calendar days preceding the first drafting activity at each drafting site. If flows make measuring conditions unsafe (e.g., on the Eel River), HRC may provide alternative available data (e.g., stream gage data from Scotia), and shall document the reason for the inability to measure flow. Information from this measurement (i.e., date of measurement, time, drafting site location, MATO Subnotification No., stream temperature and flow data), shall be provided to CDFW by E-mail (CTP@wildlife.ca.gov) by the last day of the month in which the measurement was taken.*
 17. *If HRC requests to draft at streamflows lower than those set forth in this MATO, HRC shall provide a Water Availability Analysis, an Instream Flow Study, and all known water and use parameters in the Watershed Assessment Area, including all appropriated rights, permitted HRC drafting sites, and hydrographs and other available past flow data during the anticipated season of use.*

H2. Procedures for Class I Watercourses

In addition to the General Water Drafting Procedures above, the following shall apply to water drafting from Class I watercourses.

1. *Water drafting from Class I watercourses shall adhere to requirements in Table 1. Water drafting from a Class I watercourse drafting site shall cease when source flow drops to 1.5 cfs.*

Table 1. Class I Watercourse Requirements: maximum allowable water drafting rates.

| Source Flow (streamflow) in cfs (gpm) | Range of max. allowable water drafting rates (gpm < 10% of Flow] | Estimated time to draft 3,200 gallons (in minutes) | REQUIREMENTS |
|---------------------------------------|---|--|---|
| > 6 to > 7.8 (2693 - 3500) | 270-350 (depends on flow) | 9 - 12 | Max. removal rate shall be < 10% of source flow (streamflow) |
| > 2.25 to 6 (1009 - 2693) | 101 - 270 (depends on flow) | 12 - 32 | Drafting Logs Required; Max. removal rate shall be < 10% of source flow (streamflow); Trucks likely require smaller pumps; Pumping rate verification required |
| > 1.5 - 2.25 (673 - 1010) | 67 - 101 (depends on flow) | 32 - 48 | Drafting Logs Required; Max. removal rate shall be < 10% of source flow (streamflow); Trucks will require smaller pumps; Pumping rate verification required |
| < 1.5 (673) | DRAFTING PROHIBITED | | NO DRAFTING |

2. *The following shall apply to each seasonally-active Class I watercourse drafting site when the source flow (streamflow) is 6.0 cfs or less:*

- a. *HRC shall measure water temperature and streamflow at least once a month within 48 hours of drafting when streamflows are between 2.25 and 6 cfs. HRC shall measure water temperature and streamflow at least bimonthly (every 2 weeks) when streamflows are between 1.5 and 2.25 cfs;*
- b. *Measurements shall be provided to CDFW by email {CTP@wildlife.ca.gov} by the last day of each month during which water was drafted;*
- c. *Water truck operators shall be in possession of a logbook that contains the following information, kept current during operations:*

- 1) *Drafting site location;*
 - 2) *Date, time (including a.m. or p.m.) and Operators name;*
 - 3) *Estimated gallons of water drafted;*
 - 4) *Filling time;*
 - 5) *Estimated drafting rate; and*
 - 6) *Screen cleaning and inspection notes.*
- d. *HRC shall provide water truck operator logbooks to CDFW at the end of each calendar year, or sooner upon request; and*
- e. *HRC shall provide verification each year that the pump(s) used for pumping directly from a stream can be adjusted to the pumping rates set forth in Table 1. This documentation shall be provided to CDFW by email (CTP@wildlife.ca.gov) or through a field demonstration prior to drafting below 2.25 cfs.*
3. *Source flow at Class I watercourse drafting sites shall be measured using a flow meter that can measure flows down to a minimum of 0.1 feet per second and is accurate to + 2% of the streamflow reading. If such a flow meter and current-meter method of estimating flows cannot be used due to site-specific conditions, HRC shall document equipment and procedures used to measure streamflow.*
 4. *For the first 2 years at any Class I watercourse drafting site, streamflow measurements shall be taken at least twice at each site every time source flow is estimated, and water temperature measurements shall be taken at the point of diversion. A pocket thermometer is acceptable for temperature measurements. A monitoring data sheet (see Attachment A) shall be used when submitting Class I watercourse drafting site monitoring information.*

The HCP and the HRC MATO were approved with impacts to aquatic species considered. There are substantial mitigation measures, low flow requirements, and monitoring reporting requirements. CAL FIRE considers these standards to prevent significant impacts to low flow in the THP's watersheds.

One public comment (21PC-000000318) expressed concern about drafting from McGinnis or Conklin Creek and offered to work to install temporary water storage:

The source of water during construction should carefully considered as to not have an adverse impact to base flows of McGinnis or Conklin Creeks. These Creeks, particularly McGinnis, have salmonid populations that need the flow for habitat and also to moderate temperatures. It may be possible to work with 3030 Ranch to install temporary storage for

use during construction or installation of a well that could be used in combination with storage.

The RPF has stated that this is an option that HRC are contemplating by drilling a well (personal communication). CAL FIRE sees this as a positive potential, especially if storage can be made permanent to provide water for fire protection as well. However, this alternative is not subject to approval of the current THP. During the PHI, neither CDFW or RWB had recommendation regarding water drafting or road watering. CAL FIRE determined that the HCP and MATO restrictions were developed to prevent significant adverse impacts to streams during low summer flows.

4. GENERAL CONCERN: Sediment and Temperature Impacts

There are general concerns that the THP will increase sediment and temperature impacts to the watershed. These concerns include downstream impacts to salmonids as well as potential domestic water and recreational use.

RESPONSE:

The THP drains to the Mattole River, which is a 303(d) listed for sediment and temperature.

This THP proposes to harvest 248.2 acres using 95.6 acres of variable retention, 74.5 acres of selection, 29.5 acres of group selection, 47.6 acres of no harvest, and 1 acre of right-of-way. The THP utilizes tractor and cable yarding. Tractor yarding is limited to gentler slopes. Sediment impacts could occur due to sediment transport from roads into watercourses, activation of slides, and disturbance of soils near watercourses. The plan seeks to minimize the potential for these issues by:

- Complying with the company's HCP which provides Riparian Management Zones (RMZs) on all Class I, II, and III watercourses.
- Soil disturbance on steep slopes is minimized by using modern cable yarding harvest systems throughout a majority of the THP area.
- Avoiding tractor watercourse crossings other than possibly temporary Class III watercourse crossings that are dry at the time of crossing (see THP Section II, Item #26(c), page 52).
- Existing and potential sediment production sites have been identified and corrective action proposed, as detailed in the Erosion Control Plan (ECP).
- New road construction is primarily limited to spur roads on ridgetop locations and on gentle slopes.
- A professional geologic evaluation has provided mitigation measures for operations near unstable areas.

The THP includes an Erosion Control Plan (ECP) in THP Section V, pages 267- 277. The ECP documents an inventory, prioritization, and proposed treatment of potential Controllable Sediment Discharge Sources (CSDS) in the plan area. This THP was reviewed by the review team agencies, including CAL FIRE, RWB, CGS, and CDFW during the PHI. The identification and inventory of these sources shows how the current road system will be upgraded for long-term decrease in erosion

to the watershed. During the PHI, RWB and CGS made recommendations to improve the road work proposed. The RPF agreed to these recommendations and revised the plan accordingly.

The THP addresses roads under item 24 of the THP. The plan proposes to build 3816' of new seasonal road, which are spur roads away from watercourses. The plan also proposes to reconstruct 350' of seasonal road in the RMZ of McGinnis Creek. Please refer to General Concern 2- Geology and Erosion for a detailed discussion. The proposed seasonal and reconstructed roads, as well as road point upgrades are needed to provide long-term stability to the road system.

As addressed under General Concern #2 – Geology and Erosion, the geology report and CGS PHI report both conclude that sediment impacts have been mitigated through silviculture (tree retention), appropriate yarding methods, mapping and mitigation measures of unstable areas, and RMZ standards.

Sediment may also enter the watershed via the watercourse system. The RPF has mapped all watercourses within the THP area. During the PHI, the review team inspected a sample of the watercourses. The PHI team found the watercourses were appropriately identified and protection measures were consistent with the company's HCP. The RPF utilized the watercourse protection standards consistent with their HCP. These standards are considered higher standards than the current FPRs and were modified through watershed analysis.

One public comment (21PC-000000318), included the following specific concern:

While recognizing that HRC is following standard protections for the McGinnis riparian area, we suggest that due to its high conservation value and the investments in habitat conservation made to date, that the riparian buffer areas, particularly around McGinnis Creek itself be addressed with extra caution. As the focus of so many current stream restoration projects is to add large wood debris to creeks, it seems prudent to not remove any tree near the creek which could grow large enough to ultimately be part of the naturally occurring wood debris that would fall into the current or future high water wetted channel.

On page 48 of the THP, Table 2, Class I watercourses have a 50' no harvest zone. In addition, the 18 largest conifer trees per acre shall be retained per HCP 6.3.2.2 item 7. On slopes over 65%, no harvest is also required until the break in slope up to 150'. For slopes <65%, 65% total canopy and 50% conifer canopy is required. The HRC geology report also required "do not daylight the road corridor between Road Points 950-1175, only remove trees required for proposed earthwork." The retention of a significant number of conifers in the Class I 50' no-harvest and remaining outer band provide long-term potential recruitment of large woody debris.

The proposed silviculture system also provides an additional buffer to the watercourse system because of the additional tree canopy retention and surface cover remaining post-harvest in selection and group selection areas of units 1 and 4. THP unit 2 contains a large no-harvest zone around a Class II watercourse. Unit 3 is not adjacent to a significant number of watercourses, being located on a ridge. The residual stands throughout the THP area will intercept rainfall and provide a more intact surface cover, especially in the cable yarding areas where exposed soil is minimized.

One public comment (21PC-000000316) was concerned about road dust reaching watercourses:

If the road dust is contained by water during use, it will become mobilized by the following winter storms and deliver fine sediments directly into a fish-bearing stream. What measures are designed to prevent that delivery and how will the containment measures be maintained (physically removed) so that they do not at some later date deliver those sediments?

The THP includes soil stabilization measures under item 18 of the THP. These measures ensure that exposed soil is treated to prevent erosion, roads and landings are maintained for proper drainage, and skids trails are treated. The completion of these activities minimizes soil erosion. Soil stabilization in combination with the RMZ standards provides a sediment buffer to streams.

One public comment (21PC-000000318), included the following specific concern about the EHR in Unit 4:

My perspective from the 3030 Ranch Property and also overseeing the current habitat restoration project on McGinnis Creek is that the erosion potential on disturbed ground in this area is high. In Section II, Harvest Unit 4 is noted as having a low to moderate erosion hazard rating, which is a rating averaged for the entire unit. The areas lower in elevation and closer to the creek appear to have a high hazard for erosion and as such should be addressed differently, maybe with larger Special Treatment Zone designations

The Erosion Hazard Rating (EHR) is found on page 244 of the THP. Unit 4 was broken into 3 separate areas for EHR, A & B: >50% slopes with Canoe Creek-Sproulsh-Redwohly Complex (group selection or VR), and C: <50% slopes with Sproulsh-canoe Creek_Redwohly Complex. The EHR calculations appear appropriate. It should be noted that the waterbar spacing varies for each EHR rating based upon trail gradient, and could restrict ground-based operations based on slope percentage [ref. 14 CCR 914.2; 14 CCR 914.6(e)]. Since Unit 4 is proposed for cable yarding in proximity to the watercourses, it is unlikely that additional FPRs restrictions would occur if the erosion hazard rating was higher. These areas close to the Creek have HCP RMZ buffers and GEO STZs where the HRC geologist found unstable areas. The interagency review team made no additional recommendations for unit 4 after a field visit. Therefore, the proposed silviculture and yarding methods appear appropriate for the current EHR and site conditions.

The THP does not propose winter operations in the THP, under item 23. However, operations are proposed during the extended wet weather period from October 15-November 15, and April 1-May 1. Timber operations and limitations are described under item 23 of the THP.

The THP addresses sediment impacts in the CIA on pages 168-170. No timber harvest has occurred in the watershed assessment area (WAA) in the past 15 years. The THP concludes that:

The current subject THP is fully mitigated by the Plan Submitter's HCP, the California FPRs, and NCRWQCB WDR prohibitions and requirements such that when properly

implemented will attain a net sediment reduction. No significant sediment-related adverse cumulative impact will occur from of implementation of the subject THP.

Stream temperatures are a result of a complicated ecosystem process including forestry, geology and hydrology. Shade from RMZs moderates stream temperatures through retention of stream canopy. Excessive removal of riparian canopy could lead to excessive summer temperatures that may be lethal to aquatic invertebrates and fish. The effect on winter water temperatures is usually less pronounced due to reduced solar radiation during the winter and cooler temperatures. The retention of RMZs even along clearcut units have been found to be effective in shading the streams. The amount of shade canopy and distance of RMZs increases as the watercourse classifications change. For example, small class III watercourses that are capable of transporting sediment during the winter require less shade canopy due to their small stream size and intermittent nature. Class II watercourses, which support non-fish aquatic life, require more shade canopy and wider buffers. Class I watercourses, which support fish habitat, require the widest buffers with the highest shade canopy. The HRC HCP was established based on scientific review and have established RMZs that maintain current stream temperatures through shade canopy requirements.

THP item 26, pages 44-62, outlines the protection measures for the various watercourses located within the THP area. The RMZs have been modified through watershed analysis to take into consideration the Mattole watershed. The THP discloses several class III watercourses. These watercourses have a 50' RMZ, equipment exclusion zone (EEZ), 50% canopy retention, and retention of woody debris. This THP also has Class II watercourses. These watercourses generally have a 100' RMZ, equipment exclusion zone (EEZ), 30-foot no harvest, 65% canopy retention in the outer band, and retention of woody debris. The THP also includes the class I RMZ adjacent to Units 1, 2, and 4. These watercourses generally have a 150' RMZ, equipment exclusion zone (EEZ), 50-foot no harvest, 65% canopy retention in the outer band, and retention of woody debris.

On public comment letter (21PC-000000317) included specific questions:

We walked along the upper slopes of units 1 and 2. Few trees were marked for cut besides those assumed to be designated for yarding operations. Also, riparians have not been ribboned. Please make sure they are marked. The slopes are very steep, and covered with thick duff. It looks like a very great distance from the WLPZ to the access road. Is the harvest focused further downslope? Please go down to the watercourse so that you can evaluate the WLPZs, how much shade cover is to be removed from the bands, and resultant water quality and erosion risks. The THP states there will be 18 leave trees per acre in the inner band of the WLPZ. These riparian areas are also what constitutes HRC's high conservation value forest, a designation sustainability certification requires. It is also filling the requirement for wildlife habitat.

Are the biggest trees left? Will cutting 35% of the upper and lower stories of the shade cover affect habitat suitability? Please evaluate.

As described above, the THP has all watercourses protected by RMZs. These are variable in width and must be flagged prior to the PHI. A sample of the RMZs were investigated during the PHI. The

CAL FIRE PHI report found that the RMZ flagging was appropriate. Page 75, item 38, indicates the flagging color requirements for the THP. The proposed shade cover is detailed under item 26 of the THP and discussed above. On page 47 of the THP, the THP states that the 18 largest conifer trees per acre will be retained. The HCP RMZ prescriptions were developed to provide adequate shade canopy and maintain and improve habitat suitability.

The THP addresses temperature impacts on pages 170-171. The THP states:

No timber harvesting of riparian shade canopy has occurred within the WAA over the last 15 years. The proposed THP is subject to the shade canopy conservation measures of the HCP which include No Harvest zones within 50 feet of Class I and 30 feet of Class II watercourses plus additional shade canopy retention requirements beyond these distances for the entire width of the respective RMZs. The most recent measured over stream canopy cover along McGinnis Creek (2018) was 95 percent fully achieving the Mattole TMDL target. Riparian conditions along perennial tributaries to McGinnis and Conklin Creek likewise carry high shade canopy which will not be reduced by the proposed subject THP. Please see THP Item 26 for additional information regarding riparian protection measures.

Finding: *There has been no recent timber harvest activity in the WAA to contribute to cumulative adverse temperature effects. The current subject THP is fully mitigated by the Plan Submitter's HCP Riparian Management Zones (RMZs) such that there will be no significant effect on shade canopy post harvest. The sediment prevention measures previously described prevent and minimize the filling of pools which could otherwise adversely affect deeper cold water temperatures. The subject THP in combination with Past Projects will not result in significant cumulative adverse water temperature impacts.*

The THP was reviewed by the interagency review team for sediment and temperature impacts. The RWB PHI report stated:

It appears that with inclusion of recommendations from review team agency PHI reports, the THP will be likely to avoid or minimize both short term and long-term adverse impacts to beneficial uses of water. When considered with the proposed selection silviculture harvest, the requirements for post-harvest retention of overstory canopy, and watercourse and lake protection zone requirements, I believe THP 1-21- 00031HUM will comply with applicable water quality standards and therefore will be eligible for coverage under either the General WDRs.

The CAL FIRE PHI Report stated:

During the PHI the WLPZs mark was evaluated and found to be in conformance with the THP and the FPRs. All of the sample marking observed by me during the PHI was above the required minimum for post harvest stocking standards.

CAL FIRE determined that sediment and temperature impacts have been mitigated and the proposed timber operations are appropriate based on the entirety of the Plan. The proposed

silviculture, yarding methods, and mitigations measures provide protection for salmonids, aquatic species, and downstream domestic use.

5. GENERAL CONCERN: Herbicides

There are general concerns about herbicide use. One public comment letter (21PC-000000318) specifically asked the following:

Section II, page 11 notes address the use of herbicides noting that “hardwood, brush and grass may need to be treated following timber operations to ensure the establishment of group A species”. Does this mean that herbicides will not be used prior to operations? How and when is the decision made to use herbicides following operations? MSG and 3030 Ranch ask that you refrain from herbicide use if possible, particularly in Unit 4. If they are used, we believe that application should be limited to hand application only with herbicides that have the least possible impact to fish and wildlife or public health.

Public comment (21PC-000000317) stated:

Herbicides are prescribed for the majority of the THP as most of the silviculture is to be variable retention. Herbicide use, as you know is an extremely unpopular policy. Glyphosate, the THP’s backup herbicide, has been condemned by courts as a carcinogen and the cause of acute kidney failure, and is banned by an increasing number of countries. From wildlife (40% of amphibians have gone extinct in the last 50 years, and a plethora of insect species) and water quality perspectives, please reconsider this approach, especially in such proximity to a town.

Public comment 21PC-000000431 stated the following:

The plan indicates planned use of herbicides in the plan area, including near a drinking water source. HRC uses a variety of herbicides including glyphosate (active ingredient in Roundup, a Monsanto corp. herbicide). The toxicity of glyphosate is not adequately addressed in this plan, even though recent jury verdicts have awarded millions of dollars to victims of Roundup exposure who developed cancer.

Mike Miles indicated during 2nd review that the hardwoods to be removed or killed might be cut and sold as firewood. Since the oaks, madrones and others regrow from stump sprouts, this may actually increase the amount of herbicide by requiring a foliar application to stump regrowth would be the typical next step in ensuring commercial species dominance.

How was the allowable distance of herbicide application from the drinking water source and other watercourses in the plan area determined?

Local residents not only use downstream water for agriculture, but also swim within about two thousand feet of the outlet of Conklin Creek into the Mattole River. What is being done to protect this use?

I'm also concerned about the effects of herbicide use on timber workers. I have heard in the past from Mike Miles that a "language barrier" caused mistakes to be made regarding HRC's size limitations for hack and squirt. What is being done now that is different, so that timber workers clearly understand their instructions and can limit their exposure to these chemicals?

RESPONSE:

The THP indicates that Group B species, such as tanoak, need to be reduced to maintain relative site occupancy of Group A species on page 13, item 14(f). The need for herbicides will be made post-harvest and likely after completion of timber operations. Their use will depend on post-harvest hardwood sprouting, extent of mechanical and/or prescribed fire site preparation, and natural and artificial reforestation success. THP page 13 states that herbicide could potentially be used in the variable retention areas as well as the group selection areas following timber operations. There is no indication that herbicides would be used within RMZs. The CAL FIRE PHI report, page 2-3, item 13 confirms this and states:

The timberland owner will need to decrease the ratio of hardwoods to conifer species post harvest to maintain higher stocking levels of Group A species. This may be accomplished through mechanical means while harvesting or chemical treatment may be needed to attain the landowner's goal.

CAL FIRE has a responsibility under the CEQA to look for significant effects on the environment that could result from the approval of a THP. Since herbicide use is one of the activities that, under some circumstances, can cause a significant effect in connection with a THP, CAL FIRE is compelled to consider potential effects. The key CEQA element lies in the determination of whether there is a reasonable expectation of significance.

The U.S. Environmental Protection Agency regulates pesticide use nationwide and has exclusive authority over pesticide labeling. Use of a pesticide is limited to the applications and restrictions on the label, and the label restrictions are legally enforceable. The California Department of Pesticide Regulation (DPR) regulates pesticides within the State of California and has legal authority to adopt restrictions on pesticide use going beyond the regulations of the U.S. Environmental Protection Agency. 7 U.S.C.A. Sec. 136v. DPR operates with extensive authority in the California Food and Agricultural Code and in the California Code of Regulations.

Under California law, pesticide products must be registered by DPR to be sold and used in California. Before a substance is registered as a pesticide for the first time, DPR conducts a thorough evaluation. If DPR determines that further restrictions need to be placed on the use of a pesticide product to mitigate potential adverse effects including human health effects and environmental effects, DPR classifies the pesticide as a restricted pesticide, and individual applications need a permit from the county agricultural commissioner. After a pesticide is registered for use in this state,

DPR has an ongoing obligation to review new information received about the pesticide that might show new problems beyond those identified in the registration process. Where the review of new information shows that a significant adverse impact has occurred or is likely to occur, DPR is required to reevaluate the registration.

DPR operates a statewide program of regulating pesticides and is the lead agency for regulating herbicide use under CEQA. DPR has the greatest authority of any state agency for analyzing and regulating herbicide use. Further, DPR acts before any other state or local agency can act because a herbicide product must be registered by DPR before it can be used at all. This lead agency role was confirmed in *City of Sacramento v. State Water Resources Control Board* (3d Dist, 1992) 2 Cal.App.4th 960, for DPR's predecessor in regulating pesticides.

DPR's program for regulating pesticides was certified by the Secretary of the Resources Agency as a functional equivalent program under Public Resources Code section 21080.5 in the same manner as CAL FIRE's program of regulating timber harvesting was certified. 14 C.C.R. Sec. 15251(i). Because the program is certified, DPR does not prepare environmental impact reports (EIRs) but prepares other documents in the place of EIRs. P.R.C. sec. 21080.5(d)(3). DPR's registration process takes into consideration that most herbicides will be used statewide. Because the registration evaluation process considers use of a herbicide in a broad area and in a variety of conditions, the documents are the functional equivalent of a program EIR for each pesticide. Site specific application and use of restricted pesticides is evaluated by the county agricultural commissioner during its review of applications for restricted materials permits. Not all pesticides are restricted, and only restricted pesticides require a permit from the county agricultural commissioner, except for a pesticide that DPR has not designated as restricted, the commissioner can require a permit for its use if the commissioner makes a finding that the pesticide will present an undue hazard when used under local conditions.

When posting for public comment its proposed decision to register a new pesticide product and in approving the Public Notice for registration of a pesticide, DPR makes a finding as to whether the pesticide would cause a significant effect on the environment. Because DPR is the CEQA lead agency, this determination is binding on CAL FIRE. P.R.C. sec. 21080.1, 14 C.C.R. 15050. Accordingly, if a DPR-registered herbicide will be used in accordance with the directions and restrictions on the pesticide product label and any other restrictions established by DPR, CAL FIRE is required to find that the use will not have a significant effect on the environment unless there is new information showing significant or potentially significant effects not analyzed by DPR. As a responsible agency, CAL FIRE is barred from repeating the environmental analysis conducted by the lead agency. Because the use of a DPR registered herbicide would not have a significant effect on the environment, CAL FIRE is not required to analyze the use in the THP.

Herbicide use in the general location of a THP may be either a part of the THP or a separate but related activity that is not controlled by the THP. Where the herbicide use is described in the THP as an integral part of the timber operations, CAL FIRE will need to review the herbicide use and its possible environmental effects. CAL FIRE will determine whether the proposed use would be consistent with the label and the registration limitations and whether DPR's lead agency determination of significance will still apply. CAL FIRE will also need to check for significant new information showing changes in circumstances or available information that would require new

environmental analysis. Significant new information should be referred to DPR for that department's analysis as part of its ongoing evaluation program. CAL FIRE reviewers should look for simple and practical ways to avoid or mitigate potential new significant effects on the environment. Effects of herbicides proposed as part of the THP would be considered direct effects of the THP.

CAL FIRE believes that where herbicide use is related to the THP but not a part of the THP itself, the environmental effects would be regarded as indirect effects of the THP. The landowners may have ongoing management activities that may occur before a THP is approved, during operation of the THP, and after expiration of the THP when CAL FIRE's inspection authority has lapsed. The use is subject to independent, intervening decisions of the timberland owner, a pest control advisor, and in the case of restricted herbicides, the county agricultural commissioner, and these independent decisions may lead to no herbicide use at all or a use differing from predictions in a THP. CAL FIRE would not know whether in fact the timberland owner would use herbicides at all, which ones the owner may use if any, what restrictions the pest control advisor may recommend, and, in the case of restricted herbicides, what conditions the county agricultural commissioner may impose. Outside of the THP, CAL FIRE has only general information about possibilities. Even if the timberland owner provides herbicide use plans to CAL FIRE with a THP, the use plans may well be changed by the county agricultural commissioner if the timberland owner intends to use a restricted herbicide.

Cumulative impacts due to herbicide use related to different THPs are generally not significant when THP's are separated in time and distance so that their individual effects do not reinforce or interact with each other. Herbicide use may occur a year or two before a THP begins, then possibly two to five years after operations are complete to reduce competition with small seedlings, or later to release the young trees from competition with brush.

The project proponent has proposed potential use of herbicides in accordance with Federal and State labeling and under the CEQA certified regulatory program administered in California by the Department of Pesticide Regulation (DPR). The County's agricultural commissioner oversees portions of the DPR's functional equivalent program and is designated as a state agency for the purposes of certification (3 CCR 6100(a)(7)). Detailed records are kept on any pesticide application. This information is tracked by DPR and is available to the public.

Prior to commercial application of any herbicides proposed in the plan, HRC must comply with California's DPR process that requires additional site-specific analysis. The analysis takes the form of a written recommendation for herbicide use prepared by a licensed Pest Control Advisor (PCA). HRC must use contractors that are supervised by Licensed Qualified Applicators. HRC works with all contractors to ensure applications are conducted in a professional manner that strictly follows all regulatory and licensing requirements.

Herbicides will not be used prior to operations but may be used following operations based on post-harvest evaluation. On page 174 of the THP, the THP states the following guidelines:

1. *Herbicides are used to address an ecological imbalance on the forestlands (e.g. suppression of conifers by tanoaks, tanoak stump sprouts, and to a lesser degree other hardwoods such as Pacific madrone, as well as exotic plant species) with the goal of reducing and eliminating their use over time.*

2. *Herbicides are only applied by hand; no aerial application of herbicides will be made.*
3. *HRC actively cooperates with the Bureau of Land Management, U.S. Forest Service, CAL FIRE, Humboldt County Department of Agriculture, County and State Parks, and other public agencies to control invasive exotic weed pests.*
4. *HRC does not apply herbicides within a watercourse lake protection zone (Under FPR, these zones range from 50 to 150 feet depending on slope gradient.) An untreated 25-foot buffer should be maintained on all Class III (ephemeral) watercourses.*
5. *No foliar treatment when wind speeds exceed 10 mph.*
6. *Discontinue applications if there is a greater than 80 percent chance of rain within a 24-hour period.*
7. *Unit marking or identification will be provided to assure the contractor will confine the spray material to the prescribed treatment area.*
8. *To ensure that there are no herbicides present in the watercourses, HRC works in partnership with the North Coast Regional Water Quality Control Board to test stream water downstream from herbicide applications.*
9. *HRC notifies neighboring landowners before applying herbicides within 300 feet of their property line. Special precautions may be implemented when a domestic water source is identified downstream of the treatment area.*
10. *HRC works with the County Agricultural Commissioner to ensure contractor operations are in compliance with all federal and State rules, regulations, and worker safety requirements.*

CAL FIRE has conducted a field review of the timber stands where potential herbicide treatment may occur and finds hardwood reduction to be potentially necessary and appropriate.

CAL FIRE has evaluated the potential herbicide use as it pertains to cumulative watershed and biological effects. We have concluded that adherence to State and Federal laws pertaining to certifications and operations will prevent significant effects.

6. GENERAL CONCERN: Climate Change and Carbon Sequestration

There was a general concern that harvest should not occur to sequester carbon. In addition, large trees should be left, especially large Douglas fir which are good at sequestering carbon. There was a general concern about the current drought, climate change, and how forests are important for storing carbon.

One comment letter, 21PC-000000424, also attached a letter from Dr. John O'Brien that was entitled "The effects of timber harvest versus forest protection in JDSF." Note, this letter was written specifically to address Jackson Demonstration State Forest and argued how it is a unique public owned property that has higher values than commercial timber harvesting. Because this THP is not on public property, a vast majority of the attached letter from Dr. O'Brien does not directly relate to the THP which is privately owned. In addition, the letter did not point out significant environmental effects of this THP. However, CAL FIRE believes that the following response applies to climate change and carbon sequestration in timber harvesting proposed in THP 1-21-00031 HUM.

RESPONSE: CAL FIRE agrees that forests are an important part of the strategy for adapting to climate change and carbon sequestration. CAL FIRE has considered the requirements of AB32 and the CEQA Guidelines with respect to the need to scientifically estimate the level of GHG outputs for this THP. The THP discusses climate change and greenhouse gas assessment on pages 197-204. As shown in the analysis in the THP on pages 202-204, this project is expected to result net 53,376 metric tons of CO₂ for the project as a whole over a 100-year period. Due to the growth expected to occur in from trees growing on the post-harvest area, replacement of the initial harvest carbon stock can be expected within approximately 13-15 years, depending on silviculture prescription, yarding method, and remaining tree growth. The Project Carbon Accounting Worksheets are found on pages 202-204.

The project area for THP 1-21-00031 HUM is to remain a forested landscape, which will continue to sequester carbon. The forest soils and the aboveground biomass will continue sequestering carbon. The trees that are to be retained will continue to convert carbon from the atmosphere into leaves, branches, stems and roots. Root systems and leaf fall will maintain the carbon in the forest soils. The Plan provides for a healthy coniferous forest to be maintained long-term and will continue to sequester carbon thereby avoiding adding significantly to the delivery of “greenhouse gasses” to the atmosphere.

The unevenaged prescription will maintain trees of various sizes over the THP area and increase the vigor of residual trees, decreasing competition and making them less susceptible to insect and diseases. Stewart and Sharma (2015), estimated carbon storage under various scenarios and forest types. They concluded that “managed (harvested and regenerated) forests provide more carbon sequestration benefits than let-grow forests when the benefits of the harvested products are accounted for. If all carbon sequestration benefits are counted, we project that California’s private forests that are harvested and regrown for another 80 years will provide approximately 30% more total carbon sequestration benefits than forests left to grow for 80 years.”

CAL FIRE has considered that, if the stands were left unmanaged, they would return to the “old growth” state after hundreds of years, and in that state would be sequestering more carbon than young growth forests. In isolation this argument may have some validity. However, timber management is not a closed system. Timber is harvested to meet a demand. In California, the demand for wood products results in billions of board feet of lumber imports into the state each year, accounting for 80% of California’s wood use. Currently, the demand for lumber is so high that lumber imports from other countries is growing. The impact of taking industrial timberlands out of production in California simply shifts the harvest to another state or country. Assuming a similar carbon balance for the stands where the imported products are grown and manufactured this would add additional use of fossil fuel for the transportation of the wood products into the state.

On page 201, the THP discusses the resiliency of HRC timberlands to climate change:

In the face of uncertainty, the impacts of climate change must be assessed in terms of the resilience of HRC timberlands should climate changes occur. There are several indications that HRC timberlands have been and continue to be resilient. After more than a century of timber harvest, most of which occurred without the benefits of modern forest practices regulations and best management practices, HRC timberlands remain among the most

productive forest lands in the world. A key tree species on the property is the California redwood (Sequoia sempervirens), which is the epitome of resilience, having persisted for millennia in the coastal climate of northern California. The redwood tree is not expected to be threatened by pests that might be advantaged by global warming, and it is expected to persist at the southern end of its range even if climate change brings higher temperatures and less precipitation. (Battle 2006). HRC timberlands represent the heart of the redwood range. The redwood tree also benefits from coppice regeneration, which means that it regenerates from the stump after a tree has been harvested. As such, much of the living root system of redwood trees persists and the genetic diversity of each individual tree is preserved on the landscape as cut trees are replaced by genetically identical sprouts that grow from the same root system. For the same reason, the regeneration and growth of redwood forests after harvest occurs quickly and with more certainty because young trees have the benefit of mature root systems.

In addition to redwood, HRC timberlands grow hearty and resilient species such as Douglas-fir, a species that thrives in open stands following harvest. Douglas-fir grows in a variety of climates throughout western North America and are believed to have rapidly colonized vast areas following the end of the last Ice Age. Through its substantial and continuous investment in their timberlands, HRC has a strong incentive to nurture healthy and resilient forest stands on its property.

CAL FIRE considers this THP's proposed unevenaged management, as well as HRC's long-term goal of unevenaged management as a key to maintaining forest resiliency through active management. This management will maintain resilient forests, restore and maintain current road systems, and maintain wildlife habitat.

One public comment (21PC-000000431) was concerned that climate change is not being considered for the growth and survival rates of natural forests or replanted areas. CAL FIRE recognizes that there may be changes to forest growth, tree survival, and reforestation. Adaptation of forests to climate change is addressed through research and adaptive management. Forest growth may either increase or decrease depending on species, distance from the coast, latitude and topographic location (slope, aspect, elevation). Natural regeneration and mortality will also vary depending on a number of factors. The California Climate Investments (CCI) program at CAL FIRE has a research component to study forest adaptation and mitigation. The Department is also an active participant in the Wildfire and Forest Resilience Task Force.

CAL FIRE will continue to enforce the requirements for reforestation following logging operations. CAL FIRE has a seed bank in Davis, California, and collects seed from trees around the state. These seeds come from various seed zones and elevations. CAL FIRE's nursery staff can recommend seed choices based on site conditions and expected changes due to climate change. CAL FIRE also supports, through its grant programs, post wildfire reforestation.

CAL FIRE has reviewed and considered all pertinent evidence and has determined that no significant adverse cumulative impacts will result from implementing this THP in regard to climate change and carbon sequestration.

7. GENERAL CONCERN: Wildfire

Wildfire concern was included in four comment letters. Most of the concerns included the fear that additional slash would increase fire danger and that large trees that are more resistant to fire were going to be cut. Various concerns were expressed including:

- *Older Douglas-fir trees become more resistant to wildfire with age as their bark thickens and the distance from surface fuels to crown lengthens. Harvest plans need to retain older fire-adapted Douglas-firs on the landscape so that there is a chance they will endure the next wildfire.*
- *In regard to fire, multiple studies have shown that “timber harvest, through its effects on forest structure and local microclimate, has increased fire severity more than any other human activity” (US Fish & Wildlife Service:1996).*
- *Though the THP states the new road construction will positively help with fire suppression activities, this is a stretch. It is highly doubtful a fire engine would access the new seasonal road up a forested slope during a wildfire event. Sometimes this reviewer is annoyed by the justifications used to clothe a timber harvest plan in a positive light.*
- *What is Cal Fires strategy for addressing the effects of climate change on fire hazard levels associated with post logging site conditions?*
- *The increase in fire danger due to a buildup of dead bushes and trees due to logging and herbicide use is a threat to community safety as well as ecological health. There is only one public road in and out of the area, which is very narrow in some locations and surrounded by flammable vegetation.*
- *Large, fire resistant trees will be replaced with more flammable and crowded tree plantations.*
- *Why does Cal Fire accept these types of artificially created hazardous conditions when your agency is tasked with protection of communities from fire?*
- *In an era of catastrophic wildfire, I don't see how it's worth the risk to allow these hazardous conditions to be created. Our local firefighters need all of us to take action to reduce the risk of wildland fires, yet HRC's actions in the area have increased those risks and will continue to do so until steps are taken to protect the community.*
- *There are proven timber harvest methods that evenly retain canopy closure and thereby reduce the rate of rapid regrowth of flammable underbrush. Variable Retention Aggregate is not one of them.*

RESPONSE:

There will be a short-term increase in finer fuels on the forest floor post-harvest. The current pre-harvest forest has high tree density with both vertical and horizontal fuel continuity. Harvesting will space out the trees to reduce this fuel continuity. In the selective harvesting area of this THP residual trees are spaced out and given more room to grow, increasing their vigor, and capturing some of the natural mortality. The remaining trees will have less competition and the forest will have increased resiliency to wildfire.

The THP states on page 204-205 the following:

The existing fuel conditions within the THP area includes both vertical and horizontal continuity of live and dead fuels. The stand type in the THP most resembles a two tier stand that has an overstory of residual second growth conifer and hardwoods and a mid-level canopy of second and third growth conifer and hardwood regeneration and moderately dense ground cover consisting of grass and brush. There is dead fuel located sparingly throughout the THP area in the form of snags and down woody debris. Through management of the stand using unevenaged management the future fuel conditions will be modified.

The use of selective logging (unevenaged management) will significantly reduce the amount of surface and ladder fuels. Selective logging will individually select trees for harvest. In many cases the overly dense, poor health and poor form trees are harvested to release the dominant and codominant conifers and promote conifer regeneration in the understory. The retention of healthy conifers will improve the overall stand health and provide for a more fire-resistant stand. Similarly, the selection of individual trees from the stand matrix will reduce vertical and horizontal continuity within the stand as trees with intermingling crowns are thinned to provide additional resources for the retained trees.

Maintenance of the road system allows fire protection access. The rebuilding of the Z19 road was specifically found to be beneficial by CAL FIRE and will allow access of fire engines, water tankers, and crew buses.

Post-harvest, the slash layer also benefits the site by creating a layer of ground cover to decrease raindrop impact and trap sediment. This is a major balancing act because the slash provides mitigation for erosion. Removing this logging slash through prescribed burning may damage residual trees, burn understory vegetation, and threaten watercourses with potential erosion. Prescribed fire is an unwelcome risk to timber value and water quality resources. In addition, broadcast burning slash emits CO₂ into the atmosphere, rather than allowing the slash to decompose and contribute to soil carbon storage. Mechanical treatment of the slash is costly and may damage residual trees. In addition, current chip markets are not favorable for extraction and shipping outside the area.

The THP proposes selection, group selection, variable retention, and no harvest throughout the THP area. Because of this, significant canopy cover will remain post-harvest. Not all of the large trees are proposed for harvest. Large trees will be left in the selection and group selection areas, variable retention areas, and no harvest areas. HRC company policy is to not harvest old growth trees. Therefore, if any are present in the THP area, they will be retained. Through spacing of trees, residual trees will be able to grow larger and more fire resilient at a rate faster than if they were let to grow. It is true that the variable retention area will remove the majority of the overstory to allow regeneration of the site. However, this is only a small portion of the larger watershed area and significant adverse impacts are not expected. This THP is part of HRC's continued long-term management of its timberlands for unevenaged management. These landscapes are broken up by roads, topography, and other land ownerships.

During timber harvest operations, equipment and personnel are required by regulation to be available to fight a fire if one should start in the immediate vicinity where harvesting is occurring.

Code section PRC 4428 requires that each logging crew have a fire cache and PRC 4431 requires that each chainsaw operator have at least one serviceable round point shovel or one serviceable fire extinguisher within 25 feet. These firefighting tools, and equipment such as tractors/skidlers allow operators to immediately respond should a fire start as the result of natural causes (i.e., lightning), harvest operations, or other causes in the vicinity of active harvest operations. The Forest Practice Rules require that access for fire equipment be kept in passable condition during timber operations when those operations occur during fire season (code section 14 CCR § 923.6). Periodic inspections by CAL FIRE include the verification of the required firefighting requirements are in place or a violation may be issued.

CAL FIRE believes that the short-term increase in forest ground fuels is worth the improvement to breaking up the vertical and horizontal continuity of fuels, improved growth, and increased long-term resiliency of residual trees. In addition, the current THP roads will be upgraded and maintained for fire response access. Existing forest roads are also man-made fire breaks which firefighters use in the event of a wildfire.

On page 7, item 50, of the CAL FIRE PHI report, the CAL FIRE inspector answered “Yes” to the following:

Considered the areas fire hazard severity rating, fire history, expected fire behavior, and resources at risk:

Will proposed treatments be sufficient to reduce fire hazard and provide defensible space around buildings and along roads?

A concern is that CAL FIRE should not approve this timber harvest plan due to the current drought and climate. The Department understands the public's concerns and has been rapidly increasing its prevention efforts by increasing CAL FIRE fuel reduction projects and by allocating millions of dollars in funding to the public. The current drought situation is also of concern. Because of this, Governor Gavin Newsom has allocated significant funding to fire suppression staff and fire prevention projects (Newsom, April 2021). This includes \$1 billion investment in forest health and community fire resilience as well as additional funding for fire suppression staff.

On January 8, 2021, the Governor's Forest Management Taskforce released a comprehensive action plan to reduce wildfire risk for vulnerable communities, improve the health of forests and wildlands and accelerate action to combat climate change. The Task Force and the state's efforts going forward will be guided by this Action Plan with an overall goal to increase the pace and scale of forest management and wildfire resilience efforts by 2025 and beyond.

Here are only a few of the planned actions:

- The Department of Forestry and Fire Protection (CAL FIRE) and other state entities will expand its fuels management crews, grant programs, and partnerships to scale up fuel treatments to 500,000 acres annually by 2025.
- CAL FIRE will expand its fuels reduction and prescribed fire programs to treat up to 100,000 acres by 2025, and the California Department of Parks and Recreation (State

Parks) and other state agencies will also increase the use of prescribed fire on high risk state lands.

- CAL FIRE will significantly expand its defensible space and home hardening programs and launch a new program building upon the Governor's 35 Emergency Fuel Break Projects by developing a list of 500 high priority fuel breaks across the state. This list will be continuously updated.
- CAL FIRE will coordinate the implementation of several grants and technical assistance programs for private landowners through a unified Wildfire Resilience and Forestry Assistance Program.
- CAL FIRE will use all fuels reduction methods, including prescribed fire, to expand its fuels reduction program with a goal of treating 100,000 acres of its 500,000- acre target.
- Using a science-based approach to identify priority areas for treatment, CAL FIRE will create a dynamic matrix of newly developed fuel break projects. These projects are described in CAL FIRE's Unit Fire Plans, including assessments of threats to vulnerable communities identified in the Community Wildfire Prevention and Mitigation Report.

The Department has funded a significant amount of fire prevention and forest health projects for the past five years as shown in the table below:

| | FY 2014/15 | FY 2015/16 | FY 2016/17 | FY 2017/18 | FY 2018/19 |
|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Fire Prevention | \$9.3mil | \$5mil | \$15.7mil | \$79.6mil | \$43.2mil |
| Forest Health | \$14.7mil | - | \$21mil | \$91.5mil | \$63.4mil |

The Department has also been actively conducting fuel reduction projects. In the past year, between July 01, 2019 to June 30, 2020, the Department treated over 50,000 acres as shown in the table below.

STATEWIDE SUMMARY

July 01, 2019 - June 30, 2020

| Treatment Objective | Treated Acres | Personnel Hours | Equipment Hours |
|----------------------------|----------------------|------------------------|------------------------|
| Broadcast Burn | 27,589 | 45,790 | 21,889 |
| Fuel Break | 9,805 | 86,854 | 70,156 |
| Fuel Reduction | 18,207 | 164,324 | 141,005 |
| Right of Way Clearance | 3,051 | 17,050 | 22,666 |
| Statewide Totals | 58,652 | 314,018 | 255,716 |

8. GENERAL CONCERN: Alternatives Analysis

Public comment about alternatives to the proposed harvest included that the no project alternative was superior, utilize lighter touch silviculture, and helicopter yarding was a less damaging alternative.

RESPONSE:

The Forest Practice Rules do not direct how alternatives should be addressed in a Plan. However, code section 14 CCR 896 states:

"It is the Board's intent that no THP shall be approved which fails to adopt feasible mitigation measures or alternatives from the range of measures set out or provided for in these rules which would substantially lessen or avoid significant adverse impacts which the activity may have on the environment."

Section 15126.6(a) of the CEQA Guidelines states that "an EIR shall describe a range of reasonable alternatives to the project or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.

The no project alternative was discussed on page 114 of the THP:

Although this alternative is clearly inconsistent with the project objectives, the CEQA guidelines nevertheless require that the No Project Alternative be evaluated. The existing conditions have been considered, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans (14 CCR§ 15126(d)(4)). The No Project Alternative would avoid the risk of potential environmental impacts that might occur in connection with proposed timber operations, yet may potentially result in other significant, adverse effects. For example, the No Project Alternative would not provide an opportunity for Humboldt Redwood Company LLC (HRC) to correct existing environmental problems related to sediment or reduce wildfire fuel hazard loading.

This parcel is zoned for timber production (TPZ), and such lands are exclusively dedicated to the growing and harvesting of timber for commercial purposes and compatible uses (Government Code Section 51115). Pursuant to the California Timberland Productivity Act (Government Code Section 51104(h)), "compatible uses" are limited to those which do not significantly detract from use of the property for, or inhibit, growing and harvesting timber. Under 14 CCR 897(a) (and Big Creek Lumber Co. v. County of San Mateo (1995) 31 Cal. App. 4th 418, 425, citing Gov. Code, §§ 51104, subd. (g), 51112, 51113), there is a legal presumption that "timber harvesting is expected to and will occur on such lands." Moreover, 14 CCR 898, which has the force of law, provides that on TPZ lands timber harvesting shall not be presumed to have adverse impacts (see also Government Code Section 51115.5). Ownership of such lands involves a long-term commitment to timber growing, requiring many years for the "crop" to mature before harvest. Landowners are taxed at rates consistent with this idea, and are expected to harvest timber in order to

maintain that zoning. Under both the Timberland Productivity Act ("TPA") and the Forest Practice Act (FPA), maximum sustained production (MSP) must be achieved on such lands, and such production cannot be achieved without harvest.

The location and timing of the proposed plan are subject to the landowner's management objectives, which are based on many factors. The RPF has discussed delaying the timing of the project on pages 117-118 of the THP.

Effectively managing timberland requires harvesting timber when it is most effective to do so. Stands are chosen for harvest based on a variety of parameters including age, stocking levels, current growth rate, and the goals of the landowner. As most of the stands that would normally be selected for harvest using these criteria are constrained by regulations, delaying or operating elsewhere on the property is considered less feasible in comparison to this project.

Delaying the timing of the project for a number of years, say 5 to 10 years, was examined as an alternative to the project as proposed. This alternative would attain some of the landowner's objectives by allowing the landowner to manage the parcel for timber production, but postponing the operations would prevent the RPF from maximizing the productivity of this stand.

While an alternative that simply delayed harvest would avoid, at least for now, any potential or unanticipated adverse environmental effects that might be associated with the project as proposed, this alternative could potentially result in other significant, undesirable effects. Specifically, the delay in harvest could affect maximum sustained yield. Also, not making environmental improvements to the site may present some adverse effects. Improvements proposed in the THP for existing roads in the plan area to develop runoff and decrease erosion would not be accomplished at this point in time. In addition, the landowner would be required to harvest in another location at this time to supply the mill and meet other financial obligations. In that event, the harvest from the alternative location would be evaluated for potentially significant effects, including consideration of further alternative project locations. In brief, the harvest must occur somewhere, now. The proposed location presents the best mix of opportunity to meet the requirements of the applicable requirements to maximize sustained production and avoid significant impacts.

Alternative silviculture methods were discussed on pages 115-116. It should be noted that higher impact silviculture such as clearcutting, rehabilitation, transition, and shelterwood/seed tree harvesting were rejected. These types of silvicultural prescriptions would have retained significantly less canopy cover and retained far fewer large trees. The three prescriptions that were chosen were:

Selection. *This method will retain elements that provide perpetual, multi-aged stand structure, and maintain critical ecological refugia. Selection is being used to thin conifer-dominated stands of Douglas-fir and Grand fir across the range of merchantable diameter classes present. As trees are thinned out and the forest canopy is opened around retained trees, those trees will release and increase in annual growth. This increased growth*

continues until the residual crowns fill back in and the forest canopy closes. Periodic Selection harvest will maintain steady individual tree growth while allowing for smaller trees to fill in from beneath. Selection is a feasible silvicultural method, meeting the HCP requirements.

Group Selection. This method will retain elements that provide perpetual, multi-aged stand structure, and provide critical habitat for species associated with forest openings and 'edge' environments. Group Selection is being used to harvest individual Douglas-fir and Grand fir as well as to create forest openings up to 2.5 acres in area beneficial for forest regeneration. The forest openings will initially allow more light into the stand, but will close in over time, as regeneration becomes established and nearby retained trees release and grow. Small openings also result in increased prey base for the northern spotted owl. Group Selection is a feasible silvicultural method, meeting the HCP requirements.

Variable Retention. This method retains between 10% to 40% or more of the original stand in both rolling and permanent pockets of untouched trees and critical refugia, composed of Douglas-fir, Grand fir, and other hardwood and conifer species specific to the site. This silviculture provides post-harvest ecological structure that will create sufficient opportunity to plant and naturally regenerate Douglas-fir, a shade intolerant species, as well as restore historical conifer dominance to the forestland.

Alternative yarding methods such as helicopter yarding were addressed on page 117. Helicopter yarding can potentially impact wildlife species as well as the public through noise. The RPF addressed helicopters for this project:

This method is potentially feasible because there are no topographical, physical, or safety reasons that would preclude the use of helicopters on this project. However, the increased costs associated with helicopter yarding were weighed against many operational variables, such as log supply shortages, availability of other equipment, seasonal restrictions/timing of operations, and road use restrictions. Based upon simple economics, this method was rejected as being unnecessarily costly relative to other harvesting methods.

CAL FIRE has determined that the level of detail in the alternatives discussion is adequate, and the alternatives are fully discussed. Consistent with the principles set forth in the CEQA guidelines, the THP includes sufficient information about each alternative to allow meaningful evaluation, analysis and comparison with the proposed project. (CEQA Guidelines 14 CCR 15126.6(d)).

9. GENERAL CONCERN: Traffic

There was public concern that increased traffic due to timber harvesting would create public safety problems on the roads, especially McGinnis Creek and Conklin Creek Roads. There would also be additional dust created that could enter watercourses. One public comment felt that there would be potential to inhibit access by emergency vehicles.

RESPONSE:

The THP addresses traffic on page 197 of the THP. The McGinnis and Conklin Creek roads are lightly traveled roads. They are narrow as many local Humboldt County roads are. The RPF states:

Log truck traffic has historically occurred on these roads. Continuation of hauling operations at historical or current levels is not expected to cause a significant adverse impact to traffic on these roads. There are no existing traffic or maintenance problems along these routes during the summer tourist season. There have been no major problems causing significant traffic involving log trucks. Logging truck and trailer fees, use fee permits, and fuel taxes generate revenues that provide funds for maintenance of public roads.

Finding: *Because the THP operations will add relatively few vehicles to roads that are designed for similar traffic, negative traffic impacts are not expected. Because other present and future projects are expected to avoid similar impacts due to separation in time and space, this THP will avoid significant adverse cumulative traffic effects.*

The public comments did not bring up any specific locations where traffic was a concern or reasons that safety would be a problem, for the general public or emergency responders. CAL FIRE believes that if log trucks and other logging vehicles obey traffic speed limits, it is unlikely that a significant impact will occur due to traffic.

Road watering is a common way to treat the road surface, reducing dust and maintaining a stable operating surface.

As per 14 CCR 923.7(c):

During Timber Operations, road running surfaces in the logging area shall be treated as necessary to prevent excessive loss of road surface materials by methods including, but not limited to, rocking, watering, paving, chemically treating, or installing commercial erosion control devices to manufacturer's specifications.

Therefore, roads in the logging area will be treated to prevent road dust. Currently, the roads have routine traffic with no road watering. This degrades the road and generates dust. Road watering minimizes dust that is generated in the air and at the same time road traffic tends to pack the dust into the road surface. This prevents "moon dust" that is sometimes associated with significant traffic without any road treatment. Because of the anticipated road treatments, less dust is expected to reach watercourses than what is generated without road watering. Also, the HRC HCP requires all roads to be upgraded and hydrologically disconnected from the stream network. This helps minimize direct inputs of sediment into the stream system by discharging road surface runoff into vegetative buffers.

CAL FIRE has reviewed the THP's road traffic assessment, considered the mitigation measures in the FPRs, reviewed the interagency PHI reports, and concludes that there will not be significant impacts to traffic due to the proposed THP.

PUBLIC COMMENT LETTERS

21PC-000000287 – from Michael Evenson on March 25, 2021

*Please send us the review schedule for this THP
THP 1-21-00031-HUM*

*Specifically include:
PHI scheduled visit
First Review
Second Review
End of Public Comment*

Navigating CalTrees is very difficult and unsatisfactory. Public trust resources are at risk in this THP. From a brief overview read of documents, we find the following:

The road up McGinnis Creek to Units 1&2 is following an already failed road bed which created a train wreck in McGinnis. Access must be made that is out of that unstable zone.

There may be some error in ages of trees in Unit 4. In one place it is listed as 60 years, another at 80 years. There are older trees as well.

A more thorough reading requires more time. Please extend the comment period another two weeks beyond the stated date of March 28.

RESPONSE:

We are sorry that you had difficulty accessing the CAL FIRE website. Previously, interested landowners would have to request and pay for paper copies of timber harvest plans. CAL FIRE's goal is to make the forest practice review process transparent with the CALTREES website. We are continually trying to make the process easier and more transparent for the public.

The public comment period ended on June 7, 2021. This was more than 10 days after the second review team meeting, which occurred on May 27, and more than 30 days after the PHI, which was completed on May 6, 2021. As required by 14 CCR 1037.4,

The Director shall have 30 days from the date the initial inspection is completed (ten of these days shall be after the final interagency review), or in the event the Director determines that such inspection need not be made, 15 days from the date of filing of an accepted plan in accordance with 14 CCR § 1037, or such longer period as may be mutually agreed upon by the Director and the person submitting the plan, to review the plan and take public comment.

There is concern that the stand age is listed differently for unit 4 at both 60 years and 80 years in the THP. The THP lists the age of unit 4 at 50-60 years old on page 109 and average of 60 years on

page 125. CAL FIRE does not believe this is a significant difference since the stand description is an estimate of the age of the stand which is variable due to previous harvesting history. On page 108, the stand description for unit 4 lists 80 square feet of basal area, which may be a source of the confusion.

Please refer to General Concern Response 2. Geology and Erosion for a discussion of the proposed road reconstruction.

21PC-000000288 – from Ellen Taylor on March 25, 2021

Dear Cal Fire,

We received notice of this THP, indirectly, last week. It is designed for an area very close to Petrolia and is adjacent to two large inhabited tributaries.

It is voluminous.

It is an HRC plan. HRC has not notified the public of this plan even though it is a certified timber company.

Public comment is meaningless if not enough time is allotted to comment.

Please extend the comment period for at least a month. As you know, the Mattole community has been trying to restore the watershed, particularly the fish runs, which are precarious. Public comment is important as these THPs affect public trust values.

RESPONSE:

The THP included a Notice of Intent (NOI), which is required by 14 CCR 1032.7. The NOI was posted in a public place close to the THP area and landowners within 300 feet were notified of the proposed THP by mail. In addition, the NOI is distributed to the office of the County Clerk and local CAL FIRE Unit headquarters (14 CCR 1032.8). This is the requirement for public notice that CAL FIRE determines to be adequate under the FPRs.

The public comment period ended on June 7, 2021. This was more than 10 days after the second review team meeting, which occurred on May 27, and more than 30 days after the PHI, which was completed on May 6, 2021. As required by 14 CCR 1037.4,

The Director shall have 30 days from the date the initial inspection is completed (ten of these days shall be after the final interagency review), or in the event the Director determines that such inspection need not be made, 15 days from the date of filing of an accepted plan in accordance with 14 CCR § 1037, or such longer period as may be mutually agreed upon by the Director and the person submitting the plan, to review the plan and take public comment.

21PC-000000289 – from Michael Evenson on March 28, 2021

Dear Janelle Deshais,

We have been reviewing the above THP 1-21-00031-HUM and read your review: 20210318_1-21-00031HUM_Ag1storig.pdf

Has the RPF responded to your review? Could you send us the response?

Roads constructed in RMZs in the Mattole have resulted in historic failures, responsible for many of the legacy "Train Wrecks," as we used to term them. While there may be plans for a full bench cut road in bedrock, that still puts the aquatic resources of McGinnis and the Mattole River at risk, due to intense seismicity that is frequent in the watershed and potential for extreme high storm events. Putting one's faith (and "all one's salmonid eggs in one basket") on the basis of a License Geologist's analysis is not a sufficient protection of public trust resources, as past faith in those opinions has often proven unfounded. But, of course, by then it is too late. Rarely is the damage repaired owing to the time that has passed post harvest. Mitigation is never adequate. Restoration is tremendously expensive and never fully effective in restoring conditions that were impacted. The Mattole Salmon Group and HRC are engaged in restoration. Only a small fraction of the damage will be addressed and the longterm impact of upslope damage will continue for at least the next 50-100 years. One has to consider longterm impacts that are measured in 50-100 years, not the life of the THP or the persons now living.

In light of the high risks with a road in the RMZ, we feel that this road should not be permitted. The RPF must consider alternatives such as construction on the less steep Conklin Creek side of the ridge or the least damaging alternative: use of helicopter yarding which requires no road.

Is the Department willing to justify the RMZ road on the basis of economics despite potential and likely irremediable impacts to public trust resources?

Will you attend the PHI to discuss and inspect alternative routes?

Please respond to the four questions posed in this letter and keep us posted.

RESPONSE:

The RPF responded to the first review team questions from the interdisciplinary review team on March 23, 2021. These responses were posted to CalTREES on April 2, 2021. These responses are not sent out individually to the public, but are available for viewing on the CalTREES website to allow transparency in the review process. This was completed prior to the PHI, which occurred on April 6, 2021, to allow the interdisciplinary review team to review the responses prior to the field visit. CDFW attended the second PHI day on May 6, 2021.

The public comments are not typically responded to by review team agencies as your public comment letter requests. CAL FIRE responds to the public comment letters as required by 14 CCR 1037.4.

Please refer to General Concern Response 2. Geology and Erosion for a discussion of the proposed road reconstruction.

21PC-000000316 – from Michael Evenson on April 4, 2021

RE: THP 1-21-00031-HUM

*To Whom it May Concern,
The THP units encompass the lowest reaches of Conklin and McGinnis Creeks in the Mattole Watershed, 303d listed in regard to temperature and sediment. Prior management of these specific areas show disturbing effects over time.*

Pre-settlement, they were managed primarily with broadcast fire, maintaining openings in the forest and clearing underbrush. Post-settlement, fire was continued.

In the early 1900s mature tanoaks were felled for their bark and were left on the ground. Tanoak stumps sprout and light could reach the forest floor encouraging growth of brush and tree seedlings.

In the 1930s landowners were encouraged to burn hillsides that may have contained worthless (at the time) Douglas-fir. One can see remnants of those trees in the standing, dead fire- scarred large diameter snags (often 20-30 feet high) or buckskin fir LWD still functioning as habitat for terrestrial species after nearly 100 years.

Following WW2, Douglas-fir was removed, often brutally by today's standards, with tractor roads leading to individual trees in the very steep terrain and with haul roads running down the lower stream courses (both in Conklin and McGinnis Creeks). The stumps of large diameter firs, spaced throughout the hardwood/fir montane mix of species, are still visible. The impacts from the tractor harvest is apparent in numerous gullies (somewhat stabilized by pioneering tanoak and Douglas-fir). The Douglas-fir remaining post harvest responded with extensive cone production, leading to conifers pioneering into grasslands and across the forest slopes.

Today, 60-80 year-old Douglas-fir are forming the dominant canopy species, poking through the hardwoods, having been nursed by lower growing tanoak, bay laurel and madrone. It is these stands that the THP proposes to remove. Poisoning of hardwoods is also proposed to increase openings for future Douglas-fir.

This THP may have negative impacts to the beneficial uses of water in these sub-watersheds and the Mattole that are not adequately discussed in the THP documents and of concern in this review.

1) Road to Units 1, 2, 3 within the RMZ of McGinnis

Much of the damage from the post WW2 logging resulted from locating roads within the RMZ. That damage persists. Not only is a road proposed along the channel, it requires construction of a section at a slight elevation (10-30') from the current floodplain.

The THP does not adequately discuss and analyze potential changes in the elevation of the

floodplain from climate change forecasted extreme high storm events and associated mobilization of bed material and riparian vegetation capable of forcing channel migration against the proposed road track.

There is inadequate discussion of destabilizing impacts of full bench road construction on the hillslope.

There is inadequate discussion of the impact of the steep road climbing out of the RMZ and up to the Units, all of which drain directly into McGinnis Creek.

If this proposed road is constructed and water is used for dust abatement, where will the water be taken from and what impacts will that create in an already lower than adequate flow in both creeks and the mainstem Mattole. Will water come from onsite winter storage as required for other summertime water uses in the basin?

If the road dust is contained by water during use, it will become mobilized by the following winter storms and deliver fine sediments directly into a fish-bearing stream. What measures are designed to prevent that delivery and how will the containment measures be maintained (physically removed) so that they do not at some later date deliver those sediments?

Units 1, 2 and 3 all border close to Conklin Creek Road. Access directly to that road has advantages that lack discussion.

Conklin Creek Road is within the floodplain already and used extensively by neighboring landowners. No significant new impacts to the existing Conklin Creek Road will arise from use in this THP other than construction of a temporary crossing of the creek.

The slopes of Conklin Creek are less steep than those of McGinnis. Problems of slope instability are easier to address in such a situation.

Conklin Creek is not as likely as McGinnis Creek to support a recovering anadromous fish population. 2021 surveys have demonstrated spawning in reaches near the proposed road. CDFW, HRC and the Mattole Salmon Group are embarked on extensive restoration of the fishery in McGinnis. This long-term investment needs protection from negative impacts of road construction and use. Put another way, a negative impact to Conklin will not have an equivalent impact in terms of the beneficial uses of water should that negative impact occur in McGinnis. There are more resources at risk in McGinnis.

2) Destabilizing steep drainages in recovery

As mentioned above, the steep slopes of Conklin and McGinnis are riddled with slope failures and gullying from previous entries. Most have had a 50+ year period of recovery. The Douglas-fir/hardwood regrowth has knit together some stability. These drainages require longer recovery periods (likely another 50 years) to fully stabilize. The young fir forest is exhibiting dominance which will lead to suppression of other vegetation which will then become LWD on

the forest floor, enhancing recovery of soil depth, water retention and terrestrial habitat features that increase slope stability. This is the process of recovery which promotes climate refugia and lower air, soil and water temperatures - all of which interact to maintain stability.

This THP proposes the poisoning of hardwoods to hasten fir dominance. That process is already being accomplished as evidenced by the fir now over-topping the hardwoods. The result of poisoning the hardwood will create more openings to dry the slope and retard the stability mechanisms presently at work (and cited in the preceding paragraph). Coupled with an ever-warmer climate, creating more openings at this time will negatively impact the tenuous slope stability.

There is inadequate discussion of the impact in a warming climate to slope stability from proposed openings. With a reduced water budget, openings create stressors for existing vegetation and their root strength abilities.

3) Impact to the dry season water resources

The THP proposes removing maturing Douglas-fir and poisoning hardwoods to encourage young regrowth of fir. This presents a problem to the water budget of the stands as many of the firs proposed for removal are just now exiting their most thirsty life-stages.

Reference: Stubblefield et al., a study based in the Mattole, some 16 miles from the THP, both study area and THP are approximately 8 miles from the Pacific Ocean:
https://www.fs.fed.us/psw/publications/documents/pswgtr238/psw_gtr238_183.pdf

"Our results strongly support the conclusion that stem suppression will be the dominant trend affecting water use in the Douglas-fir dominated portions of the Mattole river watershed. Water use will be expected to decline in a steady fashion as the number of trees declines. A further implication of this finding is that clearcut harvesting of existing stands would not be beneficial for water yield in the basin beyond the initial regeneration period. It would result in a new crop of dense small trees, and delay the stem exclusion stage that much longer. Selective harvest of small and mid size trees might be expected to increase water yields without producing a thicket of young trees if remnant trees were able to quickly grow into the light gaps."

This THP does not propose clearcutting, although Variable Retention shares many of the same ingredients - removal of much of the forest cover. The selection units do not propose to remove only small and mid-size trees, but also those which exhibit dominance. Stubblefield et al. shows that this will result in higher water use by the young trees leaving less available for the watercourses.

THP 00031 does not propose to "thin from below" and take the smaller trees which Stubblefield et al show will increase summertime water yields. Instead, this THP proposes to take larger trees and leave the younger ones to take advantage of the opening. This will result in reducing summertime water flows in fish bearing streams immediately downslope from the harvest units. Variable Retention units will not be producing "gaps" of light, but large areas of sun to the forest floor, engendering growth of multiple small stems and producing a water yield problem for the creeks for the next 50 years.

Stubblefield et al. also demonstrate that the same is true for tanoak. Leaving the dominant tanoak will suppress the numerous younger tanoak and result in higher water yields during the summer. THP 00031 proposes to kill by herbicide hardwoods under 30" DBH regardless of whether they are dominant or co-dominant in the stand. There is ample evidence in the units of many healthy Doug fir piercing the canopy after growing upward under a nurse canopy of tanoak. Removing the nurse tanoak will result in faster growing young conifers (as envisioned by the THP through re-stocking), but these restocked trees will transpire greater quantities of water in the dry season than those trees which were present before the harvest - since they are already large and dominant, having suppressed numerous tanoaks on the way toward becoming dominant. The THP proposes to increase the number of young trees which will, according to Stubblefield et al., reduce the water yield in Conklin and McGinnis Creeks.

The Mattole is an impaired watershed due to temperature, and temperature is indirectly related to flow. The lower the flow, the higher the temperature in summer.

Has the RPF provided calculations showing an increased summertime water yield post-harvest to justify removing dominant trees?

Antiquated studies demonstrate higher water yields following harvests when one calculates total water run-off, both from winter and summer. Analysis is needed in this instance regarding the impact on summer flows of the harvest - and for how long. Stubblefield demonstrates that the impact to summer flows is long-lasting, taking a half century or more to reverse the decline.

"Conclusions

Sap/low measurements in the Mattole River watershed show strong relationships between total seasonal tree water use and basal area, DBH and sapwood basal area for Douglas-fir. Water use measurements combined with stand growth modeling indicate that the water use of Mattole River forests will decline in coming decades as the high numbers of young (< 5 cm DBH) trees decline from canopy closure and stem suppression. Decreased water use is expected to have beneficial effects on aquatic ecosystems.¹¹

"Previous research supports our finding of diminished water use with stand age. A sap/low study in western Oregon {Moore et al. 2004} determined that young mature Douglas-fir stands {40 yr} had 3.27 times higher water use than old growth Douglas-fir {450 yr} stands for a similar time period (June to October 2000)"

However, this THP proposes activities which will reverse that decline in water use and negatively impact the quantity and temperature of water and dependent aquatic species.

We should also take note {Queener and Stubblefield, "Spatial and Temporal Variability in Baseflow in the Mattole River Headwaters, California, USA" [2016]} "The proportion of a basin comprised of hardwood forest type was positively correlated with all flow metrics, while streams with less base/low generally had more coniferous forest."

THP 00031 proposes to lower the hardwood component to what it terms the historic level of 10% with 90% in conifer. The RPF should provide documentation that 10% is an accurate historic

proportion for this region of the Mattole. Field inspection of Mattole forests, both disturbed and undisturbed, do not exhibit such a mere 10% hardwood component, especially on East/South/and West aspect slopes. Hardwood regenerate from sprouts following fire and have historically been a dominant feature in this fire-generated landscape for centuries, providing cover, terrestrial and avian habitat, and slope stability.

4) Regarding the PHI

Please request the RPF to provide documentation in regard to the above comments.

Please incorporate LiDAR mapping to locate incised gullying and where existing established vegetation is stabilizing those areas.

Thank you for your consideration. If invited attend the PHI, I would be able to elaborate further on these concerns at particular locations.

RESPONSE:

Please refer to the following General Concern Responses 2. Geology and Erosion, 3. Hydrology, 4. and Sediment and Temperature Impacts. Specific responses not covered in the general responses are addressed below

Please refer to pages 294-297 for topographic geologic maps that show the mapped unstable areas in each unit. These maps are based on LiDAR and provide more accurate topographic features than USGS topography.

21PC-000000317 – from Ellen Taylor April 6, 2021

Dear Pre-Harvest Inspection Participants in the event scheduled for April 7th, in McGinnis and Conklin Creeks, regarding THP 1-21-0031-HUM

As a fifty-year resident of the Mattole, where I live downstream of this particular THP, and as Chairperson of the Lost Coast League I would like to offer comments, based on reading the THP document, and a recent visit to the site.

This last proved very easy as McGinnis Creek is right on the edge of recreational Petrolia, and Conklin Creek is inhabited by many members of the community. McGinnis Creek itself is praised by local historian Neb Roscoe in Mattole literature as a creek almost unrivalled for its beauty, destroyed by the logging of the fifties. For these reasons, the timber harvesting planned to occur according to this plan will excite concern and interest in the community, unlike remoter harvests.

Before making direct observations related to of site visit, I would like to mention the “elephant in the room” which is present in all timber operations of our era:

greenhouse gas emissions, and climate change. The FPR do not address this subject and THP practitioners are not expected to concern themselves with it. Nevertheless, please consider and discuss this existential and overriding threat to the prosperity of ourselves and future generations.

analysis in remarks such as that there is “natural variability in earth’s climate”, and “considerable debate regarding the causes”. However on October 7 2020 Governor Newsom signed EO N-82-20 setting a goal of conserving at least 30% of the state by 2030 to combat the biodiversity and climate crises. The order was written in collaboration with federal, state and local governments, Indigenous Tribes and and frontline community stakeholders. Here recognized is the loss of more than 80% of the world’s intact forests, which deprived the atmosphere of its most effective carbon sink. William R. Moomaw, professor emeritus of International Environmental Policy at Tufts University, described preserving what is left of our standing forests as “our last best hope” for reducing atmospheric carbon. If forest removal were to stop today, trees could sequester 1/7 of atmospheric carbon.

The Z’berg Nejedly Forest Practice Rules do not regulate the climate and biodiversity crises. They were however written in 1973, and are therefore antiquated. Climate change and fear of possible catastrophe is now on everybodys minds. now THP 1-21-00031HUM dismisses the significance of its own projected emissions by remarking that the harvest “will add to the carbon stored in wood products”, and that the trees replanted will “increase the rate of carbon storage”.

It states that the THP area represents only .0034% of the total timberland of the state, an insignificant amount.

This THP has no redwood, a tree extolled in this THP for its carbon sequestration abilities, 2.5 times the capacity of the tropical rainforests. Doug firs, the merchantable tree of interest in 1-21-0031HUM, are, however, not far behind. A mature doug fir has many of the abilities possessed by redwoods: use of less groundwater, and ability to condense much of its requirements from fog, and to carbon sequester carbon.

Large doug firs also are also resistant to catastrophic fires.

This THP may be only .0034% of the state’s timberland, but the enormity of the issue of climate change means that cumulative impacts must be evaluated comprehensively and taken seriously. Older tree sequester carbon more and more efficiently the larger they grow. Our “last best hope” for easing climate change lies in the big trees, and the forest biomass.

A sweeping study of forests around the world finds that the older the tree, the greater its potential to store carbon and slow climate change.

Pacific Forest Trust 2014

Calculations have shown that allowing intact forests to mature(proforestation) would result in much more carbon sequestration than either afforestation or reforestation, especially in the crucial next several decades.

Moomaw et al, Intact Forests in the U.S: Proforestation Mitigates Climate Change

Terrestrial ecosystems alone are extracting about 1/3 of the CO₂ emitted as a result of human activities. Most of that enhanced uptake is by forests. This has mitigated the amount of warming that would have happened otherwise.

Moomaw et al., Frontiers in Climate Change

If a typical tree's diameter grows 10 times as large, it will undergo a hundredfold increase in leaf mass and a fiftyfold to hundredfold increase in total leaf area, the study found. This outweighs the lower rate of productivity

It highlights another reason why it is really important that we grow as many areas of forest through to being old growth forests as possible.

Dr. William Morris University of Melbourne

This THP is stated to have no intact old growth or late seral forest. What instead is targeted is the trees which will develop into old growth the soonest, to be replaced by trees which will take three generations to reach the capacity for carbon sequestration of their predecessors.

In removing them, we are destroying the carbon sink, and the forests, having lost that capacity, will instead become a contributor to greenhouse gas production.

On March 28th I visited the THP together with an adjacent landowner who has easement rights. After crossing McGinnis Creek the access road (to be constructed in the riparian for 350 feet!) to units 1 and 2 ascends steeply and with many tight switchbacks. Please evaluate this road carefully for stability and risk to water quality and the Mattole Salmon Group's restoration project below. We walked along the upper slopes of units 1 and 2. Few trees were marked for cut besides those assumed to be designated for yarding operations. Also, riparians have not been ribboned.

Please make sure they are marked. The slopes are very steep, and covered with thick duff. It looks like a very great distance from the WLPZ to the access road. Is the harvest focused further downslope? Please go down to the watercourse so that you can evaluate the WLPZs, how much shade cover is to be removed from the bands, and resultant water quality and erosion risks. The THP states there will be 18 leave trees per acre in the inner band of the WLPZ.

These riparian areas are also what constitutes HRC's high conservation value forest, a designation sustainability certification requires. It is also filling the requirement for wildlife habitat.

Are the biggest trees left? Will cutting 35% of the upper and lower stories of the shade cover affect habitat suitability? Please evaluate.

We did not go to unit 3. In the other units, even without going very far downslope we noticed severe erosion in many places, probably from previous logging activity. Will these problems be corrected?

Herbicides are prescribed for the majority of the THP as most of the silviculture is to be variable retention. Herbicide use, as you know is an extremely unpopular policy. Glyphosate, the THP's backup herbicide, has been condemned by courts as a carcinogen and the cause of acute kidney failure, and is banned by an increasing number of countries. From wildlife (40% of amphibians have gone extinct in the last 50 years, and a plethora of insect species) and water quality perspectives, please reconsider this approach, especially in such proximity to a town.

Have the Bear River Tribe and the Wiyot tribe been adequately notified? Previously this has not been the case: HRC's notification to the tribes concerning High Conservation Value Forest Evaluation never reached the Natural Resources Department of either tribe. Additionally, the Bear River Tribe is typing habitat across their ancestral territory, and retrieving bullets and samples of toxins, which might affect wildlife, especially the Pacific Condor about to be released into the wild by the Yurok tribe. They have a USFWS grant to fund the study, and it is important to evaluate this THP before it is executed. Please allow them access.

Three Northern Spotted Owls are indicated to be living in the vicinity of the THP.

The THP area offers better habitat for them, should they have the need to change their nesting site, now, rather than after the trees are cut. It also might provide habitat for their offspring now and in future years. As you know, NSO are in decline across the Pacific Northwest. Although Barred Owls are blamed, loss of habitat over the last century is the true cause.

In the THP however it is claimed that removing trees may be a good thing for owls, because open areas provide habitat for rats.

Red tree voles, twenty or so years ago, were known to be the principal food of NSOs. In fact in 1993 Pacific Lumber/MAXXAM agreed not to touch any trees inhabited by red tree voles. These were of course older larger trees. Now they are not even mentioned as an important part of NSO diet, or habitat. Has the disappearance of voles and the destruction of unoccupied existing or developing habitat, contributed to the NSO's poor survival record?

Where will these three owls' progeny find homes?

Barred owls have been shown to invade new areas of the forest when they are harvested. The Mattole is still relatively free of Barred Owls. As such, it should be designated a wildlife refugia, and the premature trees in this THP left to afford habitat for Northern Spotted Owls and red tree voles. Please discuss.

Is the recently completed restoration project executed by the Mattole Salmon Group, with HRC involvement and support, for the restoration of aquatic species in McGinnis, jeopardized by the activities of this THP? What do the biologists on the PHI think?

I have just been given the information that CDFW will not be attending this PHI.

This is unconscionable. Public trust resources are at stake. The PHI should not proceed until CDFW is ready to attend. This agency is the guardian of California's wildlife, much of which is in peril. Of

course you know that over a million species are at risk of extinction, according to the UN Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (the IPCC of Biodiversity). The report warns that “the bonds that hold nature together may be at risk of unraveling from deforestation, development, and other human activities.” According to Sir Robert Watson, Chair of the organization, “the health of ecosystems is rapidly deteriorating, and this paints an ominous picture with serious consequences for human beings as well as the rest of life on Earth.”

CDFW should not be understaffed. Timber companies used to pay for review services, and did so in the recent past. Such an arrangement could provide resources to adequately protect the public trust. Indeed, the public trust agencies have slacked off in their evaluation of THPs. This was made clear to me in the review process of THP 1-20-0059HUM, a THP in Bear River. The THP boundaries were wrong (THP overlapped into Bull Creek watershed), CDFW did not attend

even though there was murrelet habitat. Comments regarding this cavalier attitude regarding accuracy and attention to the public trust were brushed off.

The advent of certification seems to have a role in this. Certification, that is, private regulation, has replaced public review. However, the organizations that monitor certification are supported by the companies they certify. There is an expression for this relationship involving foxes.

The public should have control over the public trust. Their survival depends on the protection of these values. Please cancel Wednesday’s PHI until the public trust agencies are able to attend.

RESPONSE:

Please refer to the following General Concern Responses 1. Harvesting Second Growth Forest, 2. Geology and Erosion, 3. Hydrology, 4. Sediment and Temperature Impacts, 5. Herbicides, and 6. Climate Change and Carbon Sequestration. Specific responses not covered in the general responses are addressed below

The CDFW attended the PHI but did not produce a PHI report. According to the CAL FIRE inspector (personal communication), CDFW attended the field visit and their concerns were addressed by the other review team agencies. Therefore, no PHI report was generated. Review team agencies are still funded by AB1492 with funds generated from a 1% lumber tax. This supports review team agencies that have positions in forest practice.

The Bear River and Wiyot tribes were notified of the proposed THP through the archaeology consultation process. In addition, the InterTribal Sinkiyone Wilderness Council, Round Valley Reservation, and Wailaki Tribe were notified. This process is typically used to consult under the confidential archaeology addendum.

14 CCR 929.1 of the California Forest Practice Rules require the following steps when preparing the CAA:

- (a) Preparing a plan. Prior to submitting a plan, the RPF, or the RPF's supervised designee:

(1) Shall conduct an archaeological records check at the appropriate Information Center. A previously-conducted archaeological records check for the property may be used to satisfy this requirement if it covers the entire area proposed for timber operations and if it meets the definition of "current archaeological records check" in 14 CCR § 895.1.

(2) Shall provide written notification to Native Americans of the preparation of a plan. The primary purpose for this notification is to provide Native Americans an opportunity to disclose the existence of any Native American archaeological or cultural sites that are potentially within or adjacent to the site survey area, and the opportunity to comment on the plan. The RPF shall allow a minimum of 10 days for response to this notice before submitting the plan to the Director. The remainder of the 10-day waiting period is waived when all Native Americans required to be informed respond in less than 10 days. This notice shall contain the following attachments or items of information:

(A) A request for information concerning the potential existence of any Native American archaeological or cultural sites within the plan boundaries.

(B) Information concerning the location of the plan including:

1. A general location map that, at a minimum, shows the travel route from the nearest community or well-known landmark to the plan area.

2. A copied segment of the titled USGS (if available) or equivalent map(s) that displays the approximate boundary of the plan area, and includes a map legend and a scale.

3. A description of the plan location including the county, section, township, range, base and meridian, and the approximate direction and distance from the nearest community or well-known landmark.

(C) A statement that all replies, comments, questions, or other information submitted by Native Americans as a result of this notice be directed to the RPF. The name, address, and phone number of the RPF shall be provided.

(D) Information concerning the available time for response. Indicate that the RPF is requesting a response within ten days from the date of the notice so the information can be incorporated into the plan when initially submitted to the Director. Provide the estimated date the plan will be submitted to Director. Provide the following statement: "The earliest possible date the Director may approve the plan is 16 calendar days after it is submitted to Director, although typically, the plan is reviewed for at least 45 calendar days following plan submittal before the Director approves the plan.

(E) A statement that the Native American groups may participate in the plan review process by submitting written comments to the Director before close of public comment period.

The THP protects northern spotted owls through compliance with the company's HCP. This requires surveys, protection of nest sites, and retention of habitat. The THP includes habitat analysis on pages 245-247 of the THP. Two NSO activity centers are within 1.3 miles of the THP. These activity centers are protected as required by the company's HCP. Sufficient habitat must remain post-harvest where NSO young may nest and feed. The maps on pages 245-247 show that sufficient suitable habitat will be retained post-harvest. NSO Spotted owls are rodent specialists, feeding on any rodent that they find but primarily woodrats, deer mice, red tree vole, and northern flying squirrel.

Red tree voles are a species that is covered by the company's HCP, Section 6.9. The HCP conservation measures protect red tree vole habitat through retention of late seral habitat throughout the property as well as areas that are retained in harvest units that provide connectivity across the landscape.

The barred owl is the slightly larger and more aggressive of than the NSO. Barred owls get by with much less acreage per territory which means they can densely pack the habitat occupied by spotted owls. Barred owls take a wider variety of prey species than spotted owls, including prey that is active during the day; this also gives barred owls a competitive advantage over spotted owls. In addition, barred owls nest more often, more successfully, and produce many times more young than do spotted owls. These are the main factors that have allowed the barred owls to move into NSO territories. HRC monitors barred owl locations as well as NSO locations since they are potentially found during surveys. Through the HCP, NSO populations are evaluated by the wildlife agencies.

21PC-000000318 – from Richard Sykes on April 6, 2021

RE: Timber Harvest Plan #1-21-00031-HUM

I appreciate the opportunity to comment on the THP and your invitation to the pre-harvest inspection (PHI). I will try and attend the PHI as I will learn much and no doubt additional questions will come up. Please consider these comments to be from me as the Executive Director of the Mattole Salmon Group (MSG) as well as my role as Manager of the 3030 Ranch LLC. Both MSG and 3030 Ranch have a strong partnership with you and HRC as we are working together on grant-funded restoration projects to protect McGinnis Creek and we are also neighbors in the Conklin and McGinnis Creeks Watersheds. We look forward to continuing that strong partnership in the future.

My primary concern is with protection of the McGinnis Creek and the areas adjacent to the creek and thus focused on Unit 4. Units 1, 2 and 3 which primarily drain to Conklin Creek are of less concern as the watershed are far more developed and conservation/restoration potential is not nearly as great as in McGinnis.

McGinnis Creek is a recovering from complete removal of large riparian-area trees and has been the focus of salmonid habitat restoration efforts by the CA Department of Fish and Wildlife, HRC, MSG and 3030 Ranch. Three species of threatened salmonids use the creek for rearing and it has become an important spawning location for steelhead. Further, the virtual absence of any development or diversions in the McGinnis watershed make it particularly worth the extra protection effort. As such, I believe that special treatment zones should be very carefully and liberally delineated especially for the many unstable areas at the lower elevations in Unit 4 that are near the Creek.

Section II, page 11 notes address the use of herbicides noting that "hardwood, brush and grass may need to be treated following timber operations to ensure the establishment of group A species". Does this mean that herbicides will not be used prior to operations? How and when is the decision made to use herbicides following operations? MSG and 3030 Ranch ask that you refrain from herbicide use if possible, particularly in Unit 4. If they are used, we believe that application should be limited to hand application only with herbicides that have the least possible impact to fish and wildlife or public health.

Section II, page 11 notes that Group B species will be managed to maintain relative site occupancy of group A species. This page also notes that Group B species allowable cuts are <30" DBH. Very few of these large older trees exist in the area and we hope that the allowable limit be reduced to <24", thus preserving a few more of these large trees.

My perspective from the 3030 Ranch Property and also overseeing the current habitat restoration project on McGinnis Creek is that the erosion potential on disturbed ground in this area is high. In Section II, Harvest Unit 4 is noted as having a low to moderate erosion hazard rating, which is a rating averaged for the entire unit. The areas lower in elevation and closer to the creek appear to have a high hazard for erosion and as such should be addressed differently, maybe with larger Special Treatment Zone designations.

While recognizing that HRC is following standard protections for the McGinnis riparian area, we suggest that due to its high conservation value and the investments in habitat conservation made to date, that the riparian buffer areas, particularly around McGinnis Creek itself be addressed with extra caution. As the focus of so many current stream restoration projects is to add large wood debris to creeks, it seems prudent to not remove any tree near the creek which could grow large enough to ultimately be part of the naturally occurring wood debris that would fall into the current or future high water wetted channel.

The source of water during construction should carefully considered as to not have an adverse impact to base flows of McGinnis or Conklin Creeks. These Creeks, particularly McGinnis, have salmonid populations that need the flow for habitat and also to moderate temperatures. It may be possible to work with 3030 Ranch to install temporary storage for use during construction or installation of a well that could be used in combination with storage.

The 3030 Ranch has a number of other questions and concerns related to security, safety, and communications during timber operations. These items include operations schedule, speed limits, working hours, cattle gates, damage to and maintenance of 3030 Ranch roads, trimming trees in preparation for equipment passage, etc. I believe we should address these in a meeting well in advance of timber operations.

Other concerns or suggestions may come up during the PHI or upon further review of the THP. If you have any questions about these comments, please do not hesitate to contact me at rsykes@mattolesalmon.org.

RESPONSE:

Please refer to the following General Concern Responses 1. Harvesting Second Growth Forest, 2. Geology and Erosion, 3. Hydrology, 4. Sediment and Temperature Impacts, and 5. Herbicides

21PC-000000327 – from David Simpson April 19, 2021

Dear Review Team members

In the mid to late 1970's and into the next decade, the headwalls and upper reaches of Conklin and McGinnis Creeks, both Class 1 tributaries of the Mattole watershed , were intensively logged over the course of several years for large volumes of multi-sized and multi-aged tan oak, madrone and other hardwoods---and some residual Douglas and white firs---to meet the variable demand for wood chips for pressboard and other low grade raw material. In the two preceding decades, intense harvest of large old whitewoods, especially Douglas fir, had done huge hydrological damage to the inner gorges and unusually rich remaining species habitat. Today, despite the image of current conditions Humboldt Redwood Company is obviously trying to create--an image of recovering stability and healing stream beds-- the underlying drainages are actuality still vulnerable to mass wasting like a series of time bombs mines waiting to be detonated by careless steps.

Over the larger landscape known as Rainbow Ridge, while similar harvest histories have left their mark, more recent logging by Humboldt Redwood Company crews have freshly impacted already damaged landscapes, (Long Ridge, Long Reach, Rainbow Ranch et al THP's) and now threaten the rich mosaic protecting species that still remains there and almost no where else. Repeated claims throughout this Plan that new logging will somehow improve the habitat and the ability of the land to sequester carbon are outright mendacious. This plan, in its current form, must be rewritten to provide protections for the landscape and many species strongholds there. And perhaps in the process the RPF might contemplate choosing a title that doesn't trivialize issues so many so many people take seriously,

RESPONSE:

Please refer to the following General Concern Responses 1. Harvesting Second Growth Forest, 2. Geology and Erosion, 3. and 6. Climate Change and Carbon Sequestration.

21PC-000000376 – from Michael Evenson on May 6, 2021

Dear State Reviewers,

Before the PHI I submitted a comment regarding subject THP regarding the impact to Conklin and McGinnis Creeks due to the disturbance planned in harvesting. More specifically, recent studies demonstrate that changing the age of the trees in the forest results in a deficit in the summer-time flow. Nowhere in the THP documents has the plan submitter demonstrated that removing large trees from the slope, whether conifer or hardwood (through herbicide use) will not result in such a summer-time flow deficit.

If you are not familiar with the determination that such a deficit occurs when the stand age is lowered as it appears in this THP, please consult the attached peer-reviewed papers. My understanding is that during the PHI the harvest was not completely marked with “harvest” or “leave” tree selection.

How will this harvest impact summer-time flows in McGinnis and Conklin Creeks?

Will the harvest include conifers older than 50 years (at which point they cease creating deficits)?

Will the harvest kill hardwoods older than 50 years?

How will the Plan Submitter offset the anticipated deficit in summer flows? Through catchment pond release?

RESPONSE:

Please refer to the following General Concern Response 3. Hydrology

21PC-000000423 – from Ali Freelund on May 26, 2021

To All it May Concern,

I am writing on behalf of the Mattole Restoration Council (MRC) with our comments on the above reference Timber Harvest Plan (THP). MRC reviews and tracks timber harvest in the Mattole river watershed. In reviewing the timber harvest documents for the above referenced plan, we have many concerns that still need to be addressed.

New Road Construction

The Pint O' McGinnis THP proposes 3816' of new road construction, some of which is within the RMZ of McGinnis Creek, some of which is near unstable geology documented in the road work construction document. It is 2021, I had hoped building road lengths so close to a stream would be a non-starter. I have read the agencies PHI reports (both dates) and visited the proposed new road construction closest to the creek. The more recently engineered diagrams and plans with recommendations since the first PHI have attempted to mitigate impacts to the creek, but MRC is still against this idea and propose instead the use of helicopters to log the area needing access so as to avoid impacts to this important refugia for migrating, spawning, rearing salmon. MRC reviewed and wrote comments in 1998 on an Eel River Sawmills plan regarding a similar road issue (crossing McGinnis but on a different trajectory, 1-98-014HUM). That plan was not harvested and when they reinvigorated the plan they called for helicopter logging because of road issues. I know it's expensive but it might be the only way to harvest without causing impacts that could easily be caused during heavy storm years.

Unstable Geology

The McGinnis Creek area has been documented as having a high incidence of landslides and debris flows. In the conclusions of the original Geology report, cut and paste language referred to a different THP (Cooperman)!!

The hillsides need more time to rest without heavy equipment impacts.

Late Seral Douglas-fir

This plan proposes a reduction of acres of Late Seral forest composition particularly in Units 1, 3 and 4. Our concern is that this watershed needs to increase the forest age class overtime. The watershed had been severely harvested and is severely lacking in older age classes, in particular no trees or stands meet the definition of old growth or late successional. To build resilience in these stands it is necessary to retain all late seral stands to promote older forest structure over time. In particular, older Douglas-fir trees become more resistant to wildfire with age as their bark thickens and the distance from surface fuels to crown lengthens. Harvest plans need to retain older

fire-adapted Douglas-firs on the landscape so that there is a chance they will endure the next wildfire. The Mattole watershed has a chance to be a forest and water refugia, a place that continues to sequester carbon and provide habitat in healthy forests for the state of California if industry impacts from timber and cannabiz can be curtailed.

Variable Retention Silviculture

Humboldt Redwood Company has, from its inception, lauded the change of management from the even-aged forestry of past land managers to their plans for un-even aged forestry YET the result from using Variable Retention is closer to a Clearcut than to Selection. In particular, Units 2, 3 and 4 proposed to use Variable retention with the justification that removing overstory will promote growth in younger Douglas-fir. However, Douglas-fir is more shade tolerant in drier site conditions. Given the climatic projections of a longer dry season and as well as continued drought there seems little need to promote more growth of Douglas-fir. Speaking of drought, it is well known that young fir trees require far more water uptake to grow than older trees. Variable Retention would remove the overstory, cause a drying of soils, and as trees are stocked increase the water uptake during drought. Please back off and use a true uneven aged silviculture like Selection.

Creek Impacts

Please ensure that this plan does not exacerbate both the recent restoration of McGinnis Creek instream habitat structures and the ongoing sediment and temperature impacts to McGinnis Creek. Basically, since I have lived here, both tributaries of McGinnis and Conklin Creeks have blown out during winter storms so often as to periodically change the most dynamic parts of their systems: their confluences with the Mattole River, so important to creating and maintaining salmonid habitat. The Mattole Salmon Group is continuing with a restoration plan to improve stream complexity and pool depth in McGinnis Creek to enhance salmon habitat. If possible, work with these restoration projects.

Herbicides

Thankfully herbicides have not been proposed with this THP. I say this because it has long been a comment of ours and we appreciate that it is not part of the proposed activities.

Fire Suppression

Though the THP states the new road construction will positively help with fire suppression activities, this is a stretch. It is highly doubtful a fire engine would access the new seasonal road up a forested slope during a wildfire event. Sometimes this reviewer is annoyed by the justifications used to clothe a timber harvest plan in a positive light.

*In addition, as someone who develops projects to reduce the wildfire threat to the Mattole and its residents, in reading up on the recent publication, "California's Wildfire and Forest Resilience Action Plan" (2021), one of the key actions is to **1.7 Increase Incentives for Timber Harvests that Improve Forest Resilience, ...** The Governor's plan would build incentives for multi-age stands, increased carbon storage, and biodiversity. I truly wish this were implemented already, something that incentivizes growing older trees for forest resilience, carbon storage and biodiversity for the future of our state, let alone the Mattole watershed. This timber harvest plan proposes to extract, both now and in the future, not build. It is past time to recognize the importance of growing older forest structure. The Mattole Restoration Council worked for years to develop the Mattole PTEIR,*

which allows for both modest harvesting of second growth trees while nurturing older forest stand structure overtime. I have asked Humboldt Redwood Company many times if they would use the Mattole PTEIR which is supported by the environmental groups and forest landowners alike, and the reply was always that it did not allow enough of a cut.

So that is it, I suppose, the allowable cut under the Forest Practice Rules needs to change and embrace instead the Governor's new plan. Think what you may, but it is past time to change the way we think about the future of our forests and the impacts that harvesting as usual and road building brings to the watershed. The time is now to "thin from below" and "provide refugia for salmon" and "manage for older forest structure" and "build forest resilience to climate-associated impacts" while calculating carbon storage benefits and the available water or surface flow as essential in all our land management plans... our grandchildren need this future.

Helicopters are the ticket, and imagine what restoration they can accomplish as well!

RESPONSE:

Please refer to the following General Concern Responses 1. Harvesting Second Growth Forest, 2. Geology and Erosion, 3. Hydrology, 4. Sediment and Temperature Impacts, 5. Herbicides, 6. Climate Change and Carbon Sequestration, 7. Wildfire, and 8. Alternatives Analysis.

21PC-000000424 – from Ellen Taylor on May 26, 2021

Dear Second Review Team Members,

Tomorrow you will be discussing the above-referenced Timber Harvest Plan.

I want to urge you not to omit the issues which the public attempted to bring to your attention. The pre-harvest review document focused on the McGinnis Creek access road. Although that is certainly a critical issue with this THP, a myriad other issues having to do with community safety, fire dangers, forest and ecological health, water resources, wildlife, indigenous tribal rights, and erosion were addressed as concerns of the public.

For your information I am attaching a letter by John O'Brien, a climate scientist, who addressed exhaustively most of the above issues as they affect Jackson State Forest, where timber extraction is currently being considered. Although this project is located on state land, the issues are the same where the public trust is concerned. In 2021, land use whether on public or private property, is of critical importance in the context of cumulative impacts on community and planetary welfare.

UNIT, ER, RPF, CalT

~~1-20-00173-MEN~~

~~21PC-000000 325~~

From: John O'Brien <jobrien@lbl.gov>
Sent: Monday, April 12, 2021 3:13 PM
To: Santa Rosa Public Comment@CALFIRE
Subject: LNFBR THP 1-20-00173-MEN Public Record Comment
Attachments: LNF_1-20-00173-MEN_comment_position_JO'Brien.pdf

Warning: this message is from an external user and should be treated with caution.

Dear CAL FIRE Review Team,

Please see my attached public record comment on the ~~LNFBR THP~~.

Respectfully,
John P. O'Brien, Ph.D.

John P. (JP) O'Brien
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RECEIVED
APR 12 2021
COAST AREA OFFICE
RESOURCE MANAGEMENT

To: Santa Rosa Review Team
Record 1-20-00173-MEN

From: John P. O'Brien, Ph.D.

Re: The effects of timber harvest versus forest protection in JDSE

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APR 12 2021
COAST AREA OFFICE
RESOURCE MANAGEMENT

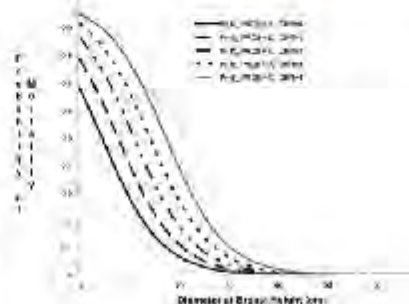
I have taken the time to write this letter because I feel that I have to. I can no longer sit aside and watch the environment continue to degrade around me, in ways that are completely preventable. The purpose of this letter is to, (1) express my position on forest protection in a changing climate as it regards to the LNFBR THP (1-20-00173-MEN) and logging in the publicly owned Jackson State Forest more generally; and, (2) serve as a document that contains much of the scientific literature necessary to make informed decisions moving forward. I am a climate scientist, and as such I have dedicated my professional life to understanding the earth system and how humans are affecting it. I have a Bachelor of Science in applied physics with minors in geophysics and mathematics, a graduate certificate in applied spatial statistics, and a Ph.D. in climate and atmospheric science. I currently hold dual appointments: at the National Center for Atmospheric Research (NCAR), [Climate and Global Dynamics Division](#), in Boulder, Colorado ([website](#)), and at Lawrence Berkeley National Laboratory (LBNL), [Climate and Ecosystem Sciences Division](#), in Berkeley, California ([website](#)). Perhaps more importantly, I am a Northern California native, raised in the mountains of Trinity County and graduated from Trinity High School. This land is my home and as a local and a scientist, I am keenly aware of the changes that are taking place here. I am doing my part in working to understand and mitigate the detrimental large- and small-scale environmental change we are forcing upon this planet, however, as a scientist, my ability to enact substantive change is limited. This is why I am reaching out to you in a plea to make an informed decision and protect our forest now, and stop unnecessarily felling Redwood trees for fences and decks when it is scientifically well-established that they are the most important ally we have in our fight against climate change. What follows is a discussion of four main topics: (1) Wildfire, (2) Climate Change, (3) The Economy, (4) Conservation, and how they relate to Northern California, and more specifically, Jackson Demonstration State Forest (JDSE), which I currently live directly adjacent to. What follows is my position and does not necessarily represent the views of NCAR or LBNL.

In summary, based on the following research, I strongly disagree with the conclusions CAL FIRE has come to regarding the effects of the THP on wildfire and climate change impacts. Please carefully read through what follows and then address all the questions at the end of this document.

Wildfire

Here in California, we are not strangers to wildfire, however the last decade, and in particular, the last few years have been truly unsettling. The 2017 Tubbs fire and the 2018 Camp Fire together destroyed nearly 20,000 homes, incurred over \$16 billion and \$150 million in damages and suppression costs respectively, and tragically claimed the lives of over 100 people. Most recently, the 2020 fire season by all accounts bordered on apocalyptic, burning over 4 million acres, quadrupling the previous burned-area record, and blanketing the state in unhealthy smoke. This deeply disturbing trend is not without cause, and as we look ahead, especially for those of us living in rural California and in the wildland-urban interface, we wonder with legitimate trepidation, "will it be my home, my town, or my forest next summer?"

Many out there will quickly claim that our forests are overgrown and need to be "thinned" or "raked" to prevent these catastrophic fires in the future. However, this blanket statement is exceedingly coarse and is often driven by economic considerations, as "thinning" is more often than not little more than a commercial timber harvest. As such, the economics of the harvest drive which trees are felled, not the ecological conditions which would make for a forest resilient to wildfire. Indeed, the market value for the largest trees in any stand is greater than for the smallest, and so accordingly, it is the large trees that are preferentially removed. However, it is also those large trees that provide the greatest buffering capacity against wildfire. The large trees have the thickest bark and the highest basal branches, which protect the tree from cambium kill and prevent the fire from climbing up the fuel ladder into the canopy. [Quandt et al. 2010](#), found that in the Mendocino coast Redwood forests, trees greater than 40 cm (~16 in) Diameter at Breast Height (DBH) had a nearly 100% survival rate for fires of all intensities. Figure 1 from that study (right) shows the survival curves for Mendocino coast Redwood at five different fire intensities, Cambium Kill Rate (CBR)=0 (lowest intensity fire) and CBR=4 (highest intensity fire). In line with intuition, it shows that wildfire overwhelmingly kills the smallest trees, which like kindling used to start a fire, burn easily and completely. Therefore, in effect, thinning by removing the largest highest market value trees, creates a forest composed of kindling, extremely susceptible to wildfire and high rates of kill.



In addition, removing the largest trees also removes the canopy overstory, which provides cooling shade to the understory below. The stand openings created by “thinning” allows the understory to receive more solar radiation, which has two main effects: (1) In the spring while the ground is still wet from the winter rains, the excess sunlight reaching the forest floor encourages the rapid growth of thick brush, which then quickly dries out during the subsequent summer months turning into highly flammable tinder. In combination with the remaining stand composed of smaller trees and leftover slash from the timber harvest, these dry understory fuels provide both horizontal and vertical continuity necessary to turn a surface fire into a crown fire (Weatherspoon, 1996). Overall, the excess solar radiation reaching the forest floor results in reduced fuel moisture, enhanced rates of soil evaporation, and therefore a drier understory microclimate that exacerbates wildfire risk. (2) Removing the largest trees creates canopy and stand gaps that allow for greater wind velocities to flow through the forest (Russell et al., 2018). The artificially enhanced windier environment enhances evaporation rates, further drying out the forest fuels, and, in the event of a fire, allows the fire to spread faster with greater intensity (Weatherspoon, 1996; Cruz et al., 2014). Cruz et al. 2014 also found that thinning in all scenarios increased fireline intensity and in the most likely scenario also increased in-stand wind speeds and the associated crowning potential of the fire. In a retrospective post-fire study of three management types, uncut (no treatment of natural fuels) and partial-cut stands (treated and untreated slash), the uncut forest had the least fire damage while the region’s partial-cut stands with the untreated slash suffered the most severe damage (Weatherspoon and Skinner, 1993). The researchers concluded that, *“the partial cuttings created a warmer, drier microclimate compared with that of the uncut stands—an inevitable effect of cuttings, as was explained earlier. [And] the partial cuttings were typical of many past cuttings that removed big trees and left small ones. The more readily scorched small trees thus constituted a higher percentage of the residual stand. Furthermore, the live fuel ladder component of fire hazard in the uncut stand was not reduced in the partial-cut stand.”*

The 1996 Sierra Nevada Ecosystem Project Report (Erman et al., 1997), commissioned by Congress, concluded:

“Timber harvest, through its effects on forest structure, local microclimate, and fuel accumulation, has increased fire severity more than any other recent human activity.”

In the most comprehensive study of western forest land, including over 1500 fires and 9.5 million hectares of land, the authors found that, *“Forests with higher levels of protection [less logging] had lower severity values even though they are generally identified as having the highest overall levels of biomass and fuel loading. Our results suggest a need to reconsider current overly simplistic assumptions about the relationship between forest protection and fire*

severity in fire management and policy" (Bradley et al., 2016). Indeed, many of the recent claims about overcrowded forests are unfounded or lacking context. For example, studies have found that the notion of historical forests being "open and park-like" rely on sparse plot data, and that a more complete synthesis of the available data suggests that present-day forest density is comparable to historical densities (Baker, 2014; Baker et al., 2018; Williams and Baker, 2012). However, forest structure across California is notably different, containing 50% fewer large trees and a higher density of small trees (McIntyre et al., 2015).

Research shows that thinning operations have little effect on surface fuel loads or intense fire severity (Weatherspoon, 1996; Rhodes and Baker, 2008; Reinhardt et al., 2008; Kump et al., 2017; Banerjee, 2020), is typically associated with higher fire intensities (Weatherspoon, 1996; Cruz et al., 2014; Thompson et al., 2007; Banerjee, 2020), and that fire weather and climate are better predictors of burn area and intensity than fuel loads or biomass densities (Stephens and Muehndas, 2005; Abatzoglou and Kolden, 2012; Jolly et al., 2015; Sieg et al., 2017; Zald and Dunn, 2018; Williams et al., 2019; Hart and Preston, 2020). A tragic example of this lies in the 2018 Camp Fire, which burned through previously thinned and burned forest at unprecedented rates, fueled primarily by strong dry winds (John Muir Project, 2018). Post-fire photos show that the more densely forested areas burned with less severity and remained mostly intact despite being next to homes that were burnt to the ground.

The loss of homes and businesses is one of the costliest types of economic loss associated with wildfire, for example, the capital loss from the Camp Fire is estimated to have cost \$3 billion while the total cost of all the 2018 fires is estimated to be approximately \$150 billion (Wany et al., 2020). Research shows that vegetation and forest management beyond 100 feet from homes does little to nothing to protect structures (Seymour et al., 2014). Often forest managers will advocate for the creation of "shaded fuel breaks" (the removal of ~70 - 80% of the trees along a path) to slow wildfire spread, however, wildfire modeling shows that shaded fuel breaks do little to slow wildfire spread, due to ember spotting, increased in-stand winds, and rapid overgrowth of highly flammable brush within the break (Wardenski, 1996; Weatherspoon, 1996; Cruz et al., 2014). Shaded fuel breaks are tantamount to long linear clear cuts, which in places like JDSF, CAL FIRE makes money from by selling the harvested wood, much of it being high-value Redwood. However, hardening homes and creating defensible space around homes within 100 feet that minimizes contact with the fire, radiative heating, ember drop probability, and allows more space for firefighters has been shown to be both an economic and effective means of protecting homes (Cohen, 1999, 2000; Gill and Stephens 2009; Seymour et al., 2014, 2017). Yet, despite evidence for the efficacy of creating defensible space in saving homes from wildfire, in 2018 CAL FIRE inspected just 7% of the rural property in Butte County and just 8% in Mendocino County (KOEID, 2019). Their excuse is a lack of resources. However, given the preponderance of evidence which shows that thinning operations and timber harvest

increase fire danger together with CAL FIRE's nearly \$3 billion annual budget, there is no excuse for continued mismanagement of our State Responsibility Area (SRA) forests and the continued catastrophic losses of homes every year.

Despite being commonly thought of as a wet "fire-free" region, our Redwood Coast is increasingly threatened by wildfire due to an increasingly dry atmosphere and land surface (Williams et al., 2019; 2020), a later, shorter, and sharper rainy season (Lukarevic et al., 2021; Swain 2021), increased probability of hot, dry conditions coinciding with extreme wind events (Nauslar et al., 2018; Wang and Ulrich, 2018; Abatzoglou et al., 2021; Swain 2021), and an increased probability for lightning strikes (Romero et al., 2014). Together these act as wildfire risk multipliers and that combined with the risk imparted by continued timber harvest in the Redwood coast region poses direct threats to both the forest, homes, and other infrastructure in this Region. A study of coastal Redwood forests in the Santa Cruz mountains found that selection harvest increased fuel loading and led to increases in the rate of spread and fire intensity, which significantly increased fire hazard to the forest and to adjacent home sites (Dicus, 2003). The 2020 Santa Cruz Complex fire is sobering evidence that we here on the Redwood Coast are not immune to wildfire, and thus it is imperative that we minimize risk by all means possible to prevent another catastrophe like the SCZ complex in the future.

Climate Change

We have known since 1896 that carbon dioxide is a heat trapping gas that if added to the atmosphere in sufficient amounts could heat the planet (Arrhenius, 1896). Today, human-induced global climate change is well-founded and *is not* subject to substantial debate among experts (IPCC 2014). Despite the overwhelming evidence that the climate is changing and that humans are the primary cause, CAL FIRE's Timber Harvest Plans (THPs) openly engage in climate denial language and understate risk. In any of the proposed THPs for Jackson Demonstration State Forest CAL FIRE states in Section 4 regarding GHGs:

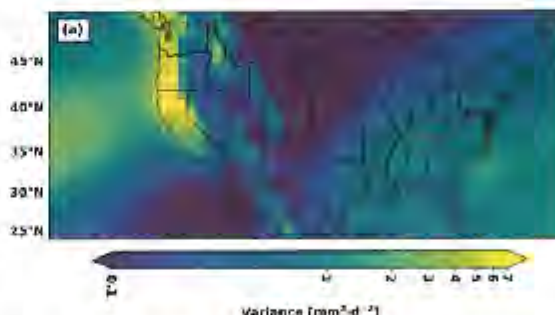
Global climate change and the variables that influence this change are subject to intensive scientific investigation and debate. For now, the consensus is that temperature within the earth's atmosphere is increasing, although exactly how and to what extent human activity plays a role in global climate change appears to be unknown. (Emphasis added)

The fact is that the climate is changing, it is not subject to intensive debate among experts. It is not going to start magically getting cooler, and the role human activity plays is very well-known

(IPCC, 2013). This disconnected position on climate change by the agency tasked with protecting our forests is hardly what we need moving forward.

The effects of climate change resulting from increasing anthropogenic CO₂ emissions are not some hypothetical future, they are happening now all around us, in wildfire ([Westerling and Bryant, 2006](#); [Westerling et al., 2011](#); [Williams et al., 2019](#); [Goss et al., 2020](#)), droughts ([Swain et al., 2014](#); [Angelil et al., 2017](#); [Diftenbaugh et al., 2015](#)), floods ([Pall et al., 2017](#); [Risser et al., 2017](#)), extreme heat ([Zwijers et al., 2011](#); [Peterson et al., 2013](#)), forest mortality ([Anderegg et al., 2013](#); [Allen et al., 2010](#); [Bredin et al., 2020](#)), sea level rise ([Slangen et al., 2016](#)), ocean warming ([Nagelkerken and Connell, 2015](#)), changing ocean circulation ([Coesa et al., 2021](#)), ocean acidification ([Trieber et al., 2013](#)), arctic sea ice melt ([Min et al., 2008](#)), and remarkably, even in the weather on any given day ([Sippel et al., 2020](#)). Indeed, the effects of climate change are pervasive and inescapable.

We all know that California is a special place, and much of what makes it special is its unique climate. California spans a climatological transition zone between large-scale descending air in the southern portion of the state, which is responsible for its warm Mediterranean-like climate. The northern part of the state represents the southern edge of the climatological position of the North Pacific storm track, thus winters are dominated by large-scale ascending air. As such, wintertime precipitation variability is maximized in Northern California, shown in Figure 2, which depicts mean wintertime (DJF) precipitation variance simulated by a large ensemble of atmospheric model simulations. The practical meaning of this is that during the boreal winter this region gets both ample rainfall and ample sunshine such that both sun and rain are each approximately equally represented. In the Pacific Northwest, rain is the predominant state at the expense of sun, and in the



Pacific Southwest, sun is the predominant state at the expense of rain. This optimal combination of both rain and sun combined with the rich geologic history of California, which is responsible for the fertile soils here. There is little wonder why the largest trees on earth have evolved to grow here. This geographic blessing that has led to one of the [highest concentrations of endemic biodiversity on the planet](#) is also its curse in this era defined by rapid climate change. Because the flora and fauna that have evolved here rely on this delicate balance between rain and shine

they are highly sensitive to changes in either direction. Thus, this delicate balance that makes California unique also makes us more likely to feel the effects of climate change, subtle or otherwise. In fact,

Presently, and in a future warmer California climate, anthropogenic emissions have increased drought risk and they are expected to become more frequent and intense in the future ([Diffring et al., 2013](#); [Williams et al., 2015](#); [Senger et al., 2015](#); [Swain, 2015](#); [Mann and Oleck, 2015](#); [Berg et al., 2015](#); [Angell et al., 2017](#); [Dai, 2013](#); [Ulrich et al., 2018](#)). This is inherently related to a robust increase in projected precipitation variability despite uncertain changes in average precipitation ([Swain et al., 2018](#); [Pendergrass et al., 2017](#); [Senger et al., 2017](#); [Wang et al., 2017](#); [O'Brien et al., 2019](#); [Persad et al., 2020](#); [Youn et al., 2015](#)). What this practically means is that the future California climate will likely be characterized by longer, more frequent, and intense droughts that will be punctuated by episodic periods of extreme rainfall that manifest on both the intra- and inter-annual timescales during a compressed wet season and extended summers ([Swain et al., 2018](#); [Wang et al., 2021](#)). In other words, both floods and droughts (extreme weather) are projected to increase such that interannual mean precipitation stays about the same. We experienced an example of this type of climate regime recently in the 2012-2016 drought, which was estimated to be the worst experienced in at least the last 1200 years ([Cimfin and Anghakatis, 2014](#)), followed by the winter of 2017, which broke historical precipitation records all over the state and nearly resulted in the failure of the tallest dam in the United States ([Vano et al., 2018](#); [CDWR, 2017](#)). This type of climate variability, rather than being an aberration, is projected to become exceedingly "normal" under a business as usual scenario ([Swain et al., 2018](#); [Persad et al., 2020](#)).

The theoretical and practical implications of a more variable and volatile climate cannot be understated and are much more ecologically and socially stressing than secular changes in the mean ([IPCC, 2012](#)). After consecutive years of drought, soils can develop hydrophobic (water repelling) tendencies such that when the rains do come, more water is shed as runoff rather than being absorbed by the soil where it can be made available to the parched plant life ([Gochel et al., 2011](#)). Soil moisture deficits are made even worse when the rains come as torrential downpours, as those conditions favor rapid runoff, erosion, flooding, and landslides ([Gariano and Guzzetti, 2016](#)). The changing hydrolimate expected for California and the greater U.S. is expected to have severe implications for forest health ([Ramsfield et al., 2016](#)). The 2012-2016 drought is estimated to have killed 102 million trees in California with 62 million of those dying toward the end of the drought in 2016 alone ([USFS, 2016](#)). Droughts such as the 2012-2016 event are expected to become 3-15 times more likely by the end of the 21st century ([McEvoy et al., 2020](#)), and with more severe consequences in terms of record levels of forest mortality than an equivalent drought could produce today ([Ulrich et al., 2018](#)).

In addition to the increased temperatures and exacerbated drought conditions that our forests will face in the coming years, the atmospheric demand for water, known as the Vapor Pressure Deficit (VPD), is expected to have dire consequences for forest health (Novick et al., 2016) and thus fire risk. Even if in a future warmed climate the relative humidity remains constant, VPD will continue to increase exponentially, drying out the land surface, plants, and forests resulting in explosively flammable terrestrial ecosystems (Williams et al. 2019). During the 2020 firestorm, VPD reached record levels, which haven't been seen in at least the last 40 years, perhaps maybe ever (reliable VPD data does not exist prior to 1979). This applies to the coastal regions, and plays a role in the observed and predicted decline of coastal fog (Johnstone and Dawson, 2010; O'Brien et al., 2012), from which the coast Redwoods can derive up to 30% of their water (Burgess and Dawson, 2004). Fog drip is also a critical component in keeping the understory plants and litter moist and streams running the summer months. The predicted future decline in coastal fog will have significant implications for wildfire risk in the Redwood Coast region. In the coming years forest mortality is expected to reach levels never seen before, resulting from temperature/drought induced mortality (Battles et al., 2008; Allen et al., 2010; Choat et al., 2012; Anderegg et al., 2013; Battlori et al., 2020; Bredtbb et al., 2020), VPD induced mortality (Williams et al., 2013; Novick et al., 2016; Hartmann et al., 2018; McEvoy et al., 2020), insect induced mortality (Kolb et al., 2016; Khanik et al., 2020), mortality from invasive species (Kansfield et al., 2016), wildfire mortality (Westerling et al., 2011; Goss et al., 2020), and logging (Williams et al., 2016; Berner et al., 2017).

There is little doubt about it, our forests are in for an increasingly disturbed future (Manngem et al., 2009; Millar and Stenbjensons, 2015; Schld et al., 2017; Serre-Diaz et al., 2018), and recent studies show that western forest mortality rates have been increasing rapidly and that models may underestimate predictions of future forest mortality (van Manngem et al., 2009; Yang and Mountrakis, 2017; McDowell et al., 2016). Additionally, stress induced mortality has been shown to persist for several years after a drought, and in a warmed future with a greater frequency of longer hotter droughts, trees may not grow back at all (Schuldt et al., 2020; Stevens-Rumann et al., 2018). Alternatively, in years following drought, accelerated forest mortality and the effects of pathogens can lead to major ecosystem reorganization with forest previously associated with wetter biomes shifting to plant communities characterized by drier biomes (Gonzalez et al., 2010; Battlori et al., 2020). In a recent comprehensive review of forest mortality in a changing climate, the authors concluded that the preponderance of evidence suggested increased future forest mortality due to high-confidence factors such as, "(1) droughts eventually occur everywhere; (2) warming produces hotter droughts; (3) atmospheric moisture demand increases nonlinearly with temperature during drought; (4) mortality can occur faster in hotter drought, consistent with fundamental physiology; (5) shorter droughts occur more frequently than longer droughts and can become lethal under warming, increasing the frequency

of lethal drought nonlinearly; and (6) mortality happens rapidly relative to growth intervals needed for forest recovery” (Allen et al., 2015).

Our beloved coast Redwoods are not by any means immune to these changes, in fact they are at a greater risk than nearly all other tree types due to their large size and inability to reduce leaf area to conserve water making them more susceptible to drought related stress (Lutz et al., 2009; McDowell and Allen, 2015; Giam et al., 2016). It's often thought that coastal regions need not be concerned about wildfire, however, the 2020 Santa Cruz Complex, which burned through the coast Redwoods there, tells us otherwise. Historically, Redwoods are a fire tolerant species, however, recent research shows that the presence of the sudden oak death pathogen makes Redwoods up to four times more likely to die in a fire (Mész et al., 2013). The sudden oak death pathogen is pervasive in Mendocino County and is spread by timber harvesting, which also increases wildfire risk, and that risk is further compounded by climate change. As such, our coast Redwoods are now more threatened by fire, drought, pests, and pathogens than they ever have been. In our changing climate of ever increasing wildfire risk, the firestorms of 2020 that destroyed so many Redwoods in the Santa Cruz mountains should be a wake-up call that the same thing could happen on the Mendocino coast any year now as [Santa Cruz and Fort Bragg share an exceedingly similar climate](#). And once our beloved Redwoods are gone, it is quite possible that we may ever get them back (Gonzalez et al., 2010; Stevens-Rumann and Morgan, 2019; Baillon et al., 2020; Coop et al., 2020).

The Economy

When it comes to “industry” decisions and what direction we, as a community, a society, a species, want to head, economic factors always play an important role. Historically, logging constituted a large fraction of the jobs in Northern California, regrettable as that may be, since as a result, our forests have been reduced to a fraction of what they once were, with concomitant impacts to biodiversity, watersheds, salmonids, and endangered species. However, times have changed and the logging industry is tantamount to the coal industry in the eastern U.S., it is archaic and has outlived its purpose. By industry, in Mendocino County in 2018 just 1.5% (349 people) of those employed were in the forestry and logging sectors ([CBP Forestry, 2018](#)), compared to 19% in retail, 18% in service accommodations and food service ([CBP by Industry, 2018](#)). Indeed, of all jobs in Mendocino County, those in the logging sector year-after-year consistently rank at the bottom of all sectors in California ([CDO, 2021](#)).

The [Mendocino Trail Stewards](#) are advocating for a 20,000 acre reserve to be created on the western portion of JDSE, which is the most utilized portion of the forest by recreationalists due to its [abundance of trails](#), ease of access, and close proximity to the coastal population centers. The

coastal communities with their charm and abundance of outdoor recreational opportunities including JDSF also draw tens of thousands of tourists every year and account for an economic impact distributed across sectors over four times that of the logging industry (Gurwitz et al., 2018). This reserve area only constitutes 2.3% of the 866,206 acres that are zoned timber production (TPZ) in Mendocino County, an exceedingly small fraction, especially in light of the also exceedingly small fraction of people employed in the logging sector. Additionally, the economics of timber harvest are not evenly distributed across the population, as the majority of logging in Mendocino is carried out by private timber companies, which give little back to the County in terms of taxation or otherwise (Gaffney, 2000). For example, of the ~16,247 THPs totalling 385,798 acres carried out in Mendocino County between 1997 and 2019, Mendocino Redwood Company accounts for 6,053 (149,737 acres), Hawthorne Company 3453 (66,146 acres), Lyme Redwoods 1155 (27,919 acres), and CAL FIRE 593 (23,756 acres) (AgGIS CAL FIRE THPs). Assuming the proposed reserve area was created back in 1997, then that would roughly halve the acres harvested by CAL FIRE over that time. Taking an average of \$3,400 per acre gross revenue from each THP (based on data from the recent Caspar500 THP) implies a ~\$1.8 million in annual lost revenue for CAL FIRE, which constitutes an infinitesimal 0.07% of their ~\$3 billion annual budget.

The loss of benefit to the public and environment in terms of recreation, water quality, carbon sequestration, ecosystem services, habitat loss, and ecosystem degradation, for a pittance \$3,400 per acre cannot be overstated. For example, there are hundreds of miles of trails in western JDSF that are used by locals and tourists every day (Strava, 2021). Most of these trails are not sanctioned, nor are they promoted by Fort Bragg and Mendocino County to draw visitors from far and wide to hike through lush forests, bike epic trails, and to breathe in the serenity of the forest (Slipstream-Volunteer Park, 2010). In Jackson Hole, Wyoming it was estimated that in 2010 their mountain bike trail system generated over \$18 million in economic activity (Saliszwski, 2011). In Wisconsin in 2019, the trail network in Bayfield and Sawyer counties was estimated to have generated an economic impact of \$7.8 million (Udlevy and Trechter, 2020). Closer to home, three hiking events in Oregon were estimated to generate over \$5 million in spending, income, and jobs (McNamara et al., 2013). In British Columbia, where mountain biking is heavily promoted, it was found that mountain biking resulted in over \$46 million in visitor spending (Canadian Sport Tourism Alliance, 2017). Alone, the Sky-to-Sea trail system in Squamish and Whistler BC generated over \$10 million in spending from riders coming from outside the area (MTBA Canada, 2007). In Canada, these figures represent economic benefit from mountain biking just over their short four-month summer, whereas here in Mendocino, because of our temperate and favorable climate, mountain biking could support increased economic activity year-round. Not even logging can do that since most logging operations are shut down during the winter months because of the danger of severe erosion and watercourse sedimentation due to

haul roads and tractor yarding methods ([Rice and Datzman, 1981](#); [McCashion and Rice, 1983](#); [Zemke, 2016](#)). Indeed, there are [over 130 studies](#) that document the economic and health benefits that result from trail systems that support mountain biking, hiking, horseback riding, and walking. Because of the proven potential to increase revenue generation through adventure tourism from promoting mountain biking, Santa Cruz is moving in this direction as well ([MBOC, 2007](#)). In fact, Santa Cruz already has a [Skyline-to-Sea trail](#), but that is used strictly for backpacking. Sadly, this trail was destroyed by the 2020 firestorm. Prior to its closure, reservations for backpacking the Skyline-to-Sea trail were booked months in advance and generated \$38 per group in fees. With its east-west orientation, JDSF has all the potential and more to create a Skyline-to-Sea trail system that could be used for backpackers and mountain bikers alike. In the rural mountain town of Quincy, California, the [Sierra Bites Trail Stewardship](#) has initiated the “[Connected Communities](#)” campaign, which seeks to connect the mountain towns of the northern Sierra through a multi-use trail system and a “[passport system - trail for everyone](#)” to generate tourism and stimulate the local economy. This environmentally friendly model could easily be adopted and applied to Fort Bragg, Mendocino, Willits, and Ukiah and further integrated in the Rails-to-Trails project to foster increased eco-tourism in the area.

Aside from the physical, mental, and spiritual benefits those who frequent nature receive, another critical ecosystem service that is provided by our forests is that of carbon sequestration. Not only is carbon sequestration critically important for mitigating climate change, but it also has attractive economics in today's carbon markets. For example, The Nature Conservancy's 5500 acre Burnt Mountain project is expected to generate ~\$2 million over 10 years for long term carbon storage ([The Nature Conservancy, 2021](#)). Closer to home in Humboldt County, between 2005 and 2009, the 2200 acre Van Eck forest registered 185,000 MTCO2 credits which sold for \$2 million ([Van Eck Fact Sheet](#)). Since 2008, the Conservation Fund has sold over \$36 million in carbon credits, some of which originated [here in Mendocino County](#). Recently completed, the Usal Redwood forest, which is comparable to JDSF in size, [registered over 3.9 million carbon credits](#) with the state of California. Using both the Van Eck forest and the Usal forest as benchmarks, they generate anywhere between 10-15 carbon credits per year per acre, which at an average price of \$10 per carbon credit (one metric ton of sequestered carbon) would translate into revenues of \$5-8 million annually for JDSF. The economic potential of JDSF from ecotourism, carbon sequestration, and other ecosystem services, without take of forest resources (timber), would far surpass the economic gain as it is managed today, primarily through felling of the trees; and, it would have the positive externalities of mitigating climate change, improving human health and lives, improving forest, ecosystem and watershed health, and providing critical sanctuary habitat for the endangered species of the region.

Conservation

Forests are critically important in our fight against rising CO₂ levels and concomitant climate change. Despite only covering ~9% of the earth's surface, forests are responsible for sequestering ~25% of anthropogenic carbon emissions, which is approximately equal to the carbon sequestered by the global oceans (Pan et al., 2011), which cover ~70% of the earth's surface and are rapidly acidifying as a result (Orr et al., 2005). Our forests face an ever uncertain future, as do we as a species, and it is imperative that our forests be conserved and not managed under an incentive structure by which those tasked with overseeing them also see financial gain from their destruction. Our Redwood forests of the North Coast sequester more carbon than any other forest type in the world (Hudiburg et al., 2011; Sillert et al., 2020) making their value toward carbon sequestration and climate change mitigation self-evident (Jones and O'Hara, 2012). Thus, Redwood Forests are powerful carbon storehouses and their protection prevents emissions from deforestation, shields that carbon, and enables ongoing carbon sequestration. Research has found that, "Over time old-growth forests store approximately twice as much carbon as forests managed on a 100-year rotation, and forests managed on a 50-year rotation store about 38% as much as old growth" (Harmon et al., 1990). Studies show that trees continue to grow and absorb carbon throughout their lives (Luyssaert et al., 2007; Stephenson et al., 2014; Law et al., 2018; Mildrexler et al., 2020), therefore premature mortality through harvesting is associated with immediate carbon releases and decreased sequestration potential over time (Barkley et al., 2014). Indeed the dominant cause of carbon loss from our forests is timber harvest (Harris et al., 2016; Turner et al., 2017), and thus protecting forests from logging maximizes carbon storage and removal of CO₂ from the atmosphere (Campbell et al., 2012; Law et al., 2018). It is often argued that cutting down trees and converting them to wood products sequesters carbon as well, however, this is a red herring. The carbon emissions associated with the timber harvest and processing (emissions resulting from cutting, yarding, slash burning, transport, milling, manufacturing, and distribution to the marketplace) are immediately returned to the atmosphere (Harmon et al., 1996). The wood products that make it into homes and other structures typically end up burned or in a landfill within the typical lifetime of the home, which on average is 70-100 years (O'Connor, 2004). That time frame is a fraction of the sequestration potential of old-growth forests, particularly Redwoods that if left growing can live, store, and sequester carbon for millennia (Harmon et al., 1990; Iherle et al. 2020; Sillert et al., 2020).

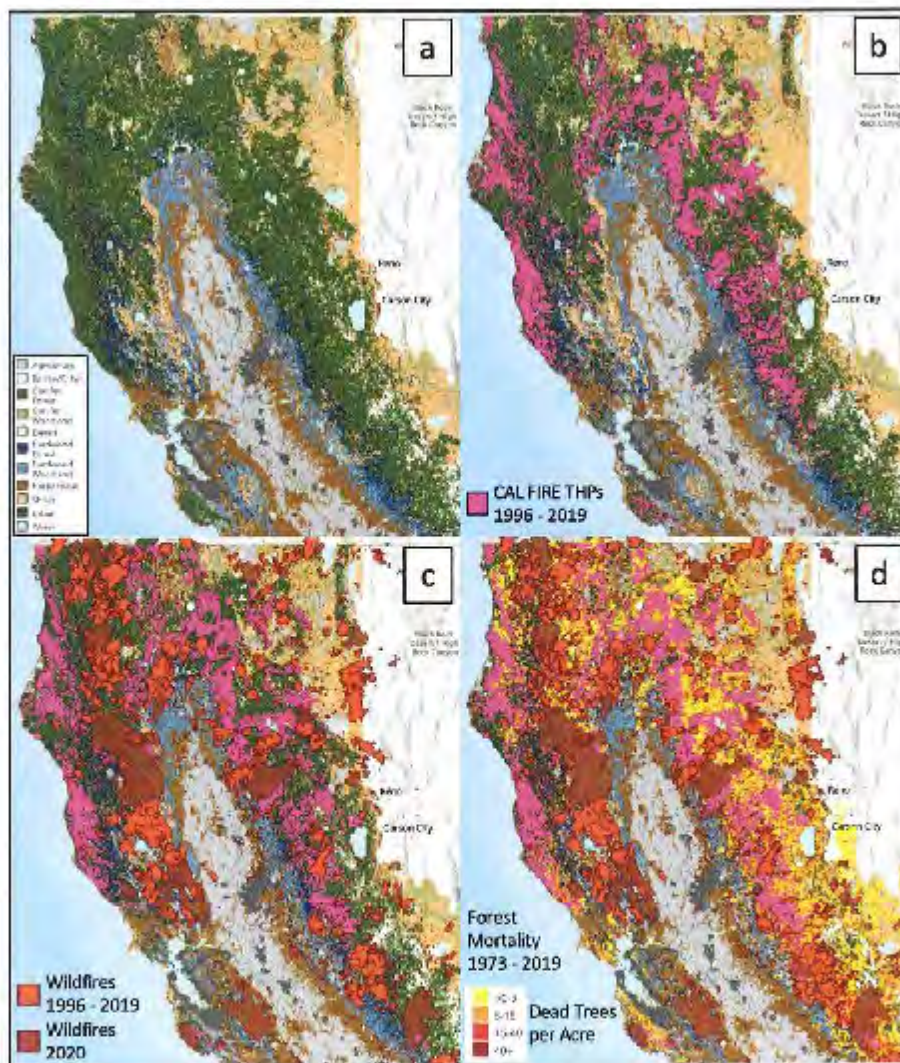
Recently, both President Biden and Governor Newsom have signed on to conserve 30% of our lands by 2030, known as the 30x30 initiative. The 30x30 initiative is a science-backed vision and plan to combat climate change and to ensure environmental protection in an age of rampant environmental destruction (Dietze et al., 2019). In the 30x30 summary for policy-makers, lands are broken into categories based on their Gap Analysis Project (GAP) status code. The

study found that GAP3 status lands held the most promise for rapidly achieving 30x30 as GAP3 lands can be protected through simple administrative actions ([Rose and Malekm, 2020](#)). GAP3 lands are particularly important to achieving 30x30 because they already possess some protections and are state-owned, meaning less regulatory red tape in increasing protection to full conservation status. JDSF is classified as a GAP3 tract of land and therefore has the highest potential of all California lands in achieving the state 30x30 goal. The only thing that prevents JDSF from being a protected landscape and thus contributing to 30x30 is its use for extractive purposes, namely logging. As such, in the race to achieve 30x30, JDSF is “low hanging fruit”, and at nearly 50,000 acres increasing its protection level would represent a significant step toward achieving 30x30. Moreover, given the devastating historical impact of logging in Mendocino County, both inside and outside of Jackson, increasing the protection of our Redwood forests would be a step in the right direction. Indeed, historically, our Redwoods have been ravaged by the logging industry such that it is estimated that there are only 5-7% of the original old-growth still standing, and what's even more shocking, is that at present, there are only ~2% of original second-growth still standing ([Burns et al., 2018](#)). This is because unlike the remaining old-growth, which are now protected, second-growth Redwoods have no protections and thus represent the largest, highest market-value trees standing, and therefore are preferentially targeted for felling. And despite what CAL FIRE says regarding the recruitment of late seral growth forest, their THPs say otherwise. In the recently approved Caspar500 THP, they have numerous second growth Redwoods marked to cut, some exceeding 6 feet in diameter. Thus, we have a public agency, tasked with the protection of our state forests cutting down some of the rarest Redwoods in existence.

Despite JDSF being a publicly owned forest with the research and demonstration mandate, CAL FIRE manages it as little more than a private source for agency funding through timber harvest. This is a gross violation of Public Trust, especially since selectively taking the largest trees and leaving the smallest creates a wildfire risk, reduces the carbon sequestration potential of the forest, and removes critical habitat for wildlife and endangered species ([Weatherspoon, 1996](#); [Berle et al., 2020](#); [Thornburg et al., 2000](#)). These trees have far more environmental and societal value alive and standing rather than cut, milled, and sold as building material, which can't even be used for structural projects such as homebuilding as all-but first-growth Redwood is generally too soft and therefore not used for structural applications. At present, Redwood is only used for “vanity” projects such as decks, fencing, siding, and the like, which have a much shorter lifespan than a typical home. In this day and age of advanced stains and wood treatment products, there is absolutely no reason to be felling Redwoods such that one person at the end of the supply chain benefits, while the public at large loses all the critical ecosystem services provided by living trees.

Conserving our forests is critical in this age defined by rapid environmental destruction and climate change. It is often said that as CO₂ rises, forests will grow faster due to the additional CO₂ in the atmosphere, the so-called “greening of the earth” ([Zhu et al. 2016](#)), however, this is not generally true, and in fact, forest growth has been observed to be slowing over the last 20 years ([Wang et al. 2020](#)). Photosynthesis is a chemical reaction and the reaction rate, whereby CO₂ is absorbed from the atmosphere, is constrained by the limiting reactant, which most often is the availability of nutrients from the soil ([Oren et al., 2001](#); [Luo et al. 2004](#)). Due to fire suppression and logging (the removal of biomass from the forests, that in an unaltered setting, would have been transferred back to the earth to support future forest growth), there is a dearth of carbon and nutrients in our forests ([McIntyre et al., 2015](#)). Natural decomposition and fire are natural mechanisms for returning carbon and nutrients back to the earth to stimulate and support future forest growth ([Neary et al., 2005](#)). Humans have interrupted and suppressed these natural processes in our fire-dependent Redwood forests creating nutrient-depleted forests. That, combined with the stresses of climate change, increasing VPD, present and future moisture deficits due to droughts, decreasing fog, insects, pathogens, and timber harvests puts our forests in dire straits. Without bold steps taken to conserve and protect our forests, we run the very real risk of them turning into a net carbon source rather than a sink due to widespread degradation. We need to act now to conserve and keep standing what trees we do have and put ecological sustainability ahead of economic sustainability once and for all, however these two do not have to be mutually exclusive, as described earlier.

Figure 3 on the following page shows Northern California forest disturbance from various sources. Panel (a) shows the native distribution of vegetation, which is dominated by the Sierra and North Coast conifer forests. Panel (b) shows the THPs approved by CAL FIRE from 1996-2019, THPs conducted prior to 1996 do not have digital files that delineate their bounds and therefore cannot be mapped in this context. It is disturbing to see the extent of the timber harvests approved by CAL FIRE in just the past 25 years, which cover more than half of California’s conifer forests. The extent and intensity of timber harvest shown in Mendocino County in Figure 3b is also reflected in the [JOSF/Mendocino THP map](#) and shows that more than anything, the forests of Mendocino County have been historically treated as little more than a commodity for economic gain to the detriment of environmental and ecological well-being. Indeed, [there is hardly a spot left along the Mendocino Redwood Coast](#) that hasn’t been affected by logging in the last 25 years. Also note, that the THPs shown in Panel (b) do not include harvests conducted on federal lands such as National Forest or BLM lands and therefore the extent of forest disturbance from logging is actually far greater than is shown. Panel (c) shows the combined effects on California forests from wildfire (1996-2020) and timber harvests. The wildfires that occurred during 2020 are marked in transparent maroon red to distinguish them from previous years. Note that nearly all of the fires in 2020 burned over lands that had been



previously burned and/or harvested for timber. This is also true for [the Santa Cruz complex](#), which burned across all environments present: previous timber harvests, previous fires (both wild and prescribed), wildland-urban interface, and virgin old growth forests. This “all inclusive” fire behavior indicates/implicates a larger driver at work, namely that of weather and climate

(Zald and Dunn 2018; Williams et al. 2019; Mosler et al. 2020; Higuera and Abatzoglou 2021). Panel (d) adds the backdrop of forest mortality from 1973-2019 resulting primarily from droughts, bark beetles, and climate change. It is estimated that from 2010-2019, 129 million trees died in California. Set upon the trend of rising forest mortality due to environmental factors, the devastating impacts from timber harvests and wildfires make it clear that our forests are under assault from both humans and a changing climate. To mitigate the inevitable changes to the climate we will see over the next 10-50 years and beyond, we desperately need to increase forest protections as soon as humanly possible.

Closing

What California desperately needs right now is not a Redwood forest that demonstrates how to fell trees, but a forest that demonstrates how to save trees, how to manage them in a changing climate such that the health of the forest is prioritized, and consequently, ecosystem, human, and wildlife health benefit as well while simultaneously sequestering carbon and mitigating climate change.

CAL FIRE has the mixed mandate of both forest protection and revenue generation from forest harvesting, while at the same time being the sole agency for reviewing THP's, including their own, which is an egregious conflict of interest. In addition the agency is tasked with fire protection for all state responsibility lands, which in 2020, pushed the agency beyond its limits, and this is only expected to get worse in the future (Abatzoglou et al. 2020). With climate change worsening every year, CAL FIRE is not currently equipped to handle either responsibility, forest management or fire protection. In fact, the former director of CAL FIRE, Richard Wilson, has been one of the most vocal critics of the agency, calling for a "CAL FIRE Diverge", that is, a separation of the forestry and fire protection branches due to "their abject failure" in forest management.

A paper published just last month by a few of my colleagues at Berkeley Lab found that both of the State's GHG reduction scenarios fell drastically short of achieving their GHG reduction targets set forth by California Senate Bill 32 and Executive Order 2-3-05 (Sarmiento et al. 2021). Relatedly, they found that the State's fuel-reduction plans (undersitory treatment, prescribed burning, thinning) actually produced 29.1 and 25.5 times more carbon emissions than they prevented for Scenario's A and B, respectively. They found that the activity that had the greatest benefit in reducing carbon emissions was forest protection and the associated enhanced ecosystem carbon uptake. Therefore it's imperative that we move more aggressively in the direction of ecosystem protection as, until we implement a viable replacement for fossil fuels, our forests are our greatest ally in mitigating climate change (Grassi et al. 2012). These forests

are already here, already doing the work of sequestering ~25% of anthropogenic emissions, and can do even more with increased protections (Ehri et al., 2018). We set lofty goals and targets, but then fail to implement policies that will actually achieve these goals, tantamount to believing that these targets will somehow achieve themselves. In reality though, we are just unwilling to make the hard decisions to step away from the path we are currently on, and the truth of the matter is, the consequences of non-action will be far more painful than those associated with changing the way we manage our forests now.

This is a conversation that needs to be initiated immediately and starting the conversation with JDSF is an excellent place to begin. JDSF is a place of high biological diversity and low environmental protections with deteriorating forest health due to climate change and continued timber harvest. With our forests increasingly susceptible to climate change, wildfire, timber harvest, pests, and pathogens and their cumulative/combined synergistic effects we are at a crucial crossroads between a future of increased forest protection or business as usual. The Mendocino Trail Stewards have called for a one year moratorium on logging in JDSF in order to have a good-faith discussion about how the future of JDSF is managed. I fully support this and also think it is critical to have this time for experts to review the state-of-the-science regarding climate change, forest health, and best practices. As such, I wholeheartedly endorse and support the creation of the 20,000 acre forest reserve proposed by the Mendocino Trail Stewards, as western Jackson is one of the few remaining places in Mendocino County that has been minimally affected by logging over the last quarter century. That said, I believe we need to go even further than just protecting only the western one-third of Jackson State Forest and aim to protect all JDSF under the California 30x30 executive order. Again, Jackson as GAP3 lands represents low hanging fruit in the State's effort to conserve and protect 30% of California lands by 2030 and further, as a State-owned forest is a public resource and should therefore be protected for public enjoyment and not logged for the benefit of a single agency. Using the metrics provided by Banley et al., 2014, appendix III, it is estimated that the impending CAL FIRE THPs slated for western JDSF covering ~5471 acres (~5.4 sq mi) of pristine second growth Redwood forest will result in approximately 1.7 Mt CO₂e net emissions to the atmosphere. This includes CO₂ stored in durable wood products and excludes direct CO₂ emissions from tractors, skidders, logging trucks, and mill emissions and thus is conservatively equivalent to burning ~187 million pounds of coal. Indeed, timber harvest is one of the largest emitters of GHGs (Williams et al., 2016; Harris et al., 2016; Berner et al., 2017; Ehri et al., 2018; Law et al., 2018) while simultaneously increasing wildfire risk (Hiers, 2003; Weatherspoon, 1996; Cruz et al., 2014; Thompson et al., 2007; Bradley et al., 2016; Zabi and Dunn, 2018; Bannister, 2020). Wildfires are not only detrimental to human health, both directly and indirectly (Turke et al., 2021), but they can also be detrimental to wildlife health as well, as the smoke from the 2020 wildfires in the western US has now been linked to a large die-off of multiple avian species

(Yang et al., 2021). It's past time for California policy to fall in line with the state-of-the-science: our forests need to be protected to effectively mitigate climate change (Harmon et al., 1990; Keith et al., 2009; Pan et al., 2011; Stephenson et al., 2014; Williams et al., 2016; Harris et al., 2016; Grassi et al., 2017; Law et al., 2018; Lutz et al., 2018; Erb et al., 2018; Mooring et al., 2019; Lewis et al., 2019; Dinerstein et al., 2019; Dinerstein et al., 2020; Simmonds et al., 2021), and to reflect and fall in line with public opinion (Mercedino County, 2021; California, 2021).

This is a call to action, to stand up for our environment while we can still turn the ship, before it's too late; because once our terrestrial forests begin to collapse, just as our marine forests have, recovering them will be little more than a fantasy. At that point, if our forests collapse, and there are already signs that they are headed that direction, they will become a net carbon source rather than a sink, and that combined with our unabated fossil fuel emissions will be the beginning of the end of this planet as we have come to know it. It may seem like a far fetched statement, but just take a minute to think about and consider these things: 1 million species are threatened with extinction in the near future out of an estimated 7-10 million eukaryotic species on the planet (Morris et al., 2011); >75% of rivers >1,000 km long no longer flow freely along their entire course (Griff et al., 2019); live coral cover on reefs has halved in <200 years and approximately 100% of coral reefs will face long term degradation by 2050 (Frieler et al., 2013); at present, 20% of all species are in danger of extinction over the next few decades, and we are conservatively experiencing >15 times the natural background rate of species extinctions per year (Ceballos et al., 2015); by 2050, it is expected that the world population will likely grow to over 9 billion, where it will likely continue to grow into the next century (Bradshaw and Brook, 2014); simultaneous with population growth, humanity's consumption as a fraction of Earth's regenerative capacity has grown from ~73% in 1960 to 170% in 2016 (Lin et al., 2018). There is no escaping it, as individuals, as a State, as a Country, or as a species, we need to step up and rapidly change our course to avoid a Ghastly Future (Bradshaw et al., 2021). We can't change or control what is happening in the Amazon or in China, but we can affect change here. We can choose to be a leader and make the decisions to enact a paradigm shift toward greater environmental protection, stewardship and advocacy. It's time we offer up our forests some real protections, because very literally, our lives and our children's lives depend on it.

Specific Questions to Answer/ Issues to Address Prior to Approving LNFBR THP 1-20-00173-MEN

1. Please address the GHG effect of THIS project. It is not appropriate or in compliance with CEQA to predicate/qualify the GHG impacts of this project with hypothetical future scenarios that may never materialize.
2. Once an appropriate GHG analysis of THIS project has been completed, please outline in detail how the GHG impacts of this THP serve the greater good, both now and in the future, of the citizens of Mendocino County and, more broadly, the residents of California who hold title to this land.
3. Despite the inappropriate use of hypothetical future scenarios to mask/offset the GHG impacts of this THP, it is well-established that the climate we are living in is highly non-stationary due to anthropogenic forcing (Meerna et al., 1984; Quarda and Charron, 2018; Sathadi et al., 2018; O'Brien et al., 2019), as such, please justify the use of fixed/constant forest growth assumptions if future scenarios. (Allen et al., 2010; Choat et al., 2012; Anderson et al., 2013; McDowell and Allen, 2015; McDowell et al., 2016).
4. Each THP must by law complete an alternatives analysis. Given that climate change is the single most pressing issue we face as a state and as a species, please indicate how the carbon impacts of this THP compare with the counterfactual alternative case of no harvest. Based on this carbon accounting and comparison of carbon impacts, please justify the project as proposed, and as opposed to the counterfactual case, supports and is in line with the State and Federal emissions reduction targets.
5. It is an indisputable fact that the selective removal of large trees (evidenced by a 1-20-00073-MEN walk-thru) opens the forest canopy overstory allowing more solar radiation to reach the forest floor thereby increasing surface evaporation/transpiration that results in drier forest microclimates (Weatherspoon, 1996). Note, this process is governed by radiative transfer and fluid dynamics and is therefore independent of forest type. Please justify exactly how drier understory conditions reduce wildfire risk.
6. It is an indisputable fact that the largest trees are the most fire resilient due to their thick bark, high thermal mass, and large surface to base-of-crown heights (Donatus et al., 2010). Please justify exactly how selectively removing the largest trees makes the forest as a whole more fire safe and fire resilient.
7. It is an indisputable fact that selectively removing the largest trees with the high dense crowns, thereby thinning the stand, results in increased in-stand and canopy wind speeds

- (Weatherspoon, 1996; Cruz et al., 2014; Russell et al., 2018; Banerjee, 2020). Please justify exactly how increased in-stand and canopy wind speeds reduce wildfire risk.
8. It is an indisputable fact that left over slash and surface fuels are the biggest driver of fireline intensity behind climate and fire weather (Weatherspoon, 1996; Rhoades and Baker, 2008; Reinhardt et al., 2008; Knapp et al., 2017; Banerjee, 2020; Stephens and Moghaddes, 2005; Abatzoglou and Kolden, 2012; Lilly et al., 2015; Sieg et al., 2017; Zald and Dunn, 2018; Williams et al., 2019; Hart and Preston, 2020). All of CAL FIRE's past THP's including this one have slash mitigation sections. However, on-site inspections reveal that CAL FIRE and their LTOs are NOT cleaning up slash. Please outline exactly how slash treatment will be different in this THP compared to the other THPs in Western Jackson.
 9. Given that second growth Redwoods are now more rare than old growth (Burns et al., 2018), and that second growth Redwoods represent the carbon sequestering forest-type in the world (Iberle et al. 2020), please justify how cutting down these trees serves the greatest good of the citizens of Mendocino County and the residents of California.
 10. Given that forest mortality in the Western US is expected to dramatically increase in the coming years (Allen et al., 2010; Chao et al., 2012; Anderegg et al., 2013; Williams et al., 2013; Brodrick et al., 2020), and that that conifer mortality is expected to be far greater than deciduous tree mortality (McDowell and Allen, 2015; McDowell et al., 2016), please justify how cutting down these trees, many of which are rare second growth specimens, is a prudent present-day decision in the face of a changing climate?

If any of the above questions cannot be answered completely and conclusively, then it is unethical and a violation of Public Trust to proceed with the LNFBR THP. If more research needs to be carried out then please design the necessary research experiments and conduct them, after all, JDSF is designated as a research forest. If this plan is approved and executed without complete and substantive answers to the above questions, and consequently increases wildfire danger for the publicly-owned forest and the adjacent landowners due to surface drying, residual slash, and other factors detailed herein, CAL FIRE will be held fully accountable in the court of law for willful negligent behavior should a wildfire breakout and destroy property, homes, JDSF as a publicly-held resource, or lives.

RESPONSE:

Please refer to the following General Concern Response 6. Climate Change and Carbon Sequestration.

21PC-000000426 – from Michael Evenson on June 1, 2021 with attached email from Ellen Taylor

People on Conklin Creek Road will be most affected as the THP will take place on Conklin and McGinnis Creeks and hauling will be from McGinnis Creek all the way to the Hideaway . It's a tricky road already and logging trucks coming down it will make it even trickier. It will raise dust. Water sprayed on the roads is another cause for concern: it will be diverted from the river that is the lowest level it's ever been since 1900 and this year will almost certainly be a drought.

On Jun 1, 2021, at 10:58 PM, Ellen E Taylor <ellenetaylor@yahoo.com> wrote:

A Timber Harvest Plan, to be executed by Humboldt Redwood Company, is making its way through the Cal fire approval process and is likely to be allowed to go forward this month. There hasn't been a THP this close to town in many years which is why I'm sending this googlegroups email.

I'm going to try to attach the entire text (MANY pages) and a couple of comment letters so people can know something about it. There is still a little time if you have questions or concerns to write to Cal fire. at santarosapubliccomment@fire.ca.gov They are obliged by law to respond which they will do in an OR (official response).

People on Conklin Creek Road will be most affected as the THP will take place on McGinnis Creek at the end of Conklin Creek Road. It's a tricky road already and logging trucks coming down it will make it even trickier. It will raise dust.

I'm not sure which way the logs will be trucked out to Scotia: maybe Wildcat to Malfunction Junction, or Bull Creek.

Issues raised by residents who have been following the process are the road leading to part of the THP which is close enough to McGinnis Creek to cause disruption, sedimentation and fisheries damage if the river floods. Water is another cause for concern: it will be diverted from McGinnis and this year will almost certainly have a drought. Climate catastrophe exacerbated by tree removal wildlife habitat destruction and use of herbicides are other causes for anxiety.

I can't seem to attach the THP itself but you can read it on the Cal fire website: CALTREES.

*Yours
Ellen*

RESPONSE:

Please refer to the following General Concern Responses 1. Harvesting Second Growth Forest, 2. Geology and Erosion, 3. Hydrology, 4. Sediment and Temperature Impacts, 5. Herbicides, and 9. Traffic.

21PC-000000427 – from Ellen Taylor on June 4, 2021

Dear Cal fire,

THP 1-21-00031HUM

I am writing this letter as a member of the public , an almost-50-year landowner living immediately downstream from the project THP, and as the Chairperson of the Lost Coast League. You have received a previous letter from me in April. I however attended the second review for this THP and am offering additional comments.

I would like to recommend that in regard to this THP you take the “No Project Alternative”.

As you mention in this alternative you would avoid the risk of potential environmental impacts, viz. the controversial access road, injury to fish and other wildlife, impacts to water in a drought year, diminishment of the carbon sequestering engine which mature forest provides.

The “No Project Alternative would not deprive you of the opportunity to correct existing environmental problems related to sediment , or reduce wildfire fuel hazard loading.

In fact, these are some of the tasks of good land stewardship and probably stipulations of the TPZ zoning requirement as well. If your land has mass wasting or surface erosion problems

They must be repaired so as not to injure public trust values or externalize costs. The massive wide base road you plan to build is for logging trucks. But, for erosion control and fuel load reduction, you can use smaller vehicles and such a problematic road will not be necessary.

Also, as you state, TPZ lands are dedicated to growing timber for commercial purposes and compatible uses, and have made a commitment to timber growing which requires many years for your “crop” to mature before harvest. However there is nothing in the zoning which requires that trees be harvested at prescribed intervals. The age at which much of Humboldt County’s timber is harvested is now as young as 40 years, and never older than 90 years. There is nothing in the rules which says you cannot harvest the timber at 300 years, or indeed, older.

Douglas firs of the past commonly lived to a great age, and there are two or three still alive that are 1000 years old or more. They are world-class carbon sequesterers, and will perform this function, using less water per cubic foot, each year, control erosion, harbor wildlife and resist fire until your great great grandchildren generations from now have the pleasure of harvesting them.

This would be maximum sustained production in a comprehensive sense. It would be good business as well, as the wood would increase in value.

I have thought for a long time that measured carbon sequestration should be declared a high-quality timber product. It is more valuable than a carbon offset as it is not simply carbon-neutral.

Carbon neutrality does not improve the atmosphere, it just doesn't make it worse. Additional points: this drought is serious. The Mattole flow measured at the bridge in Petrolia is 70 feet per second, the lowest it has ever been. Our cows are running out of water. Hayfields are producing a tenth of what they produced last year. We are selling large numbers of cows. Peoples' wells and springs are going dry.

The cannabis ordinance does not help. It has allowed large allocations of water to the big growers and public outcry does not seem to have any effect. There is a lawsuit in progress but it will not save anything this year, or likely never.

The Klamath salmon catastrophe has spread fear among fish lovers, which is just about everybody. Our struggling runs of coho, chinook and steelhead are on the ropes to various degrees. They need every drop they can get.

Please inform the public of how much water you intend to take out of McGinnis.

It is a crazy year for anyone to start a new extractive project, from every standpoint. In regard to fire, multiple studies have shown that "timber harvest, through its effects on forest structure and local microclimate, has increased fire severity more than any other human activity" (US Fish & Wildlife Service:1996).

Increasing temperatures, increasing fire danger, dwindling water reserves, a bad year for anything but conservative management.

Having submitted multiple comment letters on THPs over the past 40 years, I am cynical about the interest CalFire or the public trust agencies have in public comments. Therefore I have not used the question-demanding-response format required for a direct response in the OR.

I'm attaching an article I wrote a couple of months ago expressing my opinion of the 1973 forest practice rules and their senility in the face of today's problems.

1-21-00031-HUM

Reflections on Forestry when Confronted with the First Timber Harvest Plan of the Year in My Watershed

Timber Harvest Plans (THPs) are like demure invitations to dance. A timber company sidles up to Cal Fire, which extends its soft hand. The music is an ancient minuet, its steps designed almost fifty years ago. The cadences repeat themselves, harmoniously, as the Agencies partner up and take their places, stately, in the still, ethereal atmosphere. Then, after a few fleurets and some courtesies exchanged, the logs start rolling out of the forest.

The minuet, made famous by Louis XIV of France, used to have meaning: it was metaphor for the serene, hierarchical architecture of society, where every character played a discrete part in time and place. In the modern world, however, timber harvest plans are a metaphor for chaos. Outside the ballroom, chunks of Antarctica the size of New York are falling into the sea. The Gulf Stream vacillates uncertainly. Scientists grasp at fantastically expensive and risky schemes to sprinkle the stratosphere with sunlight-reflecting particles. And, as Earth warms, a quarter of its people face dying of thirst while others are swept away by floods or freezes.

The skies are emptying, one third fewer birds now than when the California Forest Practice Rules were written almost 50 years ago. The World Wildlife Fund reports that, taken together, mammals, birds, fish, reptiles and amphibians have declined 70%. The insect apocalypse is hurtling along 8 times faster.

The agent of this chaos is the still-increasing concentration of carbon-dioxide in earth's atmosphere, caused by human activity. We have returned the carbon, sequestered by ancient vegetation, in oil and coal, to the atmosphere. As for the contemporary, still-actively sequestering vegetation, we destroyed 80% of it before 1990.

Amidst the wreckage the minuet, choreographed by the revered California Forest Practice Rules, proceeds with inviolate composure. Biomass is conveyed to the mills: the US is by far the largest wood exporter in the world. Smaller trees are made into wood pellets, the rest for lumber. "Old growth" is now extremely rare. Trees like Douglas firs and redwoods, which can live thousands of years, are now harvested at 40 to 70 years old, leaving no generation to replace their falling elders.

Any concern about global warming is finessed with phrases such as "there is a natural variability in earth's climate" and "considerable debate regarding its causes". Fear of catastrophic fire, of rising temperature, wind velocity, and dehumidification in logged-over areas, is met with the entrenched dogma that fuel load reduction is critical for fire protection. Calfire asserts this despite comprehensive studies that "timber harvest, through its effects on forest structure and local microclimate, has increased fire severity more than any other human activity" (US Fish & Wildlife Service:1996).

It is paradoxical to combine commercial timber harvesting and forest management into the same agency. Logging companies are interested in fire prevention from the perspective of protecting their assets. As they have said many times, biodiversity and forest health are not their responsibilities (viz. Robert Fisher, owner of HRC: "we are a business, not a charity") except insofar as legal compliance is concerned. Forest management is a public trust, and therefore must concern itself with public safety and its corollary, ecological stability. The commerce axiom, to extract the most profit at the least cost, is antithetical to this trust. Removing big trees, which are fire resistant and have been demonstrated to reduce forest temperatures up to 4.5 degrees compared with plantations, increases fire risk.

The fact that Calfire plans to log its own Jackson State Forest flies in the face of its public trust mission: fire safety, preventing climate catastrophe, and defending biodiversity.

The preservation of the last stands of planetary forest is our last best hope for curbing carbon emissions in the shortest amount of time. If logging were stopped today, and the forest allowed to grow, our remaining trees could remove 1/7 of the world's carbon-dioxide exhalations annually. Redwoods and firs sequester carbon at a rate 2.5 times the rate of tropical rainforests. The older the tree, the more efficiently it sequesters: though slower-growing, they produce more photosynthesizing surfaces.

But as forests are logged, this sequestering engine is lost, and they're no longer sufficient to mitigate climate change.

The UN Council on Biodiversity reported last year that 1 million species are at risk of extinction, "which paints an ominous picture with serious consequences for humans as well as the rest of life on Earth".

Here in the Pacific Northwest there are many species whose populations have plummeted. Making it worse, the US Fish and Wildlife just narrowed the definition of critical habitat. This opened up millions of acres for logging, including 3.4 million acres of Northern Spotted Owl habitat. Green Diamond Timber now shoots the NSO's competition, the less specialized Barred Owl, and is allowed to harvest the habitat the owls have vacated. The resultant "take" of NSOs "is more than offset by the value of information gained from this experiment and its potential contribution to a long-term Barred Owl strategy" (FWS).

This is deranged goal obsession, like the archetypal "Bridge Over the River Kwai".

Despite public concerns, the California Department of Fish and Wildlife DECLINED TO PARTICIPATE IN THE PREHARVEST INSPECTIONS of the last two THPs I examined.

But they are paid by the public, by us, to be guardians of our wildlife! THE PUBLIC TRUST!

Understaffed and underpaid, they've handed off their responsibilities to FSC certification, a privately paid-for and administered process covering the activities of HRC, Green Diamond and SPI, who receive a premium for their certified products.

Recently the Lost Coast League challenged HRC's certification for noncompliance with FSC principles: they used herbicides, destroyed ecologically valuable forest, and failed to consult local communities and Tribes.

It was a long, tedious, process, involving officials in Taiwan and Bonn, which changed nothing.

In fact, recently, after offering property-wide access to the Bear River Tribe for habitat typing and lead collection for an EPA study being conducted by the Tribe, preparatory to the release of the Pacific Condor in Humboldt County, the company slammed the door in their faces.

We must end this fatal minuet, retire the senile forest practice rules, and manage our forests with "pro-forestation": allowing them to grow. Timberlands are called "working forests": well

then, let them work, sustaining life on earth, instead of providing pellets for Swiss stoves.

RESPONSE:

Please refer to the following General Concern Responses 1. Harvesting Second Growth Forest, 2. Geology and Erosion, 3. Hydrology, 6. Climate Change and Carbon Sequestration, 7. Wildfire, and 8. Alternatives Analysis.

21PC-000000428 – from Michael Evenson on June 5, 2021

RE: THP 1-21-00031 HUM

To Whom it May Concern:

During 2nd Review, RPF Mike Miles answered some questions with responses that were not consistent with the THP document. As an administrative record, the 2nd Review statements constitute a significant, and welcomed, change to the THP and the public needs to be assured that these changes are incorporated in the final THP should CalFire issue an approval.

These include:

No treatment of hardwoods (whether manually or through poisons) over 24" DBH. Mike Miles said that he would use manual treatment, perhaps to make firewood available and avoid using poisons since the Mattole community strongly opposes their use.

Harvest marking for conifers will represent a "thinning from below" rather than overstory removal. This was offered by Mike Miles in order to address his recognition of the public's concern for the negative impact to the summertime water flow that removing dominant trees would have. Thinning reduces the many "straws" depleting the water table is how he characterized it. We agree.

In fact (see attached image from the Petrolia Gauge of the Mattole River - <https://waterdata.usgs.gov/nwis/uv?11469000>), we are at the beginning of the most serious Drought ever recorded in the Mattole. From this image one can see that not only is the flow at its lowest recorded in 72 years, the slope of the decline is uncharacteristically steep in relation to the slope of decline represented by the Median Flow (the triangles). That means that it is dropping more rapidly than ever as well.

Discharge, cubic feet per second

Most recent instantaneous value: 63.9 06-05-2021 07:30 PDT



Add up to 2 more sites and for "Discharge, cubic feet per second"

2 Add site numbers [Note](#)

Enter up to 2 site numbers separated by a comma. A site number consists of 8 to 15 digits

GO

Create [presentation-quality](#) / [stand-alone](#) graph. Subscribe to [WaterAlert](#)

See this graph on the [Beta Monitoring Location Pages](#)

Daily discharge, cubic feet per second -- statistics for Jun 5 based on 72 water years of record [more](#)

| Most Recent Instantaneous Value Jun 5 | Min (2015) | 25th percentile | Median | 75th percentile | Mean | Max (2010) |
|---------------------------------------|------------|-----------------|--------|-----------------|------|------------|
| 63.9 | 80.8 | 138 | 190 | 307 | 311 | 2420 |

In previous letters on this THP, we have noted that this THP has not been evaluated adequately by CalFire, CDFW or the Water Board in relation to its Impact on water storage in the landscape and summer-time flow deficits. Why was there no response to the public's prior questions and comments submitted prior during 2nd Review? Mike Miles sentiments articulated above were recognition that the comments were valid and worth considering.

When the agencies get around to making that review, they will need more information from the Plan Submitter

– information in the form of calculations and credible expert opinion of negative or positive impacts on water resources based upon the research cited by the public and recognized by the Water Board and RPF during 2nd Review. And the public needs the opportunity to respond.

Will you re-open public comment when these concerns are responded to?

Will you re-open public comment when the Agencies submit their responses to the Plan Submitter's response?

If not, why not?

Perhaps the Agencies are unaware of current conditions in the Mattole Watershed. Let me inform you that it is dry and getting drier. Fine dust is everywhere. The soil surface is the driest anyone has experienced. High winds are taking exposed soil and transporting it. There is no evaluation of fine soil particles generated off the harvest area, where it might settle, and when it will become mobilized by next winter's storms to be transported into the stream channels and negatively impacting aquatic resources. Juvenile salmonids are threatened in this Drought up and down the coast. The Mattole is no different.

The Governor and all State Agencies have recognized the Drought as something that changes how we live and work. Why is there no analysis of this Drought phenomenon on sediment generation, as differentiated from normal soil disturbance of harvesting?

In relation to road traffic, the THP offers to use water to contain the dust generated by heavy equipment and heavy truck traffic. Where is this water going to be drafted? How much water is going to be diverted and basically evaporated daily in order to minimize road dust? The THP is not specific.

Why is the Water Board permitting diversion for road dust containment without further information and analysis? The Water Board requires Cannabis growers to submit detailed plans and analysis for their water storage and use. Why is this THP given a free pass?

Further, this daily dust containment will be required not only within the THP boundaries, but also to extend to portions of the County-maintained Conklin Creek Road which consists of long stretches of unpaved road. Where is the analysis of the dust (sediment) generation from this extra-ordinary heavy use of the public road? Are you aware that Conklin Creek Road delivers run-off directly into the Mattole River, a 303d listed waterbody? In times of declare Drought, such as we are experiencing, this is an additional concern and is not adequately analyzed in the Cumulative Impact Assessment.

In short, the State Agencies reviewing this THP have failed to evaluate many impacts to water resources exacerbated by the Drought according to the Emergency Declaration (<https://www.gov.ca.gov/wp-content/uploads/2021/05/5.10.2021-Drought-Proclamation.pdf>). Why have the Agencies not performed their duties to the public and come into compliance with the letter and spirit of the Emergency Declaration?

We are in an historic time. We have all made sacrifices in our personal lives and fortunes responding to the Covid pandemic. We have learned we cannot deny the realities that affect our normal expectations. The same is true of Climate Change and especially true during this Drought. State Agencies refusing to do their mandated CEQA or CEQA equivalent analysis of activities is not only an Abuse of Discretion, but also a dereliction of duty to the State of California, its people and public trust resources. The impacts of such a dereliction will haunt every one of us for decades, possibly for generations. As the Governor has said, "business as usual" is no longer possible.

Please continue to evaluate this THP in light of the above concerns and extend the public comment period to review all additional material.

RESPONSE:

As a result of the second review team meeting, no formal recommendations were made. The second review chairperson recommended the plan for approval without any additional changes. The second review chairperson reviewed the THP, interagency PHI reports, and second review discussions. Because of their determination, no additional information was requested.

Please refer to the following General Concern Responses 1. Harvesting Second Growth Forest, 2. Geology and Erosion, 3. Hydrology, 4. Sediment and Temperature Impacts, and 9. Traffic

21PC-000000431 – from Jeremy Jensen on June 7, 2021

Greetings Cal Fire THP Review Staff,

My concerns on the Pint O McGuiness logging plan include but are not limited to the following issues.

Climate Change and Growth Predictions- *The effects of ongoing climate change on the future growth and survival rates of natural forest and re-planted areas does not appear to be considered. How can the future growth information be shown to be accurate? What climate models are used to ascertain the likelihood of future growth rates in the coming decades it will take for the trees to reach an age where they can legally be logged? If so, are these based solely on past climate conditions or is ongoing climate change? I'm concerned that our forests' ability to recover from logging will be greatly impacted by the ongoing climate change that is now occurring.*

These California state laws; Assembly Bill 1482 (Gordon, 2015); Senate Bill 246 (Wieckowski, 2015); Senate Bill 379 (Jackson, 2015); Assembly Bill 2800 (Quirk, 2016), call for the preparation of climate adaptation strategies, establishing OPR's [Office of Planning and Research] Integrated Climate Adaptation and Resiliency Program, requiring local governments to include adaptation and resiliency strategies in general plans, and requiring state agencies to account for climate change when planning new infrastructure, respectively. (reference: <https://www.law.berkeley.edu/research/clee/research/climate/climate-policy-dashboard/>)

With the state recognizing the changing climate and adopting strategies for adaptation and resilience, can it be that Cal Fire continues to operate as if climate change will not affect forest growth?

What is Cal Fires strategy for addressing the effects of climate change on forest regrowth following logging?

What is Cal Fires strategy for addressing the effects of climate change on fire hazard levels associated with post logging site conditions?

The following quote is from <http://www.opr.ca.gov/planning/icarp/>

"Governor Brown signed Senate Bill 246 (Wieckowski, PRC 71354) in 2015, which directs OPR to form the Integrated Climate Adaptation and Resilience Program. The Program is designed to develop a cohesive and coordinated response to the impacts of climate change across the state.

Through its activities, the Program will develop holistic strategies to coordinate climate activities at the state, regional and local levels, while advancing social equity.

The Program has two components: the State Adaptation Clearinghouse and the Technical Advisory Council (TAC). The State Adaptation Clearinghouse is a centralized source of information and resources to assist decision makers at the state, regional, and local levels when planning for and implementing climate adaptation projects to promote resiliency across California.

The Technical Advisory Council brings together local government, practitioners, scientists, and community leaders to help coordinate activities that better prepare California for the impacts of a changing climate. (TAC members bring expertise in the intersection of climate change and the sector-based areas outlined in SB 246 PRC 71358(b).) The TAC supports OPR in its goal to facilitate coordination among state, regional and local adaptation and resiliency efforts, with a focus on opportunities to support local implementation actions that improve the quality of life for present and future generations."

Are either the State Adaptation Clearinghouse or the Technical Advisory Council being consulted on the effects of climate change on forest growth? Are they being consulted on strategies to mitigate the effects of logging and climate change and associated elevated fire danger?

Streamside Road Construction Discrepancies-

In the April 27th letter to Cal Fire from Mike Miles regarding this THP, he stated that the Z-19 road will be relocated from the flood plain of McGuinness creek to a hillside location above the floodplain.

Exactly what section is being relocated? It's unclear since no map I can find in the THP indicates road relocation.

Why is this not mapped as a "proposed seasonal road" if they are proposing to break new ground?

Is it possible the road is not actually going to be relocated?

Why do the maps in Section 2 show the road continuing to exist at its original location with road work points 900, 1100, 1175 and 1250 all indicating that the road will be constructed/reconstructed on its original alignment?

Greenhouse Gas-

The release of greenhouse gasses and their contribution to catastrophic climate change by killing large numbers of both commercial and non-commercial tree species which are left to rot or burn has not been quantified or addressed in a way that shows that the near term (10-20 years) effects of climate change will be mitigated.

Have there been attempts made to measure the amount of below ground carbon stored in duff, soil, tree roots and burls? According to your calculations, when will the site once again hold the amount

of carbon it currently does? When will it hold the amount of carbon it would in 10 years if it was left to grow as is or managed for carbon sequestration?

Water Usage-

The promotion of growth of young confers and their replacement of deciduous/hardwood species will continue to negatively impact the water availability in the watershed.

Is this impact being analyzed? How much water will the young conifers resulting from this operation consume per acre?

When, where, and how much water will be extracted from the Mattole River watershed for use in this proposed timber operation?

What is being done to protect aquatic species from the effects of the proposed water withdrawals in this THP?

Herbicides-

The plan indicates planned use of herbicides in the plan area, including near a drinking water source. HRC uses a variety of herbicides including glyphosate (active ingredient in Roundup, a Monsanto corp. herbicide). The toxicity of glyphosate is not adequately addressed in this plan, even though recent jury verdicts have awarded millions of dollars to victims of Roundup exposure who developed cancer.

Mike Miles indicated during 2nd review that the hardwoods to be removed or killed might be cut and sold as firewood. Since the oaks, madrones and others regrow from stump sprouts, this may actually increase the amount of herbicide by requiring a foliar application to stump regrowth would be the typical next step in ensuring commercial species dominance.

How was the allowable distance of herbicide application from the drinking water source and other watercourses in the plan area determined?

Local residents not only use downstream water for agriculture, but also swim within about two thousand feet of the outlet of Conklin Creek into the Mattole River. What is being done to protect this use?

I'm also concerned about the effects of herbicide use on timber workers. I have heard in the past from Mike Miles that a "language barrier" caused mistakes to be made regarding HRC's size limitations for hack and squirt. What is being done now that is different, so that timber workers clearly understand their instructions and can limit their exposure to these chemicals?

Habitat Loss-

The forest in the plan area is recovering well and beginning to show late serial characteristics like closed canopy, nesting cavities and complex canopy structure. This proposed operation will further homogenize the forest and reduce these characteristics, while exposing remaining habitat to wind, desiccation and predation.

There are many oaks there contributing large amounts of food and shelter to countless animals. Food and shelter availability will severely decrease in these stands, impacting not just the logging units but the whole area.

Fire Hazard-

The increase in fire danger due to a buildup of dead bushes and trees due to logging and herbicide use is a threat to community safety as well as ecological health. There is only one public road in and out of the area, which is very narrow in some locations and surrounded by flammable vegetation.

Large, fire resistant trees will be replaced with more flammable and crowded tree plantations.

Why does Cal Fire accept these types of artificially created hazardous conditions when your agency is tasked with protection of communities from fire?

In an era of catastrophic wildfire, I don't see how it's worth the risk to allow these hazardous conditions to be created. Our local firefighters need all of us to take action to reduce the risk of wildland fires, yet HRC's actions in the area have increased those risks and will continue to do so until steps are taken to protect the community.

There are proven timber harvest methods that evenly retain canopy closure and thereby reduce the rate of rapid regrowth of flammable underbrush. Variable Retention Aggregate is not one of them.

Public Roads-

I'm concerned about the potential impacts on public safety and deterioration of Conklin Creek road due to large vehicles and increased traffic related to this timber harvest plan and the effect it will have on emergency vehicles responding to medical emergencies and fire.

In conclusion, I request that the plan be returned and more time allowed to address these and other community safety and ecological concerns, which are essentially one and the same.

Thanks for your time and consideration of these concerns,

RESPONSE:

Please refer to the following General Concern Responses 1. Harvesting Second Growth Forest, 2. Geology and Erosion, 3. Hydrology, 4. Sediment and Temperature Impacts, 5. Herbicides, 6. Climate Change and Carbon Sequestration, 7. Wildfire, 8. Alternatives Analysis, and 9. Traffic

21PC-000000432 – from Richard Gienger on June 7, 2021

California Department of Forestry and Fire Protection Resource Management:

I oppose approval of this Timber Harvest Plan. I support the concerns expressed by a number of dedicated Mattole persons and organizations, including but not limited to Michael Evanson, Ellen Taylor, David Simpson, and Allie Freedlund; the Lost Coast League, the Mattole Salmon Group, and the Mattole Restoration Council.

The cumulative impacts evaluation and response is not adequate — for this Plan, this Planning Watershed, and the HRC holdings in the Mattole. Best alternatives for maintenance, restoration, and enhancement of the affected forest and watersheds are not being adequately assessed and selected.

The promise of starting a truly integrated recovery plan for the HRC Mattole holdings in 2013 — and its failure to be realized — is a crushing blow for the future of the forests and watersheds of the Mattole Valley.

RESPONSE:

Please refer to the following General Concern Responses 1. Harvesting Second Growth Forest, 2. Geology and Erosion, 3. Hydrology, 4. Sediment and Temperature Impacts, 6. Climate Change and Carbon Sequestration, 7. Wildfire, 8. and Alternatives Analysis.

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