



Protecting Water, Forests and Wildlife

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Cal Fire Timber Harvest Review Team
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Sent electronically to: reddingpubliccomment@fire.ca.gov

Comment regarding THP 2-19-00180 TEH Rio Gatito

Timber Harvest Review Team,

The following comments are submitted on behalf of Battle Creek Alliance (BCA) regarding Timber Harvest Plan 2-19-00180 TEH (named Rio Gatito, "Rio"), submitted by Sierra Pacific Industries (SPI). Please consider these comments as significant environmental concerns raised during the review team process, and accordingly, provide a written response to each point raised prior to issuing a Notice of Conformance for this THP.

Our enclosed comments and substantive evidence show that the material submitted by SPI:

1. is largely not relevant to the THP, the watershed area affected by the THP, and THP-related adverse cumulative watershed effects;
2. contains confusing, false, contradictory, insufficient, and materially misleading information;
3. fails entirely to address the significant environmental concerns raised here;
4. is based on subjective, unsupported conclusions and speculation;
5. does not provide a substantial, factual, evidentiary basis for Cal Fire to determine that the Rio THP is in conformance with the Forest Practice Act and Rules and will not add to significant cumulative impacts which already exist. In light of the full record, approval of this THP would be an abuse of discretion.

A full list of additional information and materials being submitted as part of these comments is at the end of this document.

Background

BCA was formed in 2007 by local residents due to the ongoing logging, primarily by clearcutting, of the Battle Creek watershed. Since that time we have read dozens of logging plans submitted for this, and other, California watersheds. We have submitted comments on over a dozen THPs, and spent thousands of hours on research regarding the natural resources of this, and other, areas. All of our comments have raised concerns about the declining health of the biological resources in this watershed which support and enhance the common good of the inhabitants of California.

In 2009, BCA began collecting water quality data, and has collected over 10,000 samples since then. The record of these samples is in the California State Water Resources Control Board's CEDEN (1) site. A research paper by two hydrologists and a GIS specialist/senior scientist regarding this data was published in the scientific journal, *Environmental Management*, in 2019 (2). BCA felt compelled to collect data due to the fact that the regulatory agencies were collecting little to no data to base their decisions on. As far as we know, we collect the only long-term, year round water data in the Sierra/Cascade region to track upland disturbance's impacts. Cal Fire acts as the lead agency in the logging plan review process and has consistently approved plans as having "no significant impacts" while using no factual, quantitative data. The Review Team spends little time in the field; this writer has spent 30 years and many thousands of hours in the field.

Summary of Concerns

1. According to Cal Fire Forest Practice GIS data (FPGIS), over 75,000 acres of industrial timberland exists in a large, contiguous block in the Battle Creek watershed. (Figure 1, Table 1.) The cumulative impacts to this large block of land have never been analyzed in SPI's THPs under the practices CDF has followed for decades. The effects on downstream waterways have not been accounted for, or protected from significant effects, by this practice. The biota population was not assessed prior to the major landscape changes, and no ongoing study has been undertaken to assess what changes have occurred. For decades, professional hydrologists have made observations such as: "**Examination of recently approved THPs and SYPs indicates that plans are being approved that do not contain technically valid cumulative impact assessments.**" (3, see also 4,5)

Delineation	Acres	% of Watershed
Battle Creek HSA	222,367	100%
Timber Production Zone (2014)	84,443	40%
Federal lands	66,687	30%
State lands	1205	<1%
Industrial timberlands	75,874	34%
Non Industrial timberlands	6940	3%

Table 1. Cal Fire FPGIS table of timberland in Battle Creek watershed.

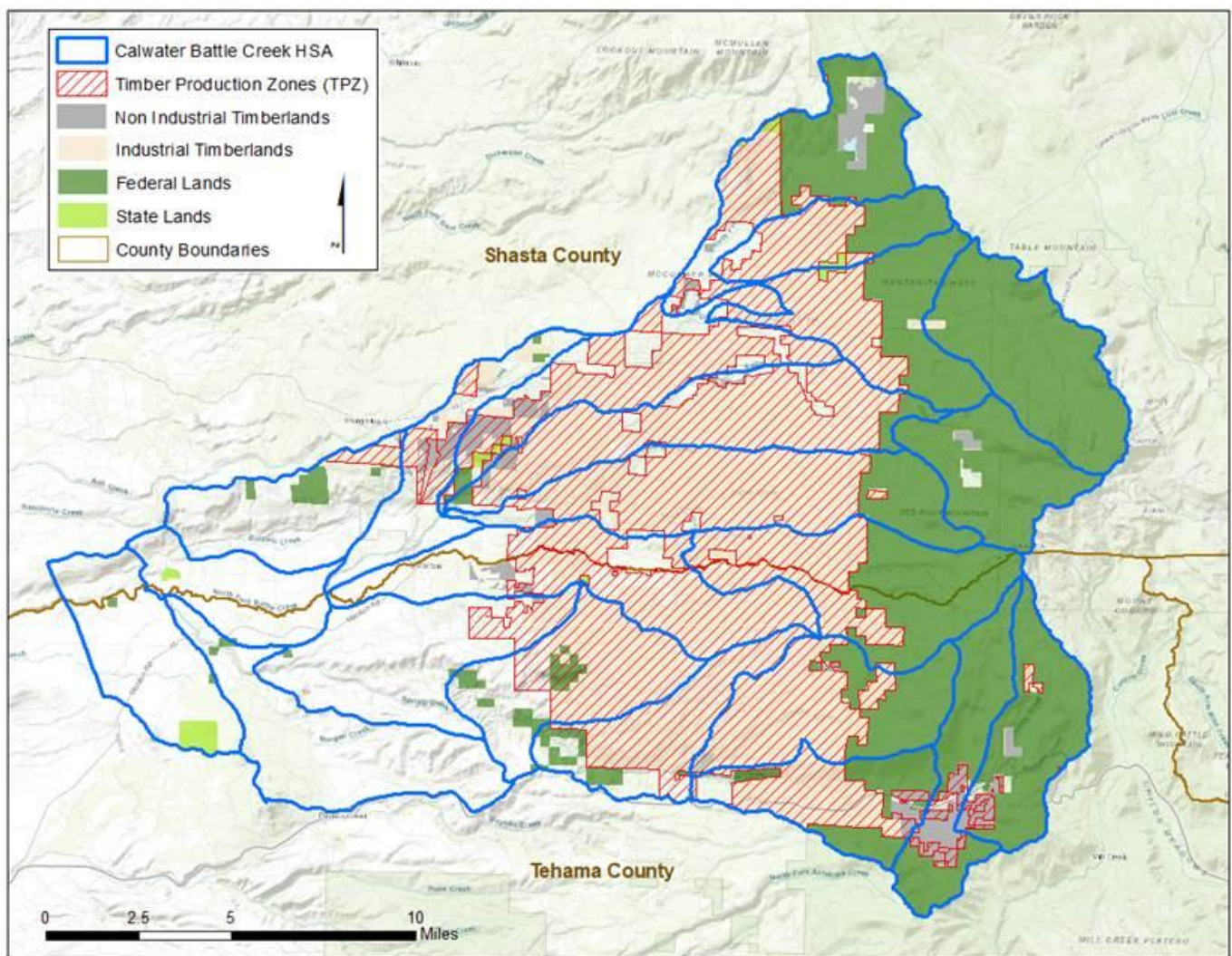


Figure 1. Cal Fire FPGIS map of timberland in Battle Creek watershed. Industrial timberland accounts for 34% of the watershed's land area, as detailed in Table 1.

2. According to Cal Fire's records, 67 THPs covering over 61,000 acres have been filed in the eastern part of the Battle Creek watershed between 1997 and 2016. (Figure 2.) The 61,000 acres of plans does not include additional acres logged under emergency and other types of exemptions, such as the post-fire salvage logging of the 2012 Ponderosa Fire which covered over 27,000 acres. 61,000 acres is over 80% of the 75,874 acres of industrial timberland. We don't have the figures to add in the number of acres cut under exemptions, but assume that it is Cal Fire's duty to include them in order to provide an adequate cumulative impacts analysis. This is an extremely high rate of harvest, with known impacts in scientific literature. (2, 3, 4, 5,6)

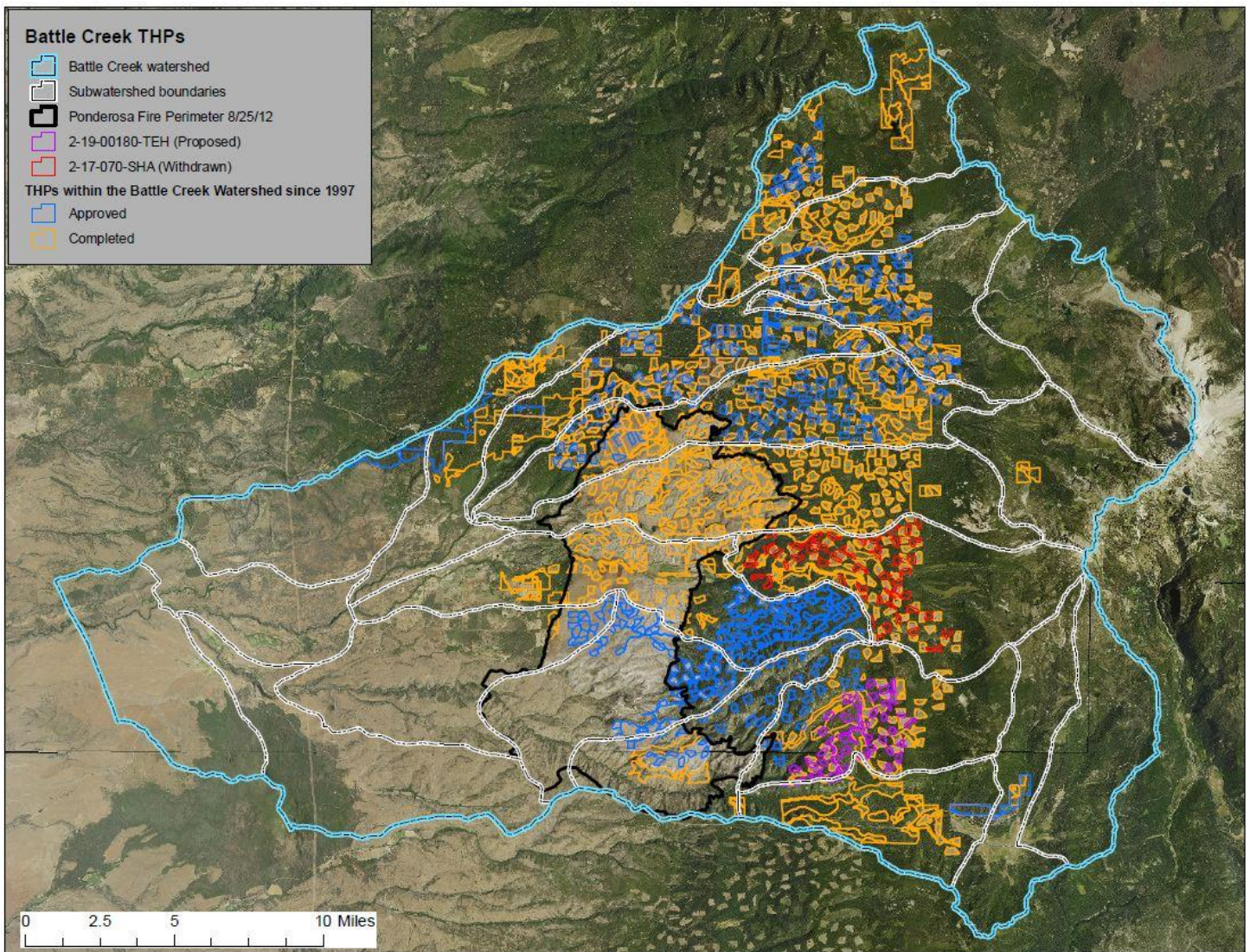


Figure 2. Map of units from past THPs within the contiguous timberland block, with the proposed units of this THP marked in violet. Streamflow generally begins on the eastern (right) side of the map and flows west (left side), eventually reaching the Sacramento River. Due to SPI's pattern of minimizing the assessment area of significant cumulative impacts, many downstream impacts are being ignored.

3. The standard pattern and practice of Cal Fire has been to accept SPI's copied and pasted THPs for decades. These repetitions of the same generalized information used over and over again provide no factual evidence to support the claims this THP makes, or the conclusion that no significant impacts are ever occurring.

4. There is no rule or requirement that a Cumulative Impacts analysis must be limited to a small planning watershed, particularly when there are tens of thousands of acres of adjoining plans. It is a choice SPI has consistently made for decades, and that Cal Fire has allowed. This plan continues that pattern and practice which only serves to minimize and obscure the truth of what is occurring in the physical reality of the land. A planning watershed is not a separate island with a large border wall around it. It is a mutually dependent part of the land around it and both have interconnected effects on each other.

5. In January of 2019 the State Water Board sent out a request for data to be used in their analysis of Battle Creek. In the summer of 2019 the State Water Board began the process of analyzing Battle Creek watershed for listing as a 303(d) impaired/threatened water body. This is expected to take several years. This is not acknowledged in this plan.

6. The Review Team spent only one day in the field for the pre-harvest inspection for this plan. This has been the standard practice for all the past plans we are familiar with; it fails to provide a high level of analysis to ascertain what impacts are occurring. Impacts to fluvial systems can persist over years to decades, as do the impacts to plants and animals from the vast landscape-level changes. One day in the field is meaningless and insufficient to protect resources. For this plan, we requested a map of the area covered in the inspection and an approximate number of acres that were surveyed. Cal Fire stated there was no requirement they provide that information.

7. In this plan SPI continues to minimize its impacts to a small planning watershed while citing information from many other areas far outside the planning watershed when they believe it supports their practices. The public is held to much stricter standards. Past Cal Fire Official Responses to other plans we have submitted comments on demonstrate how the public's submittals are dismissed, while neither Cal Fire or SPI provide any factual evidence to uphold their claims of "no significant impacts". The very definition of "prejudice" is to apply different rules and standards to different individuals or groups.

8. Cal Fire uses biased standards and practices when the public submits documents. SPI is not required to submit its same documents on every plan, but the public must resubmit any documents for each new plan. Cal Fire discriminates against the public by refusing to consider any document the public refers to but does not send in, while setting an easier standard for the timber companies. This ongoing practice is another demonstration of a prejudicial abuse of discretion.

A. Cumulative Impacts. Concerns 1, 2, 4, 6.

During our preparation for these comments, we asked Cal Fire what they would consider a cumulative impact and how they would determine it had, or hadn't, occurred. We were told: "as each plan is a unique project, and there are few thresholds that have been established for resources that may be impacted, I am not going to speculate as to when a significant impact may or may not occur. We have to review the record of the project, it's geographic location, potential resources that may be impacted, etc, on every unique project." (7)

This statement suggests Cal Fire is not even looking for effects. Cal Fire calls each project "unique" but as a review of this plan demonstrates, the majority of each SPI plan is a generalized set of lists, figures, references, and unsupported assumptions and conclusions which they have been submitting over and over for years. The plan is unsubstantiated with any facts, measurements, or pertinent studies, and is misleading and insufficient due to its assertions that there will be no effects while providing no proof. The plan itself states in the "Future Activities" section "the landowner will likely submit timber harvest plans that are substantially similar to the proposed project..." It is unclear to us what Cal Fire is basing its "each plan is a unique project" statement on. In reality, each project is an extension of the 34 plans SPI filed from 1997 to 2016 encompassed within the 75,000+ acre block of industrial timberland (8). This contiguous block has never been analyzed for the impacts it is causing within that logged area, or downstream of it. This plan continues that practice.

Technical Rule addendum No. 2 states:

"The purpose of this addendum is to provide a framework for the assessment of Cumulative Impacts as required in [14 CCR § 898](#) that may occur as a result of proposed Timber Operations. Cumulative Impacts, pursuant to [14 CCR § 15355](#), refers to two or more individual Effects which, when considered together, are considerable or which compound or increase other environmental Impacts. This assessment shall include evaluation of both **on-site and off-site interactions of proposed Project activities** with the Impacts of Past Projects and Reasonably Foreseeable Probable Future Projects."

and

"In conducting an assessment, the RPF must distinguish between the potential on-site Impacts of the Plan's proposed activities (which may not be significant when considered alone) with Impacts of Past Projects and Reasonably Foreseeable Probable Future Projects pursuant to [14 CCR § 15130\(b\)\(1\)\(A\)](#)."

This plan does not include the impacts of past projects, instead confining itself to a narrow area and essentially considering its impacts alone. The Battle Creek Watershed Based Plan (2019), overseen by the Central Valley Regional Water Board and paid for with State funding (9), details impacts of past projects and occurrences in the Panther Creek area and its downstream drainage into the south fork of Battle Creek, none of which are included in this plan. Here are some pieces of the document which support our concerns:

According to the geology map on page 8 of the 2019 Battle Creek Watershed Based Plan, part of the Panther Creek planning watershed in this plan has rhyolitic soil. Rhyolitic soil is known to be highly erosive. We see no discussion of this in the THP.

Pages 8-11 detail the loss of forest cover between 1985 and 2017. (A significant effect.)

Page 12 describes Beneficial Uses and Sediment Stresses and states "beneficial uses of any specifically identified water body generally apply to all of its tributaries." In this plan, that would specifically pertain to Panther Creek and its downstream drainage into south fork Battle Creek.

Page 12-13 spells out the water quality objectives encoded in the Basin Plan. BCA's data collection site SFB (south fork Battle) downstream of this plan shows exceedances of turbidity, temperature, and pH standards (1, 2, 10).

Page 15 discusses that there has been some recovery, but a large amount of sediment is still being mobilized into the mainstem of Battle Creek, which is in a "likely altered" condition. (A significant downstream effect.)

Page 16 states: "The greatest sediment delivery contributions are spread throughout the mid to upper elevations" which is the large contiguous block of timberland detailed in Figures 1 and 2. This plan is an additive factor to the past effects. (A significant effect.)

Page 21 discusses Panther Creek and its downstream drainages in south fork Battle Creek and their importance for anadromous salmon species. This plan alone would not be the only detrimental factor, but it would be part of the effects that add up to "significant" and can not be ignored.

Page 24 states "Areas within the Upper and Lower South Fork Battle Creek, Panther Creek, and Digger Creek indicate the highest relative sensitivity to combined factors of erodibility, landslide potential, and chronic road sediment delivery." (A significant effect.)

Our water quality data has been reviewed by 6 hydrologists, as well as the monitoring coordinator at the State Water Board (11). The Battle Creek Watershed Based Plan document reinforces our water quality data findings and research paper (2), and is additional evidence of the concerns we have been raising for years regarding the significant impacts which are occurring. This THP excludes our recent research paper, the Watershed Based Plan, and the other documents that speak of the ongoing declines in the watershed. Most of the declines are occurring downstream of this proposed project (2, 9, 12).

Technical Rule addendum No. 2 states under Section C "Identification of Information Sources" that Records Examined can include "k. Relevant watershed or wildlife studies (published or unpublished)". As we detail later, this plan includes many references to information from far away from this plan's area. Yet, it includes no references to the documents which are actually about the area adjacent and downstream of the Panther Creek planning watershed (2, 9, 12). This is materially misleading and insufficient for an informed decision making process.

B. Exclusion of Relevant Information. Concerns 3, 7, 8.

Research papers commonly cite to other research from different places. This is what SPI

has done in its citations also. The reason we bring this up though is that an ongoing practice Cal Fire has used in the years we have been working on logging plan issues is to dismiss whatever information we include in our comments when they produce their Official Responses. Many examples may be found in the Official Responses for plans we have commented on (13). As one example, the Official Response for plan 4-19-00007 dismissed the published research paper regarding our water quality data as "inappropriate" because it was from a different watershed. If this practice was applied to SPI as well we would not have anything to say. But, SPI is allowed to submit documents to support their practices which have nothing to do with the specific planning watershed they are filing a plan for and which are cut and pasted repetitions of every plan they submit. There are different standards applied to the public versus SPI. Cal Fire has repeatedly shown a pattern of judging logging plans or submitted science in a biased manner, and we are concerned that this plan will be judged in the same biased way.

SPI and Cal Fire have hidden behind the planning watershed area to minimize the cumulative impacts assessments for decades, and continues that practice with this plan. SPI, and the THP, limits the area for cumulative impacts assessments to a planning watershed and a small percentage of their industrial timberland. This reductive system has been used for the multitude of THPs in the Battle Creek watershed to avoid a factual cumulative impacts analysis of the large block of contiguous timberland acres. As usual though, SPI includes information in this plan from far outside their chosen assessment area that they seem to believe supports them. Yet, nothing is included from the larger area about their negative impacts. Impartial decision-making based on facts cannot allow SPI to have it both ways.

Cal Fire allows SPI to cite to its documents included in the THPs, including this one, without actually submitting the documents for each plan. The public must resubmit documents for each new plan, or else Cal Fire refuses to consider them. As an example of this, we submitted a comment for another plan, 2-18-055, which was also in Battle Creek watershed. We cited the published research paper regarding our Battle Creek water quality data(2). We had submitted this paper for two other comments in the past as well. For 2-18-055 we inadvertently didn't send in the paper for the third time. The December 2019 Official Response from Cal Fire regarding the plan stated: "The abstract and background data was provided for this study, but the study itself was not provided for CAL FIRE to evaluate and consider as part of the record. As a result, it is not possible to respond to the conclusions reached by the author."(14) Our perspective is that anyone who had a document in their files already, and who wanted to do an unbiased, thorough analysis would not use such a weak and flimsy excuse for avoiding it. We trust that if we inadvertently don't submit any documents we reference that are pertinent to this plan and inform the decision making process, Cal Fire will make the attempt to locate them in order to perform their duties as public servants responsible for protecting resources.

There is further evidence of contradictory standards which are pertinent to the potential approval of this plan by Cal Fire. In our comment for THP 2-18-055 we included a Figure

from a technical report prepared for the Central Valley Regional Water Quality Control Board by Henkle et al. (15) We did not submit the full report, yet Cal Fire's Official response in December 2019 stated that they did a "detailed examination" (page 19) of the report and quoted several paragraphs from it to dispute what our comment said, concluding it "shows the comment writer oversimplified the information presented". Pages 19-20 of Cal Fire's Official Response go on to quote several paragraphs from the Henkle report, which was written in 2015 and partially based on the graduate student's monitoring in 2014. Cal Fire's response concludes that what they "take away from this is that results seem to be dependent on who is collecting the information and what for...CAL FIRE does not have the luxury of picking and choosing which information is more credible".

Cal Fire does have the "luxury" of fully analyzing relevant information though, if they choose. Cal Fire's recent willingness to exclude the Lewis research paper (2) we forgot to resubmit, while quoting another source (which we also didn't submit) to dismiss our concerns, is a clear indicator of the bias which is used in the THP approval process. This bias is evident in past Official Responses (13) when Cal Fire dismisses concerns we bring up and submit evidence about, while not requiring the plan submitter to present any site-specific evidence. We are concerned about that occurring again with this plan.

Since Cal Fire has used negative quotes from the Henkle report, we feel it's necessary to provide background which the report did not include, and which left out much pertinent detail regarding "credible" information.

Section 3.5 of the Henkle report, "Sediment and Geomorphology", pages 51 to 61, summarizes some of the studies/reports done in the Battle Creek watershed. The opening paragraph states "Sources of fine sediment including roads, timber harvest clearcut units, and logging infrastructure are reported as delivering sediment to streams (Ward and Moberg, 2004; Kier Associates (KA), 2009; Myers, 2012) although these results are in direct conflict with a 2011 rapid assessment performed by Task Force (2011)."

--The 2011 Task Force Report consisted of only 5 days of field visits in the driest time of the year (late September), and did not assess stream conditions at all (16). Even the Task Force report itself recommended more work be performed. That never occurred. More background detail regarding this is further along in this comment under "SPI Citations". We have drawn attention to the deficiencies of this report in past comments, but it still is cited without any acknowledgement of the flaws in it. That is why the other "results are in direct conflict" with it, and the Henkle report either did not know, or did not include, that salient part.

--The 2009 Kier analysis was of the 2001-2002 Battle Creek data included in the Ward and Moberg (Terraqua) 2004 report. The Kier analysis was not included in the 2004 Battle Creek Watershed Assessment because "A major private timberland owner with a seat on the BCWC [Battle Creek Watershed Conservancy] requested that discussion of upland conditions and linkage to aquatic habitat be omitted from the final version" (17). SPI has always had a seat on the BCWC board. These occurrences, in concert with the Kier report, reflect poorly on the 2004 report's accuracy in

general and when it speculated that a 1997 storm was solely responsible for most of the sediment in the watershed.

--SPI employees produced a 2012 report (James and McDonald) which found "no elevated levels of turbidity due to best management practices". We have pointed out the methodology flaws in this report in the past also. These include the placement of their Bailey Creek instream monitors primarily above any of the logged land, as seen by the map included in their report. (See also Figure 13). The high Bailey Creek site (BCT) in the research paper regarding our water monitoring program (2, 10) is the cleanest of our sites also, due to the lack of disturbance above it. Additionally, the SPI report analyzes the data by including the entire year, which presents a false picture due to the predominance of dry days in the entire year. Henkle states "The presentation of results is weighted by the effects of more dry days occurring than wet days. Turbidity occurs when it rains and since rain is short-lived the results that turbidity is short-lived are to be expected. An analysis of what percent of time during storm runoff with turbidity values ≥ 25 NTU would be more representative of sediment transport than comparing with the entire duration of flow records."

The Henkle report states on page 59 that "Of six studies addressing the effects of land use on sediment, three reported a direct relationship while three indicated no directly observed correlations". As may be understood from the preceding paragraphs, the three reports that saw no correlations were because they:

1. withheld information
2. spent little time in the field in the driest time of the year and performed no stream measurements or other assessments
3. only collected data from the cleanest sites to be found.

These facts put quite a different complexion on the Henkle report's remarks.

Additionally, we must discuss that the Henkle report was dismissive of the value of "various stakeholders" performing "ad hoc grab sampling and turbidity measurements ". We must assume that our organization was included in that, although Mr. Henkle contacted us once without ever asking to look at our data, or our sampling protocol (11). "Ad hoc" suggests that the sampling is haphazard, or done to suit our purposes, but we have a sampling design that was meant to eliminate bias as much as possible, given the practical (and safety) limitations of manual sampling. Our design is similar to USGS sediment grab sampling; many thousands of papers have been published based on that form of sampling, according to Jack Lewis. Our sample collection is more frequent than typical USGS monitoring programs (2). Furthermore, the Henkle report was written before the research paper regarding our data was published. The fact that a respected, peer-reviewed scientific journal considered the paper worthy of publication invalidates the disparagement included in the Henkle report. We trust Cal Fire will not use the report to dismiss our concerns regarding the Rio plan.

C. Listed Wildlife, cumulative effects, significant changes, non-existent evidence in current plan. Concerns 1, 2, 4.

C. 1. Former Plans

The former plans adjacent to this plan are Hazen 2-04-166 and Blue Ridge 2-10-067. A comparison of the three plans finds a high percentage of the same cut and pasted unsupported generalized conclusions and assumptions in each plan. But, there are also some substantial differences that mask ongoing effects.

In past Cal Fire Official Responses to our comments (13) we have never seen any indication that the adjacent former plans are reviewed. There is no reference to any follow up to investigate issues raised in former plans. In fact, the issues just disappear and are not mentioned in newer plans. Cal Fire is funded as a regulatory agency for logging, and is tasked with analyzing, and preventing, cumulative impacts. Since that is not taking place, we have done some review work on this plan to compare it to the earlier adjacent plans.

Our review of the Hazen (2-04-166) and Blue Ridge (2-10-067) plans found the following, for just a few examples:

Hazen 2004, page 102: USFWS Wildlife Officer "Mark Williams noted that the information on spotted owl and the northern goshawk nest locations were based on complete surveys...Mark Williams' previously mentioned letter [not in record supplied to us] stated that no cumulative effects analysis specific to the area has been completed for wildlife." Nothing in the **Blue Ridge 2010** or **Rio 2019** plans give any indication that any cumulative effects analysis specific to the area has ever been completed since the 2004 plan either. In fact, the **Rio 2019** plan has the least information of the three plans regarding wildlife and cumulative impacts. The fifteen intervening years between the 2004 and 2019 plan have been years of rapid change and expanding knowledge about many effects, including climate change. That the present THP turns blind eyes and insists there are no significant effects without providing any quantitative evidence, is materially misleading and completely insufficient for basing a rational, unbiased, informed decision on.

Hazen 2004, page 65-66: "The proposed project is 19% of the assessment area... past projects have covered approximately 42% of the assessment area over the last decade." It goes on to refer to an unpublished document regarding a hydrologic study in Calaveras county as supporting evidence that there are no significant effects. In November, 2019 Cal Fire issued an Official Response to Calaveras plan 4-19-00007 which dismissed the published research paper which was submitted regarding our water quality data from Battle Creek as "inappropriate" because it was from a different watershed. (See Concern #6.)

Please explain why your practices allow different standards to be applied to the public than to SPI and Cal Fire. This is information that we will need regarding the analysis of this plan.

Blue Ridge 2010 analyzed 18,925 acres in its Watershed Assessment Area, the plan was 1,212 acres, no percentage of planning watershed is given; **Rio 2019** analyzed 10,991 acres, plan is listed as 7.5% of area. (Note the decreased size of the assessment area compared to the Blue Ridge plan.) There is no analysis provided regarding the ongoing rate of harvest. There is no mention of any ground based search for site-specific cumulative impacts in either plan.

Hazen 2004, page 76: A goshawk (sensitive species) was sighted in the late '90s in the THP area. In 2001, there was a consultation with DFG, and a nest location identified. In 2004 there was no detection of birds or nests, although USFS Wildlife Officer Mark Williams reported a nest a quarter mile away. **Rio 2019**: no detection of birds or nests. (Significant change with no analysis.)

While one nest or species is important, what is more important is why is the nest gone? Why are there no new ones being seen? Why is no one seeing the birds? Why are there no surveys being performed? All of these questions are the very heart of why a cumulative impacts analysis is supposed to be performed. Minimizing the analysis to one nest, or one species, is not good enough to protect species from irreparable harm caused by ongoing losses of usable habitat, as is occurring in both this planning watershed and the surrounding block of logged land. There is no planning watershed scale evidence in this plan that shows nothing significant is occurring.

Technical Rule Addendum No. 2 includes guidelines for biological resources and states "**Significant adverse Cumulative Impacts may be expected** where there is a substantial reduction in required habitat or the Project will result in substantial interference with the movement of resident or migratory Species...Factors to consider in the evaluation of cumulative biological Impacts include: 1. Any known Listed Species that may be directly or indirectly affected by Project activities." Note that this sentence says both "directly" and "indirectly". The absence of evidence in this plan is not proof of no significant impacts on any resources. No evidence is only proof that no one is looking for any impacts.

Hazen 2004, page 77: "Steelhead trout, Federally listed as a threatened species are present downstream from the project area... The proposed project could potentially affect one key factor critical for survival of these species. This is sediment load." Page 63: "In consultation with Curt Babcock (California Department of Fish and Game) it was determined that steelhead, Federal listed as threatened, could access the lower reach of Panther Creek. This makes the watershed assessment area a Threatened and Impaired watershed as defined by the Forest Practice Rules." **Blue Ridge 2010**: "Steelhead have the potential to be present in the lower reaches of these watersheds." There is no mention of any of this in the **Rio 2019** plan. Are the fish gone? Why is there no mention of them or analysis of the Threatened and Impaired status of this plan's planning watershed? Where is the factual information and evidence regarding what has occurred in the intervening years between the plans?

Hazen 2004, page 87: gives no number of miles per square mile of road density. **Blue Ridge 2010** page 143 does not either, but refers to the Terraqua 2004 report, which was found to have a lot of cumulative impact analysis regarding upland effects removed from it by SPI (17). **Rio 2019** lists the road density as 4.5 miles per square mile which obscures the fact that some sections are 6-7.6 miles of road per square mile(19). (Lower numbers occur in the sections which include USFS land in Lassen Forest.) Kier 2009 (17,18) stated "The extremely high levels of fine sediment found at Battle Creek sites is to be expected given the high degree of watershed disturbance and high road densities in the watershed (Kier Associates 2003)."

Road density also has significant impacts on terrestrial and aquatic life forms. (20) The existing roads in the plan area already have had lasting and significant effects as conduits for sediment transport. Heavy equipment use of roads exacerbates these effects. This plan will require more high usage of roads, adding to the current effects. The THP spends time and space making remarks about the roads being gated and closed to the general public, as if some random people in passenger vehicles are the problem. They aren't. Multiple trips per day by 80,000 pound logging trucks are what destroys the road surfaces of both paved and unpaved roads. There is no discussion of the general significant adverse environmental effects of that in the THP, or the specific adverse effect of higher levels of sediment occurring and available for transport.

Trombulak et al. (20) was published in "Conservation Biology" and reviews 179 papers published regarding road density. The authors detail "seven general ways roads of all kinds affect terrestrial and aquatic ecosystems" and write "Numerous studies have demonstrated declines in stream health associated with roads..."

...Roads are often built into areas to promote logging, agriculture, mining, and development of homes or industrial or commercial projects. Such changes in land cover and land and water use result in major and persistent effects on the native flora and fauna of terrestrial... and freshwater ecosystems..."

The research paper regarding Battle Creek Alliance water quality data wrote : *"Our analysis of turbidity data from 2009 to 2015 at 13 watershed locations indicates that the sites with the most harvesting and highest road densities had the highest turbidity before the fire and throughout the entire monitoring period. Turbidity remains strongly associated with harvesting after statistically accounting for road effects. Importantly, roads are an inseparable part of logging operations."* (2) The significant cumulative impacts of road density and logging equipment's high usage of roads have not been adequately addressed in this plan.

In our review of plans in the adjacent Upper Digger Creek planning watershed we found additional specific examples and comparisons to demonstrate the lack of adequate cumulative impacts assessments in SPI plans. The following comparison is evidence of SPI's ongoing pattern of submitting THPs that are based on opinion and unsupported conclusions. The Rio THP continues that practice.

Comparison of the 2006 Lookout THP (2-06-173) to adjacent 2017 Artemis THP (2-17-070):

Page 62 of **2006** Lookout THP and page 126 of **2017** Artemis THP use identical generalized descriptions of Watershed and Stream Conditions. These meaningless descriptions apparently have been being cut and pasted from THPs for more than a decade, but do not provide any factual evidence about cumulative impacts occurring, or not occurring.

Page 74 of **2006** Lookout THP does contain a table entitled "Stream Reach and Channel Stability Evaluation" which has ratings for some aspects of watercourse health. There is no description of who determined the ratings, or how the ratings were arrived at, or how much area, or what area, was assessed to arrive at the ratings. However, even this low level of thought or evidence about the stream conditions is absent from the 2017 plan.

Page 87 of **2006** Lookout THP states "Much of the assessment area is in a multistory canopy condition." Page 133 of **2017** Artemis THP says "Much of the assessment area under SPI ownership is under even-aged management". Point: This is a significant impact and change to the stand canopy height and species diversity which has been ignored in the THPs and by the Timber Harvest Review Team; no mitigation is occurring.

Page 87: Road density is stated as "approximately 4 miles per square mile" in **2006**; the **2017** Artemis THP states the density is 1.95 miles per square mile. The road network didn't change; some plans have added roads in the vicinity. Road density and the heavy equipment use of roads during logging are a significant source of sediment in waterways. (2) There is no description of how the number of miles per square mile in the THP was arrived at. GIS Specialist Curt Bradley calculated the number of miles by section in the THP using the THP maps. The average is 6.39 miles of roads per square mile section within the THP area and 7.1 miles of roads per square mile section when the assessment area is added (21).

Page 133 of the **2017** Artemis THP states: "No inventory cruise data is available for the hardwood component in this area of SPI land." In the **2006** Lookout THP, page 88, SPI stated, "Hardwood cover accounts for approximately 5.7% of the basal area in the harvest areas." Point: in 2006 the THP gave an unsourced approximation, but it was more informative than the 2017 THP. Without any inventory data, there is no attempt to show evidence that no significant impacts have occurred.

Page 131 of the Artemis **2017** THP and page 86 of Lookout THP of **2006** have identical Snag Management Tables. Page 131 Artemis 2017 adds a table that says "Snags on SPI Ownership in the CIAA" but then states: "The data in the table above was from the last timber cruise in that portion of ownership in **1999**". Point: relying on 20 year old snag data does not adequately demonstrate no significant effects are occurring.

Page 21.3 to 21.4 of **2006** Lookout THP has maps of 4 osprey nests in the Digger Creek area and description of the nest sites on pg. 84. Page 147 of **2017** plan states: "The wildlife

scoping procedure disclosed no known Osprey location or site histories in the BAA”. This is a fallacy, as proved by SPI’s own 2006 plan. Additionally, ospreys build their nests in the broken off tops of live or dead large trees—preferably larger than ~36” dbh. The older nest trees fell; most of the large tree habitat component is gone now because of clearcutting and salvage logging, which is both a cumulative and a significant effect for many species of raptors and the members of the food web they are part of. The 2017 Artemis THP does not disclose the former nests and their loss or the loss of nesting places, all cumulative impacts occurring over time.

The preceding examples are just some of the significant changes that we know of from the Rio THP and the preceding adjacent ones. How many more significant changes are there that SPI and Cal Fire have ignored, or more importantly, never even looked for?

C. 2. Additional example: significant omission regarding wildlife in current plan

The plan's pages 148-155 are representative of how little factual information the plan contains which is related to the Panther Creek planning watershed or the contiguous block of industrial timberland that surrounds it.

This section discusses the California Spotted Owl (CSO) and asserts that SPI's logging will "improve owl habitat". Once again, there is no information specific to this planning watershed. The four sample areas include "North Lassen" which "**encompasses about 71,700 acres contained within 15 planning watersheds**". This sample area contains Battle Creek watershed. While it is notably interesting that SPI can talk about this size of area when they believe it supports what they say (as opposed to refusing to use it when looking for significant effects), our analysis of this plan finds no factual evidence provided. Table 2 on page 152 "Current and Future (Projected) Percent of SPI Land That Supports Spotted Owl Nesting Habitat, averaged at the watershed level" states that the present, base year was 1999. It lists the present (1999) North Lassen percent at 4.76%, increasing to 20% in 10 years (which would have been 2009) and increasing to 27.35% in 20 years (which would have been 2019). The text states "As evident in Table 2, the amount of nesting habitat is projected to increase from about 5 percent to over 27 percent over the next 20 years and will never be less than 3 times the current amount." There is no factual evidence provided to prove that any of this has occurred, and the text is written as if it were still 1999. It's not. Making statements like this does not uphold the rules or provide any reality-based evidence. It is unproven speculation. Where are the scoping reports and the documentation for what has occurred since 1999 to prove that their statement is not just speculation?

The four references at the end of this section are from 1990, 1992, 2000 (for northwestern California, far from this plan), and 2001. Nothing current is referenced.

California Forest Practice Rules (14 CCR Ch. 4, 4.5 and 10), defines the Special Conditions Requiring Disapproval of Plans:

"The Director shall disapprove a plan as not conforming to the rules of the

Board if any one of the following:

... (c) There is evidence that the information contained in the plan is incorrect, incomplete or misleading in a material way, or is insufficient to evaluate significant environmental effects. The sufficiency of the information provided in a THP to evaluate significant environmental effects shall be judged in light of what is reasonable and necessary." Subch. 2, Article 1, § 898.2.

It would not be reasonable to approve this plan, which is so deficient in factual evidence to support its conclusions. It is necessary for Cal Fire to honestly analyze the significant cumulative impacts, and make unbiased decisions based on factual evidence.

D. Pre-harvest inspection (PHI). Concern 6.

D. 1. Insufficient analysis and clarity regarding PHI

In December, 2019 we asked Cal Fire for the approximate number of acres that were inspected during the one day pre-harvest inspection (PHI) for this plan, and for a map of the route that was followed. We also said "These are questions regarding the foundation of the CE (cumulative effects) assessment analyses that we need to understand for our work in general, and for the comment on the new plan." The reply we received was "Dawn Pedersen and the interagency review team reviewed a sampling of the project area to determine if the plan adequately described the conditions of the THP and assessment areas. Routes taken, or acreages actually reviewed, are not required to be reported, and would be difficult to actually determine." (22)

The Cal Fire response does not uphold **14 CCR 897** "The information in [THPs] shall also be sufficiently clear and detailed to permit adequate and effective review by responsible agencies and input by the public. . ." The response also reveals how little Cal Fire actually knows about the plan area, and how little analysis is being performed by the lead agency.

Since Cal Fire refused to give us the details we requested, we can only guess at this, but we must assume that less than 1% (100 acres) of the 10,991 acre planning watershed area of this plan was looked at, based on the short amount of time spent. The PHI report is limited to minor things and includes no details regarding if any time was spent looking for any impacts from past projects. There is no quantitative information included. The PHI is incomplete and insufficient in a material way, as is this plan.

14 CCR § 15144 is a requirement that "an agency must use its best efforts to find out and disclose all that it reasonably can." Are the occurrences detailed above Cal Fire's best efforts? The logging of more forest will have impacts and consequences for decades, if not longer. Yet the standard practice in the past, and continued here, is to spend a miniscule amount of time in the field. From Cal Fire's own words (7, 22), it's clear that any significant impacts are not being looked for.

D.2. CDFW's post-PHI memorandum

CDFW attended the one day PHI in early December also. The CDFW PHI memorandum was submitted on January 16th, 2020 shortly before the 2nd Review Team meeting. This report included information gathered from vegetation maps made from a system from Oregon State University named LEMMA.

The LEMMA data "was digitized in 2012, "representing existing habitat conditions in that given year (pg 3)". This data has not been ground-truthed in the planning watershed so its level of accuracy has not been proven, along with the fact that it's data is 8 years old. Eight years is a long time during climate change. The World Metrological Organization's 2019 report found: "Global mean temperature for January to October 2019 was $1.1\pm 0.1^{\circ}\text{C}$ above pre-industrial levels. 2019 is likely to be the 2nd or 3rd warmest year on record. The past five years are now almost certain to be the five warmest years on record, and the past decade, 2010-2019, to be the warmest decade on record. Since the 1980s, each successive decade has been warmer than any preceding decade since 1850. " (23) The THP offers no site-specific data to address what impacts are occurring to the land due to climate change, nor does the LEMMA data or CDFW's memorandum. There is no discussion of what significant impacts higher temperatures are having on the biota in the planning watershed. CDFW presents a list of the many species that are listed at various levels of threat (pg. 5-6) but only offers a generalized conclusion that the current conditions would support them. As with the THP, there is no site specific evidence regarding population abundance or health and the trends which have occurred through the many years of intensive logging of habitat. In past THP comments we have submitted evidence regarding significant water temperature increases (which affect aquatic species) in the Battle Creek tributaries (10), but there is no evidence of that in this THP.

The CDFW memorandum also includes a table that shows 4,824 acres of expected rate of harvest (ROH) for the past 20 years, or 44% of the planning watershed. Because of the use of a different time frame, it does not account for all the percentage mentioned in the adjacent 2004 Hazen THP ("past projects have covered approximately 42% of the assessment area over the last decade.") This ROH is an ongoing significant effect which the THP does not address in any meaningful detail.

Lewis et al. (2) discusses the relationship between the ROH and water quality impacts, and is based on Battle Creek watershed data. This THP makes no reference to it, nor does the CDFW memorandum. Klein et al. (5) found the correlation between ROH and water quality impacts in northern California coastal watersheds and stated: "Despite much improved best management practices, contemporary timber harvest can trigger serious cumulative watershed effects when too much of a watershed is harvested over too short a time period."

Because there is no evidence provided in the THP or by CDFW regarding actual existing species health in the planning watershed, we must fall back on scientific discovery from a broad area. The 2019 paper "Decline of the North American Avifauna" (24) documents a huge loss of birds, including common ones, throughout the U.S. and Canada. The paper's one sentence summary is "Cumulative loss of nearly three billion birds since 1970, across most North

American biomes, signals a pervasive and ongoing avifaunal crisis." While we expect Cal Fire will dismiss this, as is their practice with our submissions, we do not believe that the Battle Creek area, or the planning watershed in this THP, is immune to the high loss this study finds. For an example, when this writer moved to the Battle Creek watershed in 1989 she often saw red-winged blackbirds within and below the timberland before it was sold to SPI. Over the years, as the immense landscape change occurred incrementally in the 75,000+ acre block of logged land, she saw fewer and fewer. Now, it's rare to see even one individual.

There is no evidence in the THP regarding populations of any species. Cal Fire wrote in December 2019 (14) **"CAL FIRE believes it is improper to make a decision on a site specific THP based on the results of such a large scale assessment. We continue to believe that the proper scale to both assess and mitigate potential impacts is at the THP level."** There is no assessment or mitigation occurring "at the THP level" when there is no one from SPI or Cal Fire performing a land-based, quantitative search for any impacts.

Figures 1 to 5 from LEMMA which CDFW provided in their memorandum do not have the borderlines of SPI's and Lassen Forest's land marked. The memorandum uses the 2012 data to discuss different habitat values and usually remarks that the values are higher for the public land than the industrial timberland, which can be seen in the figures if you are conversant with the approximate boundaries between the two. Unfortunately though, CDFW groups the two differing lands together when providing mean and median values, which disguises the lower values occurring on SPI land. The Lassen Forest land is primarily upstream and at a higher elevation than SPI land, which means that even though it offers some better habitat value and raises the mean and median values, it does not mitigate the downstream impacts and loss of habitat from SPI's land.

The decades-long logging practices continued in this plan are creating losses and impacts which will last for more decades. The inadequate review by agencies and the minimal time spent in the field is enabling the degradation and downward spiral of the forests to continue at the time when many ecological crises are worsening. The inclusion of maps from 2012 data which has not been checked for accuracy on the ground, and the lack of any site specific evidence from the land regarding the health of all the resources that the Appendix of Technical Rule Addendum No. 2 covers does not conform to the analytical standards set forth in 14 CCR 15355 for how to consider cumulative effects: "two or more individual Effects which, when considered together, are considerable or which compound or increase other environmental Impacts. This assessment shall include evaluation of both on-site and off-site interactions of proposed Project activities with the Impacts of Past Projects and Reasonably Foreseeable Probable Future Projects." Note the rule includes both "on-site" and "off-site" interactions. What we have been asking for years is that the "off-site" interactions of the large, contiguous block of projects be "considered together". Even without that consideration though, it is clear from the CDFW LEMMA maps that even by 2012 SPI's land within the Panther Creek planning watershed was in a state of much lower habitat value according to quadratic mean diameter, tree size classification, diameter diversity index, downed wood biomass, and snag biomass (Figure 3). CDFW's conclusion (based on 8 year old data and little field analysis) is that "for the continued success of all above mentioned terrestrial and aquatic species, forest habitats within the watershed would likely have to maintain their current level of diversity". The addition of this plan would degrade the habitat further and be another negative withdrawal from the landscape's already significantly impacted habitat; it will not maintain the "current level of diversity".

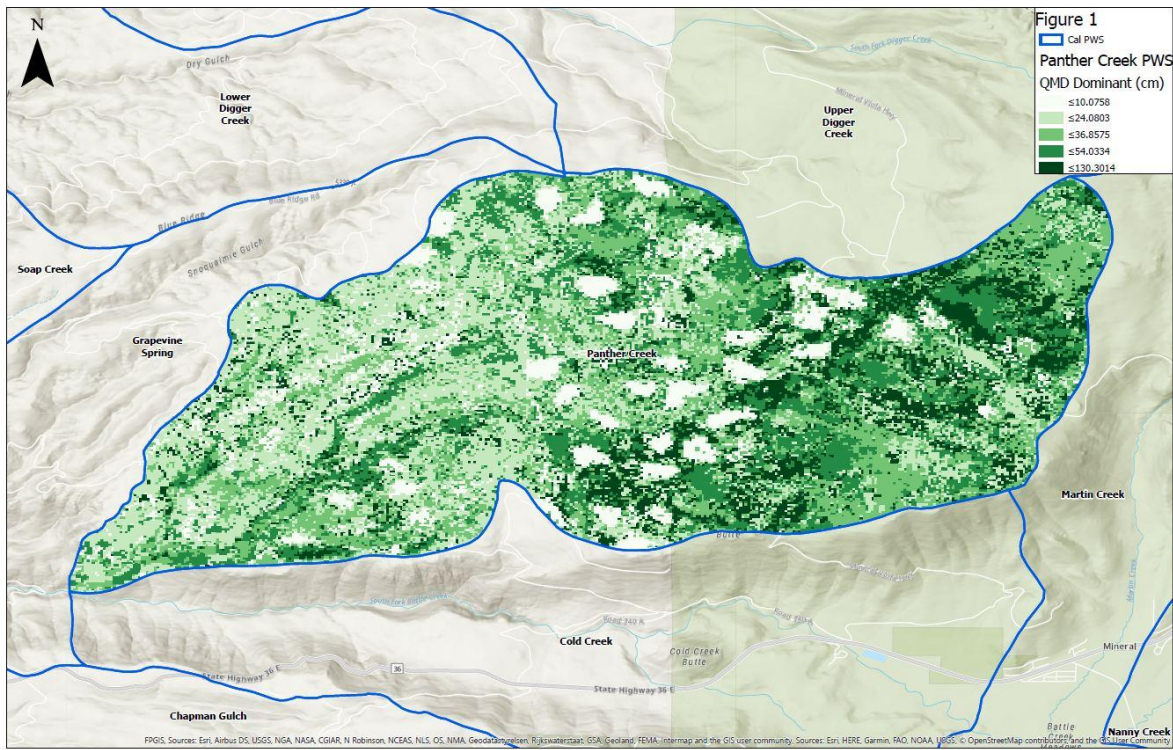


Figure 3. A comparison between CDFW's LEMMA map of tree diameter sizes with the FRAP watershed planning map shows that most of the remaining trees of larger size diameter are only on the uncut land of Lassen Forest on the east side of the planning watershed, above SPI's land.

E. Watershed Resources Section of THP. Concerns 1, 4, 5.

E.1. Cumulative Watershed Effects

This section includes a box table that "summarizes the Panther Creek State Planning Watershed". (Page 117.) It is an overview list that provides no actual information regarding any effects. It does have a line that says "Threatened or Impaired (DFG)" and "Yes" in the second column, but we can find no discussion of this in the plan. It has a line that says "303D Issues--No Issues" but that is potentially incorrect. (See Concern #5.) Dr. Leslie Reid noted in 1999: "As currently implemented, California Forest Practice rules have not prevented the cumulative watershed impacts that led to the recent listing of multiple northern California streams as impaired by sediment under section 303(d) of the Clean Water Act." (3) There have been decades in which to act to prevent impacts since Dr. Reid wrote that, but nothing substantive has changed in SPI's or Cal Fire's practices.

An extensive study was performed by a panel of hydrology experts in 2001 regarding logging plans and cumulative watershed effects (CWEs) (6). Their findings are still just as relevant these nineteen years later, due to Cal Fire's ongoing practice of avoiding their duty to perform adequate analyses, and approving copied and pasted plans which contain no concrete evidence. This report is highly critical of the ongoing practices Cal Fire has used to approve plans, and which continue to be used. These ongoing practices continue to avoid upholding FPR and CEQA rules, as demonstrated in our comments on this plan.

These are just some of the problems the panel found, which are being continued in the current Rio plan:

"Watershed impacts that have been shown to result from timber harvest (and other land-cover manipulations) include effects on: sediment, water temperature, in-channel volumes of organic debris, chemical contamination, the amount and physical nature of aquatic habitat, and increases in peak discharges during storm runoff.

Given the widespread nature of the watershed effects of timber harvest listed above in many disturbed landscapes, one would expect frequent identification of Cumulative Watershed Effects,—even if the ecological significance of some effects could be debated. In practice, however, virtually no one filing a THP admits to the presence of *any* CWE, and CDF and resource agencies in other states have been unable to promulgate any defensible methodology for defining the presence and source of any CWE, even when they have consulted the scientific community. Thus, there is little effective technical basis for enforcement of available regulations designed to protect aquatic resources. There is an escape from every rule." This plan continues the practice of evading the rules that were meant to protect resources.

Page 115 of the plan asserts "The rationale for using these planning watersheds is that it represents the natural collector of potential water quality impacts, since if they exist, will accumulate in the watercourses that define the planning watershed." This is an incomplete and misleading portrayal of how fluvial systems work. Water quality impacts do accumulate in the planning watershed watercourses but they do not stay confined there. Sediment moves during large storm events and that is when cumulative impacts become active. Our Citizen's Water Quality Monitoring Project has

found evidence of this for over 10 years now. "The data reveal strong associations of turbidity with the proportion of area harvested in watersheds draining to the measurement sites." (2) There is more discussion of our evidence, and other entities' evidence, in our citations. Some documents mention the data gaps which exist. This is a problem, but does not mean that this plan should be approved which has no evidence in it to prove anything it asserts. We are a small, little-funded organization and cannot perform the large studies that cost hundreds of thousands of dollars that many reports have recommended. But those large studies have never been carried out, while we have accomplished collecting the data we are able to for over 10 years. Our south fork of Battle Creek site, which is downstream of the Rio plan's planning watershed, shows elevated turbidity, temperature, and pH and exceedances of the numerical limits of the Water Board's Basin Plan. Along with sampling data, we photograph each of our water monitoring sites. Figures 4 to 7 are a few visual comparisons of tributary creeks in Battle Creek watershed. All of our lower downstream monitoring sites have the same physical changes demonstrated in Figures 5, 6, and 7.



Figure 4. A map of our sampling sites is in Lewis et al. 2019 (2). Above is a photo of our highest elevation site in January 2020, which is on Bailey Creek (BCT). Normally a reference site would be chosen by having no disturbance, but all the sites which are accessible to us have some disturbance. This site has the least. This photo demonstrates how little sand (known as fine sediment) is present, how clear the water is, and how the substrate is composed of loose rocks not embedded by sediment.



Figure 5. This is our Rock Creek (RC) site on the same day in January 2020. Here can be seen the sand (fines) embedding the rocks in the substrate. This site has changed significantly since we began our water quality sampling program in 2009. It used to be similar to the high Bailey Creek site.



Figure 6. This is our north fork Battle Creek site in January 2020. The sandy beach on the edge of the creek that extends into the streambed was not there in the past but has persisted for years now.

This writer has been wading the creeks since 1989, and personally saw what occurred in the 1997 flood which is discussed in THPs and other documents. After that flood which cleared the banks of the streams for about 5 feet on each side, the rocks in the streambeds continued to be loose and have very little sand present. The substrate began changing in the mid-2000s as clearcutting upstream became prevalent, and escalated post-Ponderosa Fire and post- tens of thousands of acres of salvage logging that were cut after the fire. The physical evidence in the streams shows significant changes have occurred, have persisted, and have not been prevented or mitigated by SPI's practices. The Appendix of Technical Rule Addendum No. 2 covers these effects under A. Watershed Resources, particularly 1.a.: "Sediment-induced CWEs occur when earth materials transported by surface or mass wasting erosion enter a Watercourse or Watercourse system at separate locations and are then combined at a downstream location to produce a change in water quality or channel condition. The eroded materials can originate from the same or different Projects." There is no evidence in the Rio THP that anyone spent an appreciable amount of time looking for any of these significant adverse effects.

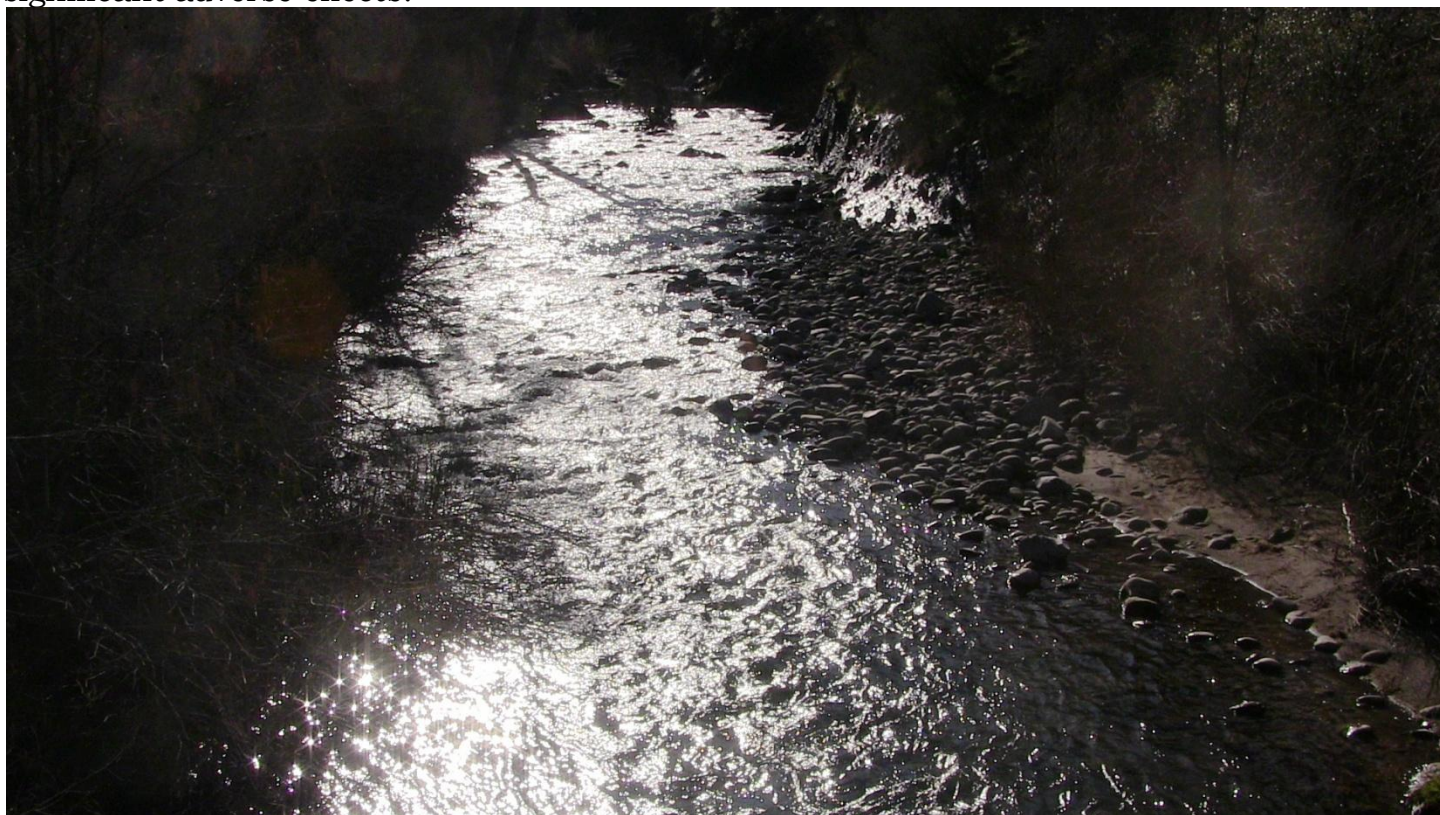


Figure 7. Our south fork Battle Creek site in 2020, downstream of Panther Creek. Sediment deposition may be seen on the bank in the lower right hand side of the photo. Significant channel modification has also occurred right above the sediment in the form of many more (and larger) boulders than in the past.

Pages 117-118 of the plan have only an extremely brief paragraph to describe the "Watercourse Condition". The paragraph consists of ambiguous phrases such as "No aggrading or pool filling was observed... No significant sediment sources were identified". "Observed" or "identified" are completely dependent on metrics. There is no quantitative evidence provided to explain the basic facts of how much of the watercourse was examined, what the training of the

person was, or what comparison to past conditions was completed. According to the USGS topographical maps which include Panther Creek (Grays Peak and Lyonsville quads) there are only a few places that Panther Creek is anywhere near a road, and those are in the higher part of the watershed near Lassen Forest where there is less disturbance. It seems likely that an RPF with no training in hydrology just drove to a road crossing, got out of his vehicle and briefly looked at a small spot, but then there is not sufficient evidence provided to be able to know. Methodology is the most fundamental factual basis for explaining how conclusions were arrived at. Without knowing how many sites were visited, where they were, what length of stream was surveyed, what streamflow was present, and what measurements were taken, the Watercourse Condition description is useless, and does not provide any factual evidence that no impacts are present or occurring. The last sentence of the plan's short paragraph is "The last notable flood event was the winter of 1997." That is incorrect and demonstrates again the insufficient, copied and pasted, and misleading nature of this plan. There was a large flood in December of 2014. The equipment in the mainstem of Battle Creek near Coleman Fish Hatchery was inoperable during the 1997 flood, but the cfs (cubic feet per second) for that storm was estimated to be 17,376. The December 2014 storm measured 15,300 cfs and was described as a 19 year return interval flood (15).

USFWS captured video footage in the mainstem of Battle Creek during the 2014 flood which demonstrates the destructive power of a 19 year return interval flood: <https://www.facebook.com/NWSCNRFC/videos/813279955397918/> and this is our video footage of the south fork of Battle Creek on December 2nd, 2012 (there is no CDEC data for the streamflow that day): <https://youtu.be/6L9ikSnNe90>

It is a convenient excuse to blame all the adverse watercourse effects on the 1997 flood. An excuse is all it is though. It has no basis in reality (2, 4, 5, 6, 10, 12, 17, 18).

E. 2. Forest Biodiversity Loss

This plan goes on to say "According to SPI Inventory data, the timber species composition by basal area for non-plantation stands is ponderosa pine (17%), Douglas-fir (12%), sugar pine (15%), incense cedar (7%), white fir (45%), red fir (1%) and hardwoods (3%)." (Page 117.)

There is no reference to where the inventory data came from, but in past plans it was from about 20 years ago. It is another broad statement, which again has no specificity regarding how it was performed, or where, or how it pertains to this particular planning watershed. It does show the loss of diversity which has occurred under SPI's practices though--note the reference to "non-plantation stands". The plantation stands are remarkably lacking in species diversity and structure. Figures 8 and 9 are examples of the plantations devoid of diversity SPI is creating across the landscape. Pages 237-238 of this plan present SPI's poor quality black and white photos of some of their plantations, which show the same lack of diversity, as far as we can tell due to the no-color photo quality. Figure 10 is an uncut forest on the edge of the Panther Creek planning watershed.



Figure 8. Replanted post-2012 Ponderosa Fire area on Q Line, near Rock Creek stream and road, Jan. 2020. This is representative of the replanted areas in the 75,000+ acre industrial timberland block. A forest has a lot more important attributes than consisting of many same-aged Ponderosa pines. These important attributes are lost in the monoculture plantations these ongoing logging plans create.



Figure 9. A plantation planted after a 1998 THP on Q Line, photographed in 2020, still lacking in the diversity that makes a forest a functioning ecosystem.



Figure 10. 2020. The uncut forest near the southern edge of Panther Creek planning watershed to illustrate diversity and important habitat attributes, such as species and size diversity. These attributes are clearly gone in SPI's plantations.

Cal Fire's Official Response for plan 2-18-055 states "Common plantations used today are multi-species...". In our extensive experience (thousands of hours on the land and over thirty years of residence) that statement is blatantly false both in the Panther Creek planning watershed and in the logged large block of Battle Creek watershed. (See Figures 8 and 9.)

F. SPI Citations. Concerns 1, 3, 7, 8

In our years of submitting comments regarding logging plans, one of the common experiences we have had has been that no matter what kind of documentation we submit, Cal Fire's Official Responses deride, dismiss, or ignore our submissions (13). Along with this practice, Cal Fire holds SPI to much lower standards and does not provide any evidence that they have analyzed SPI's references as exhaustively as they do ours. In the case of this plan, we request a new practice which judges references impartially in order to present unbiased conclusions.

We have reviewed some of SPI's references which are cited as support for this THP below, since we see no evidence that Cal Fire has done so. This review finds that most of the references are not from the specific area this plan has chosen as its assessment area, and

that the ones we have had time to review do not support the generalized conclusions and speculations about future conditions the plan alleges.

There are over 100 citations at the end of this plan's Section 4. Mostly all have been cut and pasted from SPI's previous plans. Mostly all are old and exclude recent research. Under scrutiny, these references do not support the THP's conclusions. The inclusion of many as supporting SPI's claims is false and misleading.

One of the few documents from Battle Creek (the larger logged area, not the planning watershed for this plan) cited is the 2011 report from Cal Fire et al. (Interagency Task Force) "A Rapid Assessment of Sediment Delivery from Clearcut Timber Harvest Activities in the Battle Creek Watershed, Shasta and Tehama Counties, California". This is one of only 2 documents (both unpublished) cited by SPI in the THP that pertain to specific conditions in the larger Battle Creek watershed, although there are many more which SPI doesn't mention (2, 9,10, 12,15, 17,18).

One of the Task Force Report's recommendations was:

Recommendation 10:

Engage in a follow-up study to relate the results of the assessment to water column data (i.e., turbidity) and in-channel physical habitat characteristics (e.g., particle size, pool fining, etc). A follow-up study should also address the potential for timber harvest associated peak-flow induced increases to suspended sediment, turbidity, bedload transport, and/or channel alterations. (pg 53)
The Task Force was unable to evaluate the potential for indirect water quality impacts due to clearcut harvesting (for example, potential channel modifications and increases in suspended sediment and turbidity associated with logging-induced increases in peak flows), but the issue of timber-harvest-induced changes in hydrology in ground-water dominated, young volcanic terranes such as Battle Creek watershed remains an open question. (pg 54)

In 2016, we received documents from a Public Records Act (PRA) request. These documents included emails written in 2013, including one from a member of the Task Force. (25) On May 28th, 2013, staff member Bill Short wrote:

"As we have discussed previously, a significant hole in the 2011 BC task force assessment (which we acknowledged) was the timing of the field work (because the assessment was performed late in the season, it was recognized that there was a potential to miss subtle indicators of erosion and sediment delivery from the harvest units that may have been obscured over the time period between the last rainfall and the assessment). I believe that it is important for us to follow-up on this aspect of the assessment so that we can respond if any questions are asked in the future."

After receiving these emails, we questioned Assistant Secretary of Forest Resources Management Russ Henly. We asked if any Task Force follow up had been performed since 2013. On May 27th, 2016 he responded: *"No follow-up work was performed by the Task Force."* He also stated: *"Section 6.7 Assessment Limitations in the Battle Creek report acknowledges that the assessment area was not subject to significant stressing storm events"*

for several seasons prior to September 2011, [when the 5 days of field visits occurred] when the then-recent harvest activity was assessed." (26)

Hydrologist Tom Myers wrote a technical memorandum for us on August 4th, 2012 regarding another THP. That THP also used the Task Force report as justification for SPI's practices (16). Regarding the Task Force report Dr. Myers wrote: "*The Interagency Task Force [ITF] report, which the THP discusses, does not assess sediment conditions in the streams; it focuses only on conditions on harvest sites and found just one example of a low-magnitude sediment delivery. In contrast, during a brief tour from public roads in the watershed in April 2012, Myers (2012) saw several examples of sediment and turbidity moving along roadside drainages and from at least one harvest access road. This visit occurred during a minor rain event. The ITF visit occurred during September 2011, a time when many signs of erosion and sediment could have been obliterated due to four to six months of dry weather.*

** The ITF report should be relied on only sparingly until the work can be repeated during a wetter period so that sediment movement and erosion processes can actually be observed.*

*The ITF report also does not assess sediment conditions in the streams. The statement that the ITF 'saw no significant direct water quality impact related to clearcut harvesting in the assessment area' **is meaningless because the ITF did not assess stream conditions.*** (Emphasis added.)

Hydrologist Jack Lewis also addressed the deficiencies of the Task Force report in 2014 (27). "The Interagency Task Force (ITF) report (CALFIRE et al., 2011) on Battle Creek has been cited in recent THPs to suggest that there are no significant direct water quality impacts in Battle Creek related to clearcut harvesting. Such interpretations are inappropriate as a lack of evidence of impacts using the ITF rapid assessment methodology does not constitute evidence of no impacts."

The inclusion of the 2011 Task Force report in this THP does not provide relevant factual evidence to prove that significant impacts are not occurring, and have not occurred since 2011. In fact, it provides evidence that significant effects are not being adequately followed up on. We have commented on the overlooked problems in this report many times before, yet it still keeps being used to support SPI's and Cal Fire's claims there are no significant effects being caused by SPI's large scale of landscape-changing logging. The report cannot be used to support this plan, and should contain full disclosure of the problems associated with it when it is referenced.

The other Battle Creek-specific document cited is the two page (plus photos) 2017 USFWS "Summary of South Fork Battle Creek Fine Sediment Evaluation Survey". This was a survey whose furthest upstream point was approximately 5 miles downstream of the confluence of

Digger Creek with Battle Creek; it is many (10+) miles downstream of the lowest point of the industrial timberland area of this THP. A significant amount of information is ignored by the brief reference included in this THP. Along with the misrepresentation, SPI is again applying a double standard by using information from far outside their chosen assessment area.

Some additional quotes from this USFWS survey which the THP doesn't acknowledge:

"The two most upstream pools, although improved in condition and maximum pool depth compared to previous surveys, still had a significant amount of fine sediments present in both the thalweg and depositional areas."

"No adult Chinook were observed during this year's survey, potentially due to the low numbers of individuals returning to Battle Creek in 2017."

This survey did not mention any data regarding the ongoing high stream temperatures. Hydrologist Jack Lewis wrote of temperature issues in his expert opinion letter in 2018, which was submitted as a comment on a nearby plan (28). (E.g. "The BCA data sets show very clearly that the combination of wildfire and salvage logging have had major impacts and that the water quality downstream from the project area (measured at [site] DCH) is severely impaired, especially with regard to water temperatures and salmonid tolerances".) Figures 11 and 12 are graphs of Department of Water Resources stream temperature data from the south fork of Battle Creek, in the vicinity of where the highest upstream point of the referenced USFWS survey was performed. It is also at the same site that our SFB water quality samples are taken, downstream of the Panther Creek planning watershed (1). Figure 11 illustrates stream temperatures in the south fork of Battle Creek in July, 2008. Figure 12 is the data from 2019, provided for comparison. As may be seen in the graphs, the temperature was elevated above 65° for a much longer period in 2019 than in 2008. Many aquatic species need temperatures below 68° (20°C) to survive; lower temperatures than that are optimal (29).

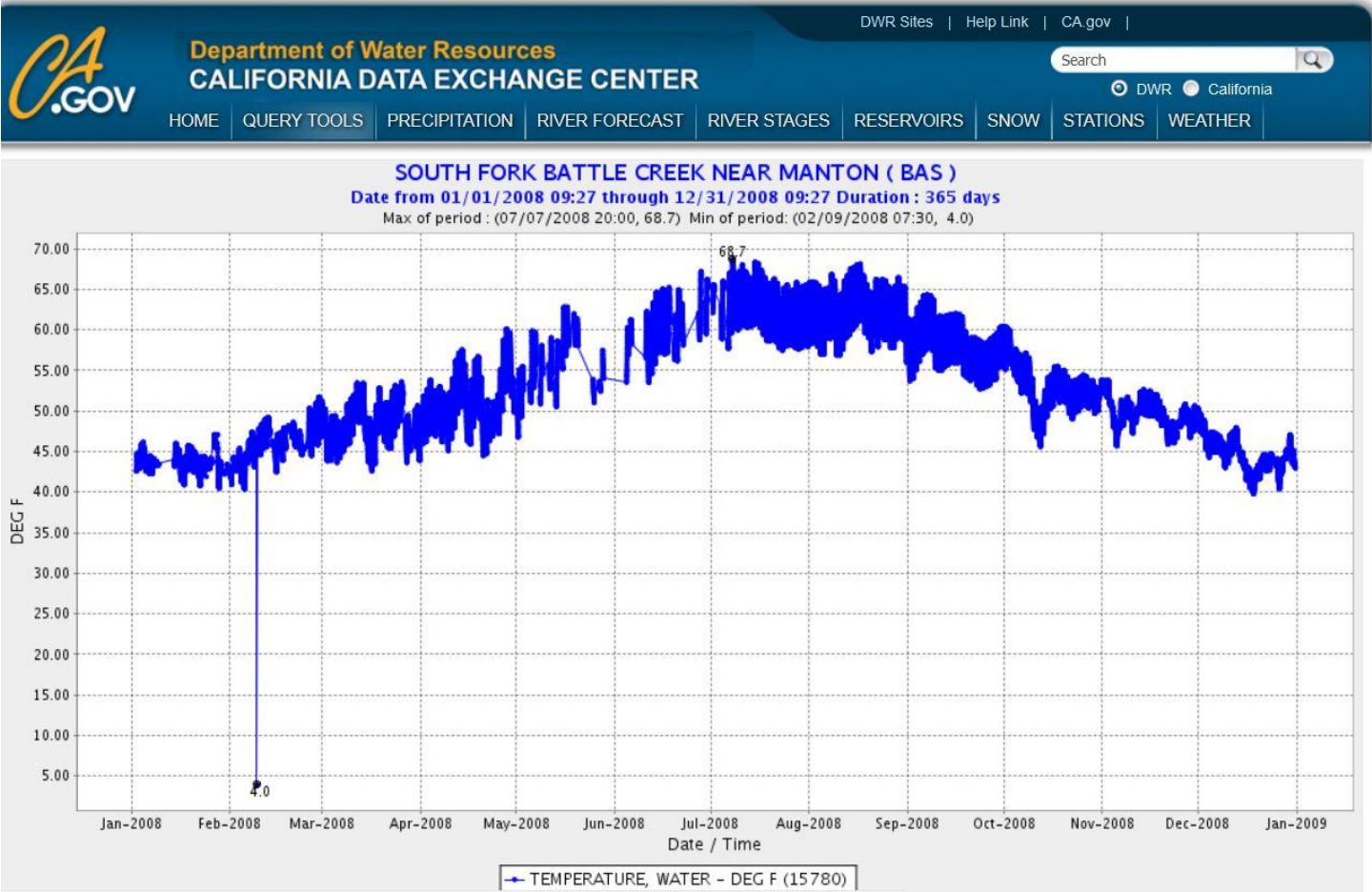


Figure 11. 2008, the first year there is data available at the south fork Battle Creek station.

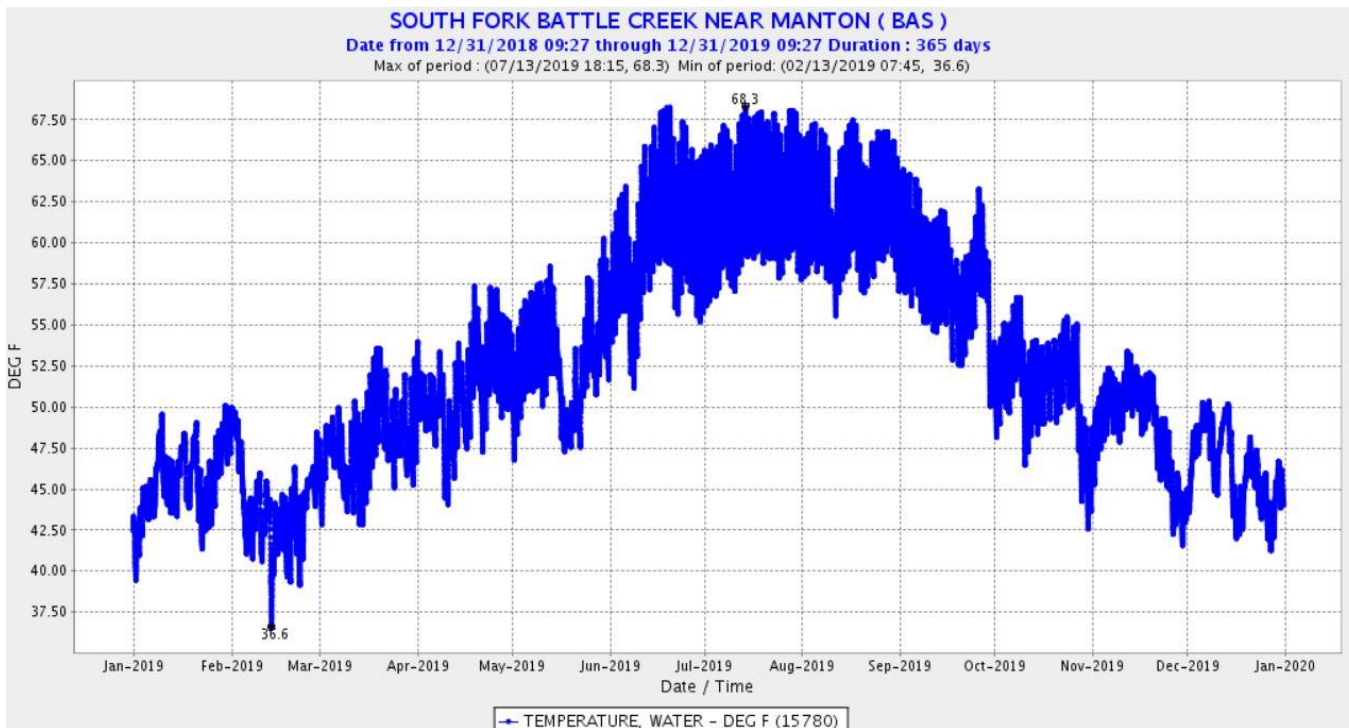


Figure 12. 2019. Water temperatures are staying elevated longer than in 2008.

There is much more information in the USFWS Report "Monitoring Adult Chinook Salmon, Rainbow Trout, and Steelhead in Battle Creek, California from March through November 2017" (12), which this plan does not mention.

The USFWS report concludes "Battle Creek adult monitoring program has seen some worrisome trends continue in the watershed in combination with the lowest spring Chinook population estimate since the program started 23 years ago. These trends have been documented over the past several years and include increased sediment inundating holding pools and covering up spawning habitat, high temperatures potentially stressing fish during holding and spawning periods, and the continued hatchery influence from Feather River Fish Hatchery (FRFH)."

Hydrologist Jack Lewis' expert opinion letter regarding a different plan (28) had general observations regarding logging's linkages to both stream turbidity and temperature that pertain to this plan as well. Regarding turbidity he wrote: "Processes linking clearcutting to surface erosion and changes in turbidity include (1) destruction of herbaceous cover, (2) exposure of bare soils to raindrop impacts, (2) compaction and destruction of soil structure, (3) reduced infiltration, (4) delayed revegetation from herbicides, (5) increased overland flow leading to sheet erosion, rilling and gully, (6) delivery of augmented overland and subsurface flows to erodible road cutbanks, (7) erosion of roadside ditches from increased surface runoff, (8) reduced evapotranspiration augmenting subsurface flows, (9) erosion of subsurface pipes, (10) loss of soil cohesion due to reduction in the subsurface root network, (11) increased blowdown and rootwad upheaval in the WLPZ (12) heavy logging equipment and increased truck traffic, especially during wet conditions, (13) expansion of the road network to facilitate timber access and hauling, (14) mass wasting of roads and hillslopes due to augmented pore water pressures, (15) culvert failures due to increased debris-laden runoff. No amount of care in executing a THP can eliminate all these processes. The data suggest that past salvage logging as well as clearcutting, which has become routine practice in the area, has impacted turbidity in Digger Creek and other Battle Creek tributaries."

Lewis wrote of further linkages regarding water temperature: "Recognizing the current highly impaired condition, no project should be approved that could reasonably add to those effects. While it is difficult to quantify, there can be little doubt that more clearcutting will add to those effects..."

Temperatures high enough to eliminate all salmonids (>22-24°C) are now common during the summer in lower Digger Creek as well as in nearby Rock Creek, Canyon Creek, and the South Fork of Battle Creek. All of these overheated streams create a cumulative impact on the main stem of Battle Creek. Harvesting with riparian buffers should moderate stream temperature increases and changes to riparian microclimate, but substantial warming has nevertheless been observed in many studies of harvesting near streams with both unthinned and partial retention buffers (Moore et al., 2005) (30).

Forest harvesting increases advection and sensible heat exchange from clearings to the riparian zone, and conduction between stream water and nearby soils or substrates also may be an important factor (Johnson and Jones, 2000)" (31).

Under "Records Examined" in Section 4 of this THP, the SPI-produced "Bioassessment and Water Quality for South and North Forks Digger Creek" document is listed. Digger Creek is to the north of Panther Creek and outside SPI's chosen assessment area for this plan. According to Cal Fire's ongoing practices and statements, that is unacceptable when we do it.

Please note, none of the maps for the area ever call the more northern fork of Digger Creek “North Fork”. It’s always labeled as “Digger Creek”, while the south fork is labeled as “South Fork Digger Creek”. We will use that nomenclature here.

Both forks begin to the east of the industrial timberland block (upstream), in Lassen National Forest land, and flow east to west. Digger Creek is the larger branch. The confluence of both branches is approximately ¼ mile east of the Tehama county end of Forward Road in Manton. As may be seen on the following map (Figure 13), one of our Citizen’s Water Monitoring sites is ¼ mile west (downstream) of the confluence.

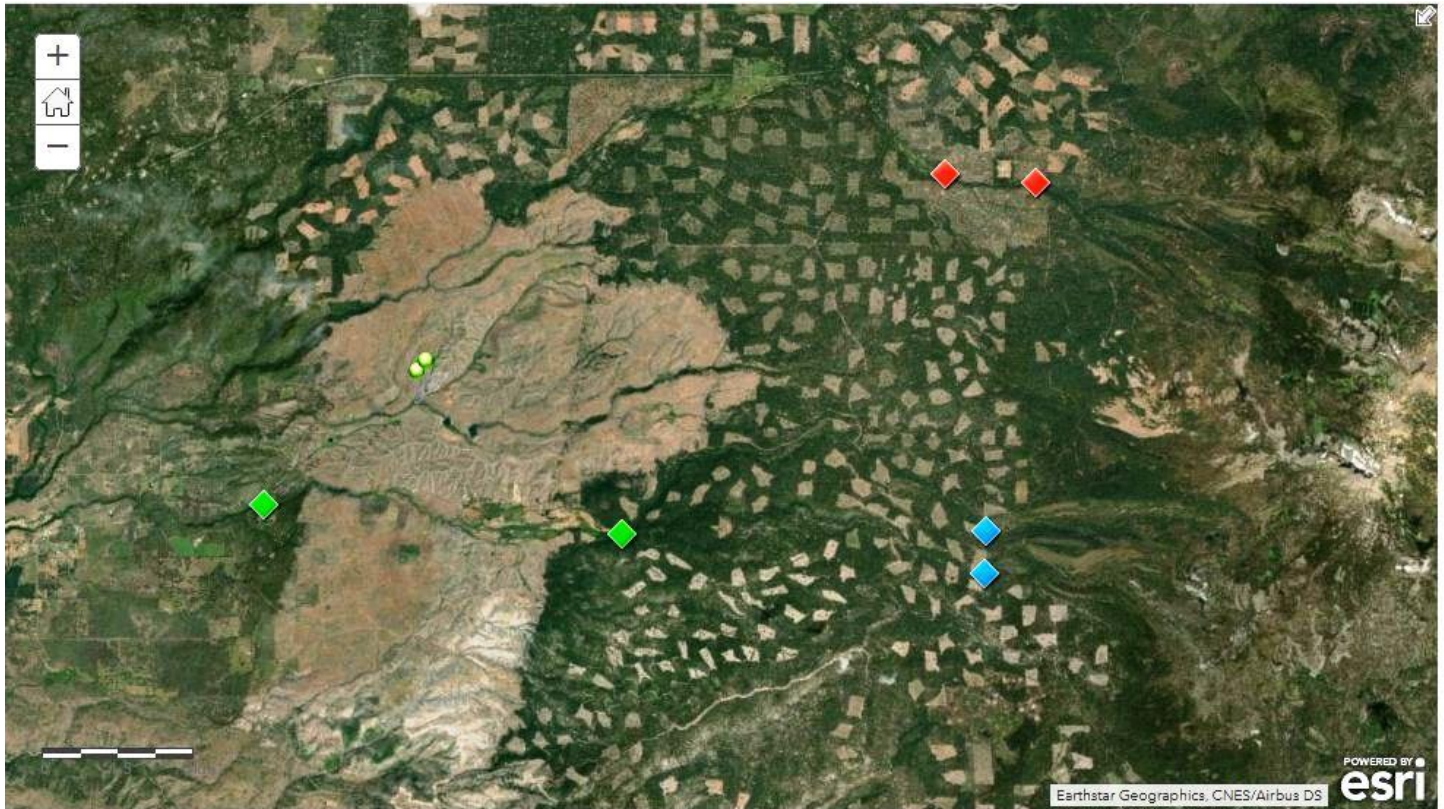


Figure 13. The industrial timberland area of Battle Creek watershed. The regularly spaced brown holes are clearcuts. The large brown area is from the Ponderosa Fire of 2012 and the subsequent salvage logging of it. The uncut area on the right hand side is Lassen National Forest where the Battle Creek tributaries, Digger, Bailey, and Panther Creeks, originate. The green diamond shapes mark 2 of our water monitoring sites on Digger Creek, the right hand being the higher (upstream) site. The blue diamonds mark the Digger and South Fork Digger Creek locations at the boundary between SPI and Lassen Forest land. The red diamonds mark SPI’s data stations on Bailey Creek as detailed in the SPI James and MacDonald 2012 report regarding Bailey Creek.

The SPI Bioassessment referenced in this plan has no map or description of where their data is being collected from. If the data is being collected from near the upstream Lassen Forest boundary as their Bailey Creek data is, it has no relevance to what effects are occurring in the cutover industrial timberland downstream. All of the numerical and graph figures and conclusions in SPI’s document are worthless for a reasonable judgment of

cumulative impacts without the most basic foundation of knowing where the data was collected from in relation to the landscape. This document provides no evidence of having been peer-reviewed by a professional hydrologist. Dr. Peter Green from U.C. Davis reviewed the SPI document and submitted a comment to the Timber Harvest Review Team regarding it for another THP: (e.g. "This report does not identify, by either detailed map or coordinates, where the water quality sampling was conducted. Without this information, the report has no relevance to identifying impacts that may be present from past harvests.") (32)

Our review of the SPI Bioassessment provides evidence to support our demand that the Timber Harvest Review Team does not lend credence to the misleading SPI document regarding Digger Creek while analyzing the impacts of this plan.

Along with submitting the information about the misleading SPI Bioassessment before, we have submitted professional reviews many times of other SPI-produced documents that purportedly analyze their own logging impacts. SPI cites to these documents again in this plan, even though independent professionals have written reports documenting the misleading content of them. We have not seen Cal Fire ever say anything about SPI's misleading documents in its Official Responses, so we can only presume those documents are being accepted by Cal Fire without the dismissive attitude displayed to documents we have submitted.

This plan cites another of SPI's documents "Carbon Sequestration in Californian Forests; Two Case Studies in Managed Watersheds". This SPI-produced document was also found to have significant flaws in its methodology when reviewed by Peter Miller (33). One of his conclusions is "A critical review of this study demonstrates that, contrary to the report's conclusions, replacing existing diverse forests with uniform tree plantations is unlikely to produce significant carbon benefits and will instead increase the risk of catastrophic fire and threaten the extensive range of benefits provided by existing forest ecosystems." This is another example of a report that has been debunked that SPI continues to submit and Cal Fire continues to accept, despite the evidence that the report is deeply flawed and unreliable.

F.2. More SPI citations in this plan which have no relevance to the THP area

The 1981 Lisle paper regarding erosion and sediment transport listed in SPI's references is almost 40 years old and was performed in a north coast watershed regarding the impacts of a 1964 flood. If we submitted this paper, it would be dismissed as not relevant to the THP area by Cal Fire. Why is SPI allowed to reference it with no dismissal by the Review Team?

The study area of the 1993 Sakai paper regarding wood rats was also in northwestern California. If we submitted this paper, it would be dismissed as not relevant to the THP area by Cal Fire. Why is SPI allowed to reference it with no dismissal by the Review Team?

The study area of the 2008 Reno/SPI document was in Trinity County near Hayfork and northwestern Shasta County near Castle Crags. If we submitted this paper, it would be dismissed as not relevant to the THP area by Cal Fire. Why is SPI allowed to reference it with no dismissal by the Review Team?

The 2008 SPI/Murphy produced document regarding canopy regrowth in planted forests is only 6 pages long and has no description of where the plots were, except for an unlabeled map on page 6. Judging by using the position of Lake Almanor on the map it appears there were no plots measured in the block of Battle Creek timberland this THP is situated within. If we submitted this document, it would be dismissed as not relevant to the THP area by Cal Fire. Why is SPI allowed to reference it with no dismissal by the Review Team?

--Additionally, it takes more than low canopy cover of mostly a single species of tree to create and sustain biodiversity of plant, vertebrate and invertebrate species. Technical Rule Addendum No. 2 states in C. 4., the biological habitat condition section, "The RPF may also need to consider factors which are not listed below. Each set of ground conditions are unique and the assessment conducted must reflect those conditions... Upland multistoried canopies have a marked influence on the diversity and density of wildlife Species utilizing the area." The Rio THP continues the pattern of past plans and contains no quantitative evidence regarding the diversity or density of wildlife, past and present.

The 1997 Bull et al. paper cited in the plan is about trees and logs important to wildlife in Washington, Oregon, and Idaho in the interior Columbia River Basin. This report is not relevant to the Panther Creek planning watershed, using the Cal Fire rationale applied to studies we submit.

The 2018 Forest Carbon Action Report cited by SPI was extensively reviewed by the Center for Biological Diversity (CBD) and found to be misleading in many ways (35). It is more of a state-wide policy document which has nothing site-specific to the Panther Creek planning watershed and is not evidence to support the plan. CBD's main headings regarding problems with the report are copied here (see the document for more detail) and summarize the problems in the report:

Pg. 1 I. The Forest Carbon Plan's Core Proposed Actions are Scientifically Unfounded, Likely to Reduce Forest Carbon Storage, and Likely to Cause Substantial Harm to California's Forest Ecosystems, Pg. 2 A. The Plan's assertion that increased thinning/logging will increase carbon storage in forests is unsupported by the best available science. Pg 3. 1. Scientific studies indicate that thinning does not increase forest carbon storage. Pg. 5. 2. The Plan misrepresents the forest carbon losses caused by thinning. Pg. 7. B. Scientific research indicates that the Plan's proposal for increased mechanical thinning paired with biomass burning for energy will increase carbon emissions and create a carbon debt. Pg. 7 1. Burning woody biomass is more carbon-intensive than burning fossil fuels. Pg. 9. 2. Even if harvested biomass is substituted for fossil fuels, it can be decades to centuries before the harvested forest achieves the same CO₂ reductions that could be achieved by leaving the forest unharvested. Pg. 10. 3. Forest management policies that promote fuels reduction and biomass burning for energy are inconsistent with achieving California climate goals. Pg. 11 C. Numerous statements in the

Plan about California forest carbon dynamics are scientifically unsupported and/or demonstrably incorrect. Pg. 14 D. The Plan's characterization of fire activity in California's forests is incorrect. Pg. 14 1. Fire severity is not increasing in California's forests. Pg. 15 2. High-severity patch size is not increasing in California's forests. Pg. 16 3. Forest areas in California that have missed the largest number of firereturn intervals are not burning at higher fire severity. Pg. 17 4. There is no clear trend in fire size in California's forests. Pg. 18 E. California's forests are experiencing much less fire than there was historically. Pg. 18 F. California's mixed conifer forests are characterized by a mixed severity fireregime, not by a predominantly low severity fire regime as the Plan asserts. Pg. 19 G. The Plan fails to recognize the significant role of historic and current logging in reducing forest biomass and carbon storage.

Pg.20 H. The Plan's claims about forest density as related to forest health are inaccurate. Pg. 24 I. The Plan misrepresents the role of native bark beetles in California's forests, the effects of bark beetle outbreaks on fire, and the effects of thinning on beetle outbreaks.

1. The Plan fails to recognize that bark beetle outbreaks are part of an important natural disturbance regime in California's forests, and incorrectly labels bark beetles as "pests." 2. Bark beetle outbreaks do not increase fire severity or extent. a. Trees killed by beetles and drought do not increase fire severity or extent. Pg 26. b. High-severity fire reduces forest susceptibility to future beetle outbreaks. c. Widespread and severe beetle outbreaks reduce forest susceptibility to future outbreaks. Pg. 27 3. Mechanical thinning has not been shown to be the "most effective tool for reducing bark-beetle caused tree mortality" as claimed by the Plan, and can be counter-productive. 4. Bark beetles may be helpful in supporting forest resilience to climate change.

Pg. 28 J. The Plan must develop a meaningful context for the recent tree mortality.

K. The projected impacts of climate change on wildfire activity in California's forests are uncertain.

Pg. 30 L. The Plan must recognize the distinction between emissions from forest fire and anthropogenic sources of climate pollutants in its call to reduce black carbon and GHGs.

Pg. 31 M. The Plan should recognize the ecological importance of complex early seral forest habitat created by high-severity fire.

Pg. 34 O. The Plan does not provide an adequate basis for regional planning; regional plans not based on a solid understanding of forest science would be highly likely to degrade forest ecological health and carbon storage.

Pg 34-37 Management alternatives recommendations

Pg. 37-41 Legal issues and background

Pg. 43-51 References

Pg. 52 Appendix A

Studies demonstrating that California's mixed conifer forests are characterized by a mixed severity fire regime Pg. 55 Appendix B Black Carbon Emissions and Consequent Climate Impacts of Wildfire

are Inadequately Characterized

Pg. 59 Appendix C Studies demonstrating the ecological importance of complex early seral forest habitat created by high-severity fire

G. Herbicides. Concerns 1, 3, 4, 7, 8

The "Integrated Vegetation Management" section states that SPI has collected herbicide samples "from their lands" since 2000. (The THP says that their lands cover over 1.7 million acres.) There is no detail given if any samples were collected from the planning watershed in this plan, or what years the samples were collected. As with other SPI self-reported results detailed throughout this comment, there is no basic methodology regarding their sample collection supplied. We spoke to the Central Valley Water Board to ask for any information they have been given by SPI regarding the data collection. The Water Board has no information or knowledge regarding how SPI collects its samples. Without knowing if samples are collected upstream or downstream of logging and herbicide application, after rainfall or in dry periods, and the length of time since herbicide application, any self-reported results from SPI prove nothing about what effects are occurring, and are not the factual evidence the THP requires.

Additionally, CV Water Board staff informed us: "I'm unaware of any herbicide sampling done by SPI, or their methods for when they do that type of sampling. We have learned that grab samples cannot gather enough water to detect pesticides, so if they do grab samples they probably will come back non-detect. To clarify, It's an issue that the pesticides are only detectable at very, very low concentrations. From a stream or river, a typical 1-liter bottle doesn't have enough of the chemical in it to be detectable, thus very special methods are needed to detect pesticides in aquatic environments. The USGS is working on a sampling methodology to detect these, but we currently don't have this sampling method, at least one that has been vetted." (35)

SPI's pages regarding herbicide testing are exactly the same in every THP we have seen, i.e. copied and pasted generalized information. SPI states that they collect grab samples. Therefore, the CV Water Board statement makes it clear that SPI's samples and results are invalid.

This is another potentially adverse significant impact that Cal Fire's current practices have allowed for decades with no analysis.

Page 132 of the THP cites a 1997 DiTomaso paper entitled "Post-fire herbicide sprays enhance native plant diversity". This is another reference which has been copied and pasted into every SPI THP for years. Again, its study areas were not in the Battle Creek watershed, or more specifically, not in the Panther Creek planning watershed. One of its study areas was in the Fountain Fire vicinity between Round Mountain and Burney, soon

after the fire in 1992. Figure 14 is representative of what a plantation in the area of the Fountain Fire looked like by 2013. There is no plant diversity in it, contrary to the DiTomaso paper's claim that herbicides enhanced plant diversity.



Figure 14. A plantation in the Fountain Fire area, photographed in 2013. The Fountain Fire burned in 1992. There is no plant diversity here, contrary to the 1997 paper the THP cites.

H. Fire Severity and Danger from Landscape-level Change. Concerns 1, 3, 4.

One of the citations which has been copied and pasted for years into SPI's THPs, and is also included in this plan, is the 1996 Weatherspoon paper entitled "Fire-Silviculture Relationships in Sierra Forests". Our review discovered that there is nothing in this paper that supports the removal of such a large area of canopy cover in the brief temporal frame it has occurred in. In fact, the author states "Although even-aged cutting methods are discussed briefly, this chapter emphasizes methods other than even-aged ones because (1) they more closely mimic the natural disturbance regimes prevailing in most Sierra Nevada forests, and (2) any land-scape level needs for large, even-aged stands are likely to be met by severe wildfires and subsequent plantation establishment for the foreseeable future." This is the antithesis of SPI's past and present plans which have resulted in the large, contiguous block of the majority of 75,000 acres being turned into plantations.

Regarding fire, Weatherspoon writes (over 2 decades ago, it must be pointed out, showing this problem was already known) "It is noteworthy that the extensive changes in Sierran forests brought about largely by fire suppression and other human activities over the past 150 years have included a virtual reversal of fire types... Fire type 2 [low intensity, patchy

high intensity], historically the dominant fire type in Sierra Nevada forests, has now been virtually eliminated. Conversely, fire types 4 and 5 [high intensity with patchy low, and uniform high intensity respectively], relatively rare historically, now account for a large proportion of wildfire acreage in the Sierra Nevada." Later he writes "even-aged forest stands in the Sierra Nevada were probably relatively uncommon in the pre-settlement era."

Another important finding this paper contains is: "A related but separate concern has to do with changes in microclimate brought about by stand opening. Thinning or otherwise opening a stand allows more solar radiation and wind to reach the forest floor. The net effect, at least during periods of significant fire danger, is usually reduced fuel moisture and increased flammability...The greater the stand opening, the more pronounced the change in microclimate is likely to be." This is a significant cumulative effect which has been ignored, and ties in to the 2012 Ponderosa fire which burned primarily (60+%) on SPI's cut and adjacent acres.

This older paper does not support SPI's ongoing logging practices at all, regarding either ecosystem services or protection from higher severity fire. The paper does demonstrate SPI's ongoing practices, and Cal Fire's approval of them, are likely contributing to higher fire severity; it also shows that information was known in 1996, long before the landscape level changes were begun in the area of this plan. Fire severity is an additional significant cumulative impact which has been ignored in past plans as well as the current plan. (Figures 15, 16, 17, 18, 19, 20.)

Fire danger, fire severity, and fire's subsequent water quality effects are significant environmental impacts which are not being acknowledged or mitigated within this THP, or the multitude of THPs in the Battle Creek watershed. Figures 15 to 19 are of other THP areas in the Upper Digger Creek planning watershed, adjacent to the Panther Creek planning watershed, to demonstrate how slow the recovery process is. These photos are representative of the standard post-logging conditions on SPI land. We have submitted these photos before because of our concerns regarding cumulative impacts which are being ignored, but Cal Fire's Official Responses have contained no reaction when confronted with the real land conditions. This THP will be an addition to the significant impacts which already exist.



Figure 15. 2003 Digger THP, Unit 147, photographed in May, 2008.



Figure 16. 2003 Digger THP, Unit 147, photographed 10 years later, April, 2018. Note the pruned, dead limbs left at the base of the single-species plantation trees also. This fire fuel was still present as of August 15th, 2018, at the height of fire season. This is a common practice. Before the 2012 Ponderosa Fire, there were many young trees in the future fire area with dead, pruned branches around their bases.



Figure 17. Roadside edge of 2003 Digger THP unit photographed in April, 2018. A proposed unit of an additional 2017 THP is adjacent to this in the background.



Figure 18. Another roadside edge of a 2003 Digger THP unit in April, 2018, adjacent to a proposed new THP unit of a 2017 plan.



Figure 19. The opposite side of the road, across from the 2003 Digger THP units, and proposed 2017 THP units, photographed in April, 2018. This WLPZ area was bulldozed during a 2012 fire. There is no regeneration or soil stabilization apparent. Pre-fire, there was a seep alongside the road here where we observed a western pond turtle residing. The habitat was destroyed by the bulldozers in 2012 and shows no recovery after 6 years. Post-fire emergency salvage logging is not subject to CEQA mandates, and is ignored in the THP cumulative impacts analysis.



Figure 20. A photo of a 15 year old plantation in SPI's industrial timberland on Ponderosa Way, in the Big Chico Creek area of the 2018 Camp Fire. This photo is from outside of the Battle Creek area, but is representative of SPI's plantations and practices, and is also relevant to any discussion regarding increased fire danger and fire severity.

I. This plan ignores significant effects to all the resource subjects covered by the Assessment Guidelines of Technical Rule Addendum No. 2. Concerns 1, 3, 4, 7.

SPI's past and present THPs give little to no specific information about the actual places they are planned for, but spend a great many cut-and-pasted pages asserting that everything will be much better over the next 100 years, based on their Option A. This often relies on ignoring climate change impacts as well as other cumulative impacts. It is also pure speculation based on the pretense that forest conditions will remain stable for the future 100 years. The current facts and science already show extreme changes occurring in the biosphere, and that is only forecast to become much worse.

Page 176 of this THP states "In their most recent report, the International Panel on Climate Change concluded 'In the long term, sustainable forest management strategy aimed at maintaining or increasing forest carbon stocks, while producing an annual yield of timber, fibre, or energy from the forest, will generate the largest sustained mitigation benefit.'(IPCC 2007)"

Writing that the 2007 IPCC report is the most recent is incorrect in that the most recent reports were issued in 2014 and 2018, and two additional Special Reports were issued in

2019, which we submitted regarding another THP, 2-18-055. The reports since 2007 have each issued more dire and urgent warnings regarding the need to address climate change, forest degradation, and habitat and biodiversity loss. Nonetheless, Cal Fire stated in the Official Response for THP 2-18-055 regarding our submission of the 2019 IPCC reports: **"CAL FIRE believes it is improper to make a decision on a site specific THP based on the results of such a large scale assessment. We continue to believe that the proper scale to both assess and mitigate potential impacts is at the THP level."** and **"It would be inappropriate to make a decision either for or against an individual THP based upon the conclusions of any such report, and it does not appear necessary to respond to the individual conclusions of the report when the relationship to this site specific plan is speculative."** It is clear from this plan's citations to SPI's speculative Option A, references from far distant lands, and lack of any site-specific evidence from the Panther Creek planning watershed, that Cal Fire only uses that excuse for anyone who is not logging industrial timberland.

Again, in the "GHG Analysis at the Scale of SPI's Ownership" section SPI brings in information from across their 1.7 million acre ownership, far outside the planning watershed assessment area that they narrowly limit their significant impacts analysis to. Apparently, their idea is that if they think information is in their favor the planning watershed suddenly doesn't matter anymore, but otherwise it's a really useful way for them to minimize their significant, ongoing effects. Cal Fire seems to agree with this duplicity, since it has been their practice to consistently allow it (13).

Barnosky et al. published a scientific paper in 2012 that examined the potential of biological systems to change suddenly at all scales, from local to global (36). This study is particularly relevant in 2020 as extreme weather events are increasing more quickly than scientists were expecting as little as 10 years ago.

The study reinforces our concerns regarding the high level of change and forest loss and degradation which has occurred in both the large contiguous block of timberland and this planning watershed, and Cal Fire's ongoing lack of examining what significant changes are occurring. (See 7, 22 CDF emails.) The authors wrote:

"Localized ecological systems are known to shift abruptly and irreversibly from one state to another when they are forced across critical thresholds...

...It is now well documented that biological systems on many scales can shift rapidly from an existing state to a radically different state. Biological states are neither steady nor in equilibrium... The shift from one state to another can be caused by either a 'threshold' or a 'sledgehammer' effect. State shifts resulting from threshold effects can be difficult to anticipate, because the critical threshold is reached as incremental changes accumulate and the threshold value generally is not known in advance. By contrast, a state shift caused by a sledgehammer effect--for example the clearing of a forest using a bulldozer--comes as no surprise. In both cases, the state shift is relatively abrupt and leads to new mean conditions outside the range of fluctuation evident in the previous state...

...Humans have already changed the biosphere substantially...the biological resources we take for granted at present may be subject to rapid and unpredictable transformations within a few human generations." These "unpredictable transformations" are already occurring in the area of this plan (e.g. 2, 9,12, all Figures), and are not being accounted for by this plan.

The Harris et al. paper from 2016 (37) examined the net carbon change in lands across the US based on disturbance type. Among its findings was that "carbon loss in the western US was due predominately to harvest (66%), fire (15%), and insect damage (13%)." The results of this study are consistent with the CARB 2018 Inventory of Ecosystem Carbon in California's Natural and Working Lands (38). Tables 11, 12, and 13 in that report show net losses of carbon from logging in California. None of these significant impacts and how they pertain to this site are discussed in this THP. The THP references "California Air Resources Board 2019a", but that does not have the logging data in it, which is another significant omission of important detail.

J. Conclusion

For 14 years we have been imploring Cal Fire to perform honest and realistic cumulative impacts analyses. We have been dismissed and ignored. The past decades have been squandered while action should have been taken, but wasn't, due to the ongoing patterns and practices that SPI has executed and Cal Fire has allowed.

For the past 14 years we have expected Cal Fire to enforce the rules and judge submitted research impartially. In our experience, that has not occurred.

We have not had enough time to dissect every paragraph or reference in the THP here. If we did, it would be expected to show that every part of the plan has the same failings: an overabundance of empty words that provide no solid, factual evidence about what is really occurring on the ground. Conclusory, unsupported statements, opinions, and speculations are not good enough to protect the biological resources that every life depends on and do not uphold the FPRs or CEQA rules and laws. Cal Fire must make a decision based on factual evidence, and include all the factual evidence which is available.

The Rio THP asserts that there have been no significant adverse impacts in the past, and that this plan will have none. There is not one piece of evidence to prove either assertion true. In fact, the only evidence provided by the THP is that no one is even attempting to determine what adverse physical changes and effects are occurring on the land.

We have presented evidence from both within the watershed and outside of it regarding the deficiencies of this THP, the misleading nature of much of it, and the history of how these practices have been repeated by SPI and approved by Cal Fire time and again. The evidence shows:

1. Significant adverse impacts are occurring from past practices and plans.

2. The THP has no quantitative factual evidence to prove that no adverse significant effects have not already occurred, or will continue to occur.
3. The THP has no quantitative factual evidence to prove that this plan will not add to past adverse significant effects.
4. Water Code section 13247 sets forth Cal Fire's duty to comply with water quality control plans. Cal Fire will violate that code by approving this plan which will contribute to exceedances of turbidity, temperature, and pH standards downstream.

Cal Fire must reject this plan.

Sincerely,

A handwritten signature in black ink that reads "Marilyn Woodhouse". The signature is written in a cursive style with a large, prominent initial "M".

Marily Woodhouse, Director

References

1. California Environmental Data Exchange Network (CEDEN)
<http://ceden.org/index.shtml> Our data may be found by selecting Battle Creek Alliance under the "Parent Project" button.
2. Lewis, J., Rhodes, J.J. & Bradley, C. Turbidity Responses from Timber Harvesting, Wildfire, and Post-Fire Logging in the Battle Creek Watershed, Northern California. *Environmental Management* 63, 416–432 (2019). <https://doi.org/10.1007/s00267-018-1036-3>
3. Dr. Leslie Reid. 1999. Letter to Fred Keeley, Speaker pro tem, Assembly of the California Legislature. Forest Practice Rules and cumulative watershed impacts in California. 11 pages.
4. Lewis J, Keppeler ET, Ziemer RR, Mori SR. 2001. Impacts of logging on storm peak flows, flow volumes and suspended sediment loads in Caspar Creek, California. In: Wigmosta MS, Burges SJ (eds) Land use and watersheds: Human influence on hydrology and geomorphology in urban and forest areas, Water science and application, volume 2. American Geophysical Union, Washington, DC, pp 85–125
5. Klein, R.D., et al., Logging and turbidity in the coastal watersheds of northern California, *Geomorphology* (2011), doi:[10.1016/j.geomorph.2011.10.011](https://doi.org/10.1016/j.geomorph.2011.10.011)
6. A Scientific Basis for the Prediction of Cumulative Watershed Effects by The University of California Committee on Cumulative Watershed Effects
Professor Thomas Dunne (chair), University of California Santa Barbara
Professor James Agee, University of Washington
Professor Steven Beissinger, University of California Berkeley
Professor William Dietrich, University of California Berkeley
Professor Donald Gray, University of Michigan
Professor Mary Power, University of California Berkeley
Professor Vincent Resh, University of California Berkeley
Director Kimberly Rodrigues, University of California Division of Agric. And Nat. Resources
Edited by Richard B. Standiford and Rubyann Arcilla,
University of California Center for Forestry
WILDLAND RESOURCES CENTER
Division of Agriculture and Natural Resources
University of California
Berkeley, California 94720
Report No. 46 June 2001. 110 pages.

7. Cal Fire email regarding cumulative impacts.
8. Bradley. 2018. Excel sheet of THPs in Battle Creek watershed, from California Department of Forestry and Fire Protection FPGIS office data. 2018. THPs approved 1998-Feb. 2018. Excel spreadsheet. 6 sheets.
9. Battle Creek Watershed Based Plan. 2019. Prepared by: Battle Creek Watershed Conservancy With Funding From The California State Water Board's Timber Regulation and Forest Restoration Program Grant Agreement No. D1513502. 63 pages.
10. Jack Lewis. 2016. An Analysis of Water Temperature and the Influences of Wildfire and Salvage Logging in the Battle Creek Watershed, northern California. 45 pages.
11. Battle Creek Alliance. Updated 2019. Citizen's Water Monitoring Project Quality Assurance Project Plan. 21 pages.
12. Bottaro, R.J. and L.A. Earley. 2019. Monitoring adult Chinook Salmon, Rainbow Trout, and Steelhead in Battle Creek, California, from March through November 2017. USFWS Report. U.S. Fish and Wildlife Service, Red Bluff Fish and Wildlife Office, Red Bluff, California. 72 pages.
13. Official Responses from Cal Fire to Battle Creek Alliance comments for THPs: 2-06-173, 2-08-052, 2-08-097, 2-09-027, 2-10-003, 2-10-067, 2-12-026, 2-18-055, 4-19-00007
14. Official Response from Cal Fire to Battle Creek Alliance comments for THP 2-18-055
15. Jameson E. Henkle, Professor Gregory B. Pasternack, Dr. Andrew B. Gray. 2016. *Final Technical Report* 2015 Battle Creek Watershed Hydrology And Sediment Assessment. University of California, Davis SWAMP-MR-RB5-2016-0003. 256 pages.
16. Myers. 2012. Technical Memorandum 8/4/2012. This was prepared for a different THP, but the reference to the problems in the Task Force report are general and on page 5.
17. Kier Associates. 2009. Aquatic Habitat Conditions in Battle Creek and Their Relationship to Upland Management. 34 pages.
18. Kier Associates 2003. Use of Spatial Data for Battle Creek Watershed Conditions Assessment. 37 pages.
19. Bradley. 2019. Excel sheet of road density miles within Rio THP area.
20. Trombulak and Frissell. 2000. "Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities". *Conservation Biology*.
21. Bradley. 2018. Excel sheet of road density miles within THP 2-17-070 area.
22. Cal Fire email regarding PHI.

23. WMO Provisional Statement on the State of the Global Climate in 2019, published by [World Meteorological Organization \(WMO\)](#) . 35 pages.
24. Kenneth V. Rosenberg, Adriaan M. Dokter, Peter J. Blancher, John R. Sauer, Adam C. Smith, Paul A. Smith, Jessica C. Stanton, Arvind Panjabi, Laura Helft, Michael Parr, Peter P. Marra. 2019. Decline of the North American avifauna. *Science* 04 Oct 2019 : 120-124 Vol. 366, Issue 6461 DOI: 10.1126/science.aaw1313
25. Short. 2013. Bill Short email regarding the Interagency Task Force 5/28/2013.
26. Henly. 2016. Russ Henly email regarding the Interagency Task Force 5/27/2016.
27. Lewis. 2014. An Analysis of Turbidity in Relation to Timber Harvesting in the Battle Creek Watershed, northern California. 28 pages.
28. Lewis. 2018. Expert Opinion letter regarding cumulative watershed impacts, written for adjacent upper Digger Creek planning watershed.
29. Carter. 2005. "The Effects of Temperature on Steelhead Trout, Coho Salmon, and Chinook Salmon Biology and Function by Life Stage".
30. Moore, R.D., Spittlehouse, D.L., and Story, A. 2005. Riparian microclimate and stream temperature response to forest harvesting: a review. *J. American Water Resources Assoc.* 813-834.
31. Johnson, S.L. and Jones, J.A. 2000. Stream temperature responses to forest harvest and debris flows in western Cascades, Oregon. *Can. J. Fish. Aquat. Sci.* 57(Suppl. 2): 30–39.
32. Peter Green. 2018. Review of SPI Bioassessment of Digger Creek.
33. Peter Miller. 2008. A Review of SPI's study: "Carbon Sequestration in Californian Forests; Two Case Studies in Managed Watersheds" *Studies in Managed Watersheds*". 5 pages.
34. Center for Biological Diversity. 2017. Comments on California Forest Carbon Plan. 62 pages.
35. CV Water Board. 2018. Central Valley Regional Water Quality Control Board emails regarding herbicide sampling.
36. Barnosky, Anthony D., Elizabeth A. Hadly, Jordi Bascompte, Eric L. Berlow, James H. Brown, Mikael Fortelius, Wayne M. Getz, John Harte, Alan Hastings, Pablo A. Marquet, Neo D. Martinez, Arne Mooer, Peter Roopnarine, Geerat Vermeij, John W. William, Rosemary Gillespie, Justin Kitzes, Charles Marshall, Nicholas Matzke, David P. Mindell, Eloy Revilla &

Adam B. Smith. 2012. Approaching a state shift in Earth's biosphere. *Nature*, Vol 486, pp. 52-58. doi:10.1038/nature11018

37. Harris *et al.* 2016. Attribution of net carbon change by disturbance type across forest lands of the conterminous United States. *Carbon Balance Manage (2016) 11:24*
DOI 10.1186/s13021-016-0066-5

38. California Air Resources Board. 2018 Edition. An Inventory of Ecosystem Carbon in California's Natural & Working Lands. 63 pages.