IV.1 Responses to Individual DEIR E-Mail Comments E-1 to E-26

This section presents responses to individual public comments (i.e., not form letter or form letter based) received via e-mail. The responses immediately follow each letter and are organized in the same order as the comments in each letter. Several of the letters included attachments. Attachments were not included herein if our response did not directly reference the attachment.

E-mail submissions with multiple copies of a single letter format will be addressed in one sample from each type of form letter. Those with additional comments added will be addressed individually if the comment is substantive and thus warrants a separate response.

There will not be comment letters for every number within the series because some letters dropped if they were duplicates or if they were found to be form letters. Form letters are responded to in their own section of the FEIR.

E-1

From: wrismart@mcn.org
Posted At: Wednesday, February 01, 2006 5:50 PM
Conversation: Jackson State Forest

Subject: Jackson State Forest

Members Board of Forestry
PO Box 944246
Sacramento, CA 94244-2460

Dear Members Board of Forestry,

1 I strongly oppose the proposed management plan for Jackson State Forest. It is a slap in the face to the taxpayers who provided ample public comment and support of alterations in the Public Resource Code that would have changed the purpose of Jackson State Forest. The Preferred Alternative devolves to the original proposal, without any consideration of expert public comments from agencies and scientists that would have (among other things) increased protection for endangered Marbeled Murrelet habitat, and decreased group
2 selection in the oldest second-growth stands. The Preferred Alternative is justified on the premise that it "meets the goals of the public resource code" when Legislative Action championed by Senator Wes Chesbro, which would have changed that purpose, was strongly supported by taxpayers, but opposed by the forest industry and the appointed (not elected) Board of Forestry. If this plan is adopted without modification, it is a clear signal that the public comment process is unimportant to the appointed Board of Forestry and Governor Schwarzenegger.

3 I do not oppose all logging in Jackson, but I do oppose treating this public treasure as merely a tree farm. Its values go well beyond that, both economically and ecologically. The taxpayers own the forest, not the California Department of Forestry, nor the Board of Forestry. The Proposed Alternative is insulting, inappropriate, and violates the intent and purpose of the acts that have promised that public comment and input will be taken seriously.

4 I oppose approval of the draft environmental document(Draft EIR). It fails to consider any of the less "tree farm"
alternatives and dismisses them out of hand. There is no compromise or modification proposed even though public comment and expert comment urged modifications and
5,6 compromises. Funding for non-logging purposes such as road repair, watershed protection
7 and enforcement of logging plans is either limited or non-existent. Currently, there is
8 sometimes one, and often no road patrol in Jackson, allowing indescriminate dumping and OHV tresspass. There is no clear funding for repair and/or decommission of the hundreds of miles of roads that pour sediment into salmon bearing streams. There is limited funding
9 for any purpose other than timber sales. There is no remedy for the current state of poorly funded watershed protection resources and personnel. Alternative E is better, though it lacks a committment of funding to accomplish true restoration of streams and watersheds.

10 The draft EIR rules out Alternative E as a feasible alternative, saying it is contrary to state law and Board of Forestry policy.
Again, this mocks the valid and nearly successful attempt to change this law and policy. The fact that the industry kept the Governor from signing Chesbro's Bill that was passed well over margin in the legislature makes a mockery of the EIR process.

11 The Draft EIR concludes that the state's proposed massive logging plan (Alternative C) can be carried out with "less than significant environmental impacts." There is no science to back up this statement. Studies by prominent scientists were ignored.
The Citizen's Advisory Council advice was ignored.

12 The draft environmental document seemed to attempt to obscure with its massiveness. Its 1500+ pages may seem to make it substantial until it is reviewed when it is apparent that much of it is irrelevant and unsubstantiated projections. Species lists were inadequate

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and projections of species numbers were science fiction.

13 The Draft EIR states that all impacts are unimportant as they will be "mitigated" without clearly stating what those mitigation efforts will be, or who will fund them. It fails to meet its legal obligation to provide the information and analysis the public needs to be able to make informed judgments on the environmental effects of the proposed management plan relative to other alternatives.

Sincerely,

Tanya Smart
17660 Redwood Sp. Dr.
Fort Bragg, California 95437
cc:
Mendocino County Board of Supervisors
Governor Arnold Schwarzenegger

2

Email Letter E-1

Response to Comment 1
Opposition to the DFMP noted. Please refer to General Response 1.

Response to Comment 2
The Board and CAL FIRE are responsible for developing a management plan that is consistent with existing legislation. Public comment was encouraged throughout the development of the DFMP and EIR/RDEIR process. Public concerns and their effect on management are discussed in the DFMP starting on page 28. Additional measures, such as increased Marbled Murrelet habitat protection, were incorporated into Alternative C2 based on public comments (see Section VII.6.6.4). The Administrative Draft Final Forest Management Plan (ADFFMP) designates additional acreage to late seral development, which is aimed in part at providing the structural characteristics necessary to provide Marbled Murrelet habitat (see General Response 2, 8,9,11 and 12).

There is no specific allocation for group selection in the oldest second-growth stands, but given the goal of increasing late seral and older forest structure on the Forest it is likely that the use of group selection in the oldest second-growth stands will be limited to prescriptions aimed at improving late seral structural characteristics. There will be additional opportunities for public input on a more site specific basis during the THP process.

Several of the alternatives analyzed were based on input from the public. Alternative D is based on input from the Citizen Advisory Committee and Alternative F was based on Senator Wes Chesbro's proposed Bill, SB 1648, along with detailed comments from the Sierra Club. The range of alternatives analyzed was designed to cover a wide range of management objectives and activities (see General Response 4). The ADFFMP has been developed using components of several alternatives.

Response to Comment 3
The Board contends that the DFMP and the ADFFMP provide for management of JDSF that goes well beyond that of a tree farm (see General Response 2). The Board recognizes that the citizens of California own the Forest, and that CDF manages the forest on their behalf under the guidance of the Board. The comment provides no support for the conclusion that the proposed project violates the intent and purpose of the public comment process.

Response to Comment 4
The EIR includes an analysis of potential effects associated with a broad range of alternatives and their associated management activities (see General Response 4). The ADFFMP contains elements from several alternatives, and reflects consideration of public input.

Response to Comment 5
The ADFFMP addresses the inadequacies of the previous management plans in regards to roads with the inclusion of an Accelerated Road Management Plan (see General Response 13). Timber sales are the source of funding utilized for management purposes on the State Forests.

Response to Comment 6
See General Response 11. Timber sales are the source of funding utilized for management purposes on the State Forests.

Response to Comment 7
Forest Practice enforcement is not funded through the Demonstration State Forest system. Timber Harvesting Plans implemented on JDSF are subject to all applicable CEQA requirements for resource protection, including enforcement.

Response to Comment 8
JDSF is open to public access and recreation. While most visitors to the Forest abide by all applicable rules and regulations, some do not. It is recognized that illegal activity, such as dumping and OHV trespass, occurs on the Forest. Damage caused by illegal activity is ultimately the responsibility of the person or persons conducting this illegal activity. CAL FIRE employs staff dedicated to law enforcement, but this limited staff is incapable of preventing all illegal activity. However, when individuals are encountered who are breaking the law, they are dealt with appropriately.

JDSF staff devotes a considerable amount of time, effort, and expense to the pickup and disposal of refuse dumped illegally within the Forest. A clean-up staff of three part-time employees, often in combination with a heavy equipment operator and a conservation camp crew, has loaded and hauled hundreds of cubic yards of illegally-dumped refuse from the Forest, in addition to dozens of abandoned automobiles, travel trailers, and miscellaneous household appliances. This is an on-going activity, conducted in response to illegal dumping within the Forest.

The funding for these activities must be balanced with other management activities. Timber sales are the source of funding utilized for management purposes on the State Forests. Implementation of the FMP is not expected to cause significant adverse environmental impacts.

Response to Comment 9
Timber sales are the source of funding utilized for management purposes on the State Forests.

Response to Comment 10
See General Response 4. The Board and CAL FIRE are responsible for developing a management plan that is consistent with existing legislation.

Response to Comment 11
See General Response 6. The comment provides no evidence to support the statement that "Studies by prominent scientists were ignored", so a reasoned response is not possible. The input from the Citizen's Advisory Committee led to the analysis of Alternative D and, while not implemented in its entirety, several elements of Alternative D have been incorporated into the ADFFMP.

Response to Comment 12
See General Response 5. State of the art, best available information was utilized in the EIR analysis. The comment provides no evidence to support the statement that projections were irrelevant and unsubstantiated or that species lists were inadequate. A reasoned response is not possible.

Response to Comment 13
The DEIR/RDEIR concludes that all potential adverse environmental impacts were either less than significant or less than significant after mitigation. Mitigations are discussed in Section VII, Resource Specific Analysis, under Impacts. See General Response 3.

E-2

From: Mark Watt [mdwatt@earthlink.net]
Posted At: Saturday, February 11, 2006 7:33 PM
Conversation: Jackson State Demonstration Forest Management Plan -- Comments

Subject: Re: Jackson State Demonstration Forest Management Plan -- Comments

Feb 11, 2006

California State Forestry Board California State Forestry Board P.O. Box 944246
Sacramento, CA 94244

Dear California State Forestry Board ,

I'VE DONE CONSIDERABLE HIKING IN JACKSON FOREST OVER THE YEARS AND PARTS OF IT STILL COMPRISE A FOREST OF GREAT BEAUTY AND DIVERSITY.
1 HOWEVER, I'M VERY CONCERNED ABOUT THE INCREASING DECLINE OF THE PYGMY CYPRESS TREES THAT I NOTICE EVERY TIME I HIKE AT JACKSON.

That's why I'd strongly encourage you to adopt the "Older Forest Emphasis" Plan (Alternative F), plan for future management at Jackson Demonstration State Forest. Jackson
2 is truly a unique forest that deserves to be enjoyed in as pristine a condition as possible by all hikers, especially future generations.

Sincerely,

Mark Watt
420 N Oakland Ave Apt 18
Pasadena, CA 91101-1421

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Email Letter E-2

Response to Comment 1
The Forest Management plan identifies the Pygmy forest as a Special Concern Area. This area will be subject to management restrictions designed to protect sensitive resources and no harvesting will occur. A discussion of potential impacts, mitigation measures and associated regulations relating to the Pygmy Forest can be found in DEIR Section VII.6.2-34. Significant adverse impacts to this resource due to the implementation of the Administrative Draft Final Forest Management Plan are not expected. The DFMP states "JDSF will maintain the current distribution and species composition of this plant community and protect it from harmful human disturbance, while continuing to allow recreational activities."

JDSF does have ongoing protection activities for the pygmy forest area. These include:

- barricading or gating the access points from neighboring private lands or public roads;
- patrolling and enforcing the vehicle trespass laws;
- garbage removal;
- educating the adjacent landowners as to state forest ownership;
- and educating the public-at-large about the value, sensitivity and need to protect the pygmy forest.

Response to Comment 2
Preference for Alternative F noted. See also General Response 1 and 2.

E-3

Kraemer, Candace

From: Al James [blueroguehog@yahoo.com]
Posted At: Tuesday, February 28, 2006 11:48 AM
Conversation: Maintaining Jackson State Forest as a demonstration forest
Subject: Maintaining Jackson State Forest as a demonstration forest

Dear Sirs

My name is Kevin Lane and I am sending you this e-mail on behalf of my mother, my father and myself. We live at 28800 hwy 20... about a mile from Jackson State Forest.

We are in favor of the Jackson State Forrest (JSF) remaining under the control and guidance of the California State Forestry Department as a demonstration forest.

Our reasoning is based on the following logic:

1 1) As a demonstration forest JSF provides, in effect, a laboratory where various logging techniques can be evaluated. It is unreasonable to expect private industry to do the research as their outcomes will no doubt be influenced by the near-term bottom line. The responsibility therefore falls on the government.

We have three options.... log poorly, log well, or don't log at all. And while environmentalist may desire the last option, their continual interference may preclude the second, and ensure the first.*

2 2) Maintaining JSF as a demonstration doesn't preclude its use as a recreational area. We have lived near JSF for many, many years and enjoyed its recreational attributes barely noticing the logging that was taking place. I might also add, that while the short term effects of logging are not so esthetically pleasing, the longer term effects is to open up the forest to allow a greater diversity of environments [mammals such as deer, for example, prefer an area in which enough sunlight has been allowed in so as to promote ground level vegetation].

3 3) Allowing JSF to be maintained as a demonstration forest provides for a continued source of revenue. This money can be used for many things, including the maintenance and improvement of forested recreational area in both in JSF and in other state forests.

4 As a final note, it seems ironic that a family living just a stones throw away from JSF is arguing on behalf of continued logging while, I am sure the majority of you mail against continued logging comes from metropolitan areas far away from JSF. Could it be that they appreciate the beauty of a redwood forest more than us? I doubt it. I simply believe that they don't understand, or haven't been able to witness first hand the care with JSF has been maintained as a demonstration forest.

Thank you

Eleanor Lane
Roy Lane
Kevin Lane

*I wanted to include the following links which illustrate the point I am making far better than I could:

http://www.radicalmiddle.com/x_nature.htm

http://www.newts.org/~newtsweek/html/clearcuts_may_preserve_ecological_biodiversity.html

5/22/2006

Email Letter E-3

Response to Comment 1
The Administrative Draft Final Forest Management Plan places increased emphasis on the Research and Demonstration mandate. The JDSF management plan will maintain a viable outdoor laboratory by managing the Forest to create diverse stand and habitat types (see General Response 2).

Response to Comment 2
The Board recognizes recreation as a compatible use of the Forest (see General Response 14).

Response to Comment 3
The Board recognizes the importance of timber based revenue for the State Forest system, as well as the local and regional economy.

Response to Comment 4
A wide range of comments were received from locals, as well as people from distant urban centers. Many locals have submitted comments advocating a preservation oriented management plan.

E-4

Kraemer, Candace

From: Tom Smythe [toms@harwoodp.com]
Posted At: Tuesday, January 31, 2006 12:53 PM
Conversation: JDSF EIR
Subject: JDSF EIR

January 31, 2006

George D. Gentry
Exectuive Officer
Board of Forestry and Fire Protection
PO Box 944246
Sacramento, CA 94244-2460

RE: JDSF

Dear YG,

1 I support Alternative C1, the preferred Alternative. This management objective is necessary for JDSF to maintain demonstration forest practices practical to the private landowner and to generate revenue for the state and local governments. Whether industrial or small forest landowner, even-age managment is a viable method of management. In addition, if option D, or worse F, are chosen it is only a matter time when it will be imposed on the private landowner. The onerous buffers associated with the watercourse requirements of alternative F will make practical forest management impractical. The demonstration requirement in F that only apply to small landowners will be worthless when their are few small landowners conducting a timber harvest.

2 If recreation and tourism is the mantra for those that want little to no forest management with anybody making (God Forbid) money off cutting trees, then they better shut the place down, build a casino and a dock at Noyo Harbor for cruise ships full of Chinese tourists, because tourism in a redwood forest does not work. Redwood National Park is proof of that.

Thanks for taking my comment.

Tom Smythe, RPF 2653
PO Box 249
Laytonville, CA 95454

Email Letter E-4

Response to Comment 1
Preference for Alternative C1 noted. JDSF will continue to be managed as a research and demonstration forest. The JDSF management plan will maintain a viable outdoor laboratory by managing the Forest to create diverse stand and habitat types (see General Response 2). This will include areas that are designated to allow even-age management, including clearcuts (see General Response 10). As part of the adaptive management and research programs a variety of stream buffer strategies will be utilized on JDSF using the applicable Forest Practice Rules as a minimum, except as modified to support research conducted under appropriate authorities (see General Response 11). Demonstration of economic forest management will not be limited to those activities applicable only to small land owners.

Response to Comment 2
A significant level of sustained timber production will occur at JDSF. The Board supports a balanced multiple use concept and maximum sustained production of high quality timber products. The Board recognizes the importance of a diversified economy in the region, including timber (see Section III of the DEIR for a detailed discussion of regional economic impacts). See also General Response 14.

E-5

Kraemer, Candace

From: Debbie Fry [mwoodent@adelphia.net]
Posted At: Tuesday, February 07, 2006 3:32 PM
Conversation: JDSF comments
Subject: JDSF comments

Good Afternoon. I would like to submit my comments regarding the changes coming up @ JDSF. I am a citizen of Willits, Ca interested in the ongoing management of this forest. I work cocreatively with Nature and have done so in this forest for several years. It is a very special area. Your efforts are very much appreciated. My comments
1 are as follows: In general, **Alternative B** is, in our opinion, the way to go with a few exceptions, as follows:
2 RE: **Fire Protection**- Alternative E. Active, ongoing and regular burns are indicated.
3 RE: **Hardwood Management** - C1-no herbicides whatsoever. These are extremely toxic to the environment in ways we still are unaware of. The hardwood population is not that unbalanced at this time and regular burns should bring about an appropriate balance.
4 RE: **Wildlife Management** - re: marbled murrelet-- Use C1 alternative. It is important to protect the habitat of this bird.
5 RE: **Rare plants** - Use C1 alternative here as well. These are important in ways we don't understand yet and require care and management.
6 RE: **Invasive species control** - Use Alternative E here. No herbicides. If you think about it, most grasses and many plants could be considered to be invasive compared to pre-contact vegetation. The use of herbicides is toxic and eventually ineffective.
7 RE: **Riparian zones** - Use alternative E here as well. These are very delicate areas that need active protection and care.
I thank you for your consideration of my opinion. The work you all have done so far is quite impressive, and appreciated.

Debbie Fry

Email Letter E-5

Response to Comment 1
Support for Alternative B, with exceptions, noted.

Response to Comment 2
The Administrative Draft Final Forest Management Plan calls for the use of prescribed fire as resources allow (see Section VII.8.1 for a detailed discussion of fire related issues). Fire is recognized as a natural ecosystem process, however long-standing fire suppression policies have altered the fuel loading and forest structure characteristics on JDSF, which will alter the fire behavior characteristics such that reintroduction of fire on the landscape may not imitate naturally occurring fire intensity. There is potential for use of areas within JDSF for site-specific research in the use of fire as a management tool. The use of fire can facilitate fire hazard reduction, silvicultural and habitat research, and ecosystem management research. Prescribed fire requires careful implementation to avoid impacts to other resource values, such as rare plants, heritage resources and private property.

Response to Comment 3
Alternative C1 (or Alternative G) does not preclude the use of herbicides for hardwood management The Board has selected an approach that treats hardwoods only where specific criteria are met (REIR II-1); seeking to minimize the use of herbicides and employ alternative methods. The ecological basis and incorporation of a range of treatment options shares some attributes with Integrated Pest Management for invasive weeds (see General Response 7). The JDSF approach to invasive weeds will be prevention oriented. This ecologically based program will utilize a combination of control methods and the use of herbicides will be minimized. One component of the forest management plan will be to conduct research and demonstration projects on alternatives to herbicides and integrated approaches, including the cost and effectiveness of various methods.

On the east end of JDSF the hardwood component is approximately 30 percent of the basal area on average. Silvicultural prescriptions, including hardwood removal, will be utilized in this area to slowly shift the hardwood component toward the former pre-European conifer dominated conditions. See General Response 7 and the DIER for discussions of herbicide regulation.

Response to Comment 4
Preference for the provisions of Alternative C1 in regards to Marbled Murrelet noted. Increased Marbled Murrelet habitat protection was incorporated into Alternative C2 (see Section VII.6.6.4). The Administrative Draft Final Forest Management Plan designates additional acreage to late seral development, which is aimed in part at providing the structural characteristics necessary to provide Marbled Murrelet habitat (see General Response 8, 9, 11 and 12). Specifically, Alternative G designates an additional 1,549 acres for the development of late seral forest conditions to provide potential habitat for the marbled murrelet.

Response to Comment 5
Preference for the provisions of Alternative C1 in regards to rare plants noted. JDSF has committed to completing a scoping process, including rare plant surveys. Specifically, for timber harvest plans and other large projects with the potential for negative effects on rare plants, JDSF shall follow the Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2000). On smaller scale projects, the survey effort will be appropriate for the level of CEQA analysis and the risk of impact to rare plants.

Response to Comment 6
Preference for the provisions of Alternative E with regards to herbicides noted. See General Response 7.

Response to Comment 7
Preference for the provisions of Alternative E with regards riparian zones noted. See General Response 11.

E-6

Kraemer, Candace

From: Ron Michener [rmichener@gotsky.com]
Posted At: Monday, March 06, 2006 3:27 PM
Conversation: Jackson State Demonstration Forest
Subject: Jackson State Demonstration Forest

1 Small landowners like us really need the funding that JSDF provides via the CFIP program for forest land improvment.

In return we have much healthier forests and are able to supply wood products to the people of this State.

2 The JSDF has been successful for more than 50 years providing proven harvest,growth and other techniques.. it seems to us that by shutting it down we are punishing success and removing needed funding for private landowners!

3 We believe that the legal wrangling should cease and that JSDF should continue on with the good job that they have done in the past.

Respectfully,

Ron & Carol Michener

rmichener@gotsky.com

Email Letter E-6

Response to Comment 1
The Board recognizes the importance of funding for programs such as CFIP. However, revenue from the state forest system no longer funds the CFIP program. This program is now supported by the General Fund. Demonstrations and research that are conducted on JDSF will continue to provide valuable information for private landowners and contribute to the knowledge base for improved forest management throughout the Redwood region.

Response to Comment 2
The Board recognizes the value of the Research and Demonstration aspect of the JDSF management plan for private landowners. The ADFFMP places increased emphasis on the Research and Demonstration mandate. The JDSF management plan will maintain a viable outdoor laboratory by managing the Forest to create diverse stand and habitat types (see General Response 2).

Response to Comment 3
The Board agrees that JDSF has for the most part been historically well managed.

E-7

Kraemer, Candace

From: Dan Fisher [Dan.Fisher@fruitgrowers.com]
Posted At: Monday, January 30, 2006 5:26 PM
Conversation: Comment on JDSF
Subject: Comment on JDSF

Mr. George Gentry
Executive Officer
Board of Forestry and Fire Protection
P.O. Box 944246
Sacramento, CA 94244-2460

Dear Mr. Gentry:

Please accept this as my comment for the alternatives listed for the newly released Jackson Demonstration State Forest DEIS. JDSF was originally established as a demonstration forest for the benefit of the people of the state to gain knowledge from research conducted on public timberland. This knowledge would therefore help in the management of public and private forests throughout the state. Other very important contributions from JDSF are the revenues generated from harvesting and the products manufactured, the jobs related to these activities and those indirectly connected, and so on. If we are to improve our interactions with our environment, we need research to test applications on the small scale then move to the large scale when appropriate. JDSF is ideally suited to perform these tasks. 1

Because of the above, I am supporting Alternative C1 - the Preferred Alternative. I also have strong support for this due to the fact that California forestlands are facing huge pressures due in large part to over-regulation and population demands for housing, causing many forestland acres to be converted to other uses. Open space is intricately important to individual and public well-being and well managed forestland plays a significant role in providing this benefit. Federal lands are essentially unmanaged due to the perceived notion that the "public" does not want them to be managed. Let's not allow the State to follow suit by abandoning management and leaving their lands to the will of Mother Nature. I respectfully request the Board of Forestry support Alternative C1. 2

Thank you for this opportunity to comment on such an important issue.

Respectfully submitted,

/s/ Daniel J. Fisher

Daniel J. Fisher
Fruit Growers Supply Company
1216 Fruit Growers Rd.
Hilt, CA 96044-9710
(530)475-3453 (O)
(530)475-3398 (F)

Email Letter E-7

Response to Comment 1
JDSF will continue to be managed as a Demonstration Forest. The Board recognizes the important role that JDSF provides including, research and demonstration, sustainable production of high quality timber products, revenue generation, and employment (see General Response 2). By providing an area dedicated to demonstration and research, the State forest system plays a critical role in the development of improved forest practices.

Response to Comment 2
Support for Alternative C1 noted. The Board recognizes the pressure of land use conversion. JDSF will continue to be managed as a Demonstration Forest and will not be converted to other uses. The Forest will continue to be available for research purposes, including the development of functional Forest Practice Rules. The Board supports a balanced multiple use concept and sustained production of high quality timber products. The legislative mandate requires active management of the Forest.

E-8

From: Bob Kelley [bkelley@nrmcorp.com]
Posted At: Tuesday, January 31, 2006 9:16 AM
Conversation: JDSF public comment

Subject: JDSF public comment

Honored Board: As a practicing RPF in this state since 1981, I would like to offer my comment on the JDSF DEIS currently posted. In keeping with the legislative mandate and intent for the use of JDSF, Alternative
C1 - the Preferred Alternative, is the best option for the future of JDSFand our region. In addition to economic benefits and continued research opportunities associated with this alternative, I feel California already has more than enough land involved in Federal, State, County, City and municipal parks, dedicated open spaces, wilderness areas, recreation areas, non-producing conservation easements, National Forests, etc. already in place throughout the State including the North Coast. Those entities responsible for upkeep and maintenance of these existing properties and facilities are already facing a lack of adequate funding as evidenced by park closures, cutbacks in staffing, etc. We cannot afford to add to this problem. We need what little remaining land that is available for production and contribution to the forest products industry to continue in this use. It would be inexcusable to remove even more land from a productive and healthy condition to create yet another set-aside. We cannot afford this. Alternative C1 - the Preferred Alternative is the best choice.
Thank you for considering this comment.

Bob Kelley
P.O. Drawer 1247
Eureka, CA 95502
(707) 269-1367

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Email Letter E-8

Response to Comment 1
Support for Alternative C1 noted. The Board recognizes the importance of generating revenue to support important management activities. The legislation that provided for establishment of the State Forest makes it very clear that demonstration of maximum sustained timber production is one of the primary purposes of Forest management. A significant level of sustained timber production will occur at JDSF. JDSF will not be converted to a park or other "non-producing conservation easement". Continued production of high quality timber products from the forests of California is encouraged by the Board.

The Board-developed Administrative Draft Forest Management Plan (ADFFMP) strives to balance the concerns of all Californians while remaining consistent with the legislative mandate and Board policy for the Demonstration State Forest system (see General Response 2). The timber harvest level and allocation of silvicultural prescriptions under the Alternative G and the ADFFMP are based on providing a varied landscape with a diverse set of forest structures designed to support a world-class forest research and demonstration program, rather than to achieve a particular level of timber production. This diversity of conditions is needed for a broad range of research and demonstration activities. Among other things, the research conducted on JDSF will help to improve our understanding of forest ecosystems and to guide the development of improved management practices and future forest practice rules. A summary of the history, purpose, guiding legislation and management direction of JDSF can be found in General Response 2.

E-9

Kraemer, Candace

From: Thomaswsk@comcast.net
Posted At: Tuesday, February 14, 2006 7:05 PM
Conversation: Support of JDSF Plan Alternative C1
Subject: Support of JDSF Plan Alternative C1

Dear Board of Forestry and Fire Protection,

I am writing to voice my support for Alternative C1 of the Jackson Demonstration State Forest Draft Environmental Impact Report. This Preferred Alternative provides for an emphasis on forest management with enough built-in flexibility to mainain JDSF as working forest while protecting public trust resources. It is critical that JDSF maintain robust research and demonstration programs that include a wide range of forest management options. JDSF provides a unique living laboratory to test various harvesting practices and research watereshed responses to various treatments. Please maintian JDSF as valuable reseach facility and not a park-like reserve.

Thank you for your consideration,
Thomas Sutfin
425 Olson Road
Soquel, CA 95073

Email Letter E-9

Response to Comment 1
Support for Alternative C1 noted. The Board recognizes the value of the Research and Demonstration aspect of the JDSF management plan. The ADFFMP places increased emphasis on the Research and Demonstration mandate. The JDSF management plan will maintain a viable outdoor laboratory by managing the Forest to create diverse stand and habitat types (see General Response 2). The Board supports a balanced, multiple use concept and maximum sustained production of high quality timber products.

E-10

Kraemer, Candace

From: Robert Nuzum [robert.nuzum@yahoo.com]
Posted At: Tuesday, January 31, 2006 1:04 PM
Conversation: Support of Alternative C1 in the new Draft EIR for Jackson demonstration State Forest
Subject: Support of Alternative C1 in the new Draft EIR for Jackson demonstration State Forest

Mr. George D. Gentry
Executive Officer
Board of Forestry and Fire protection
P.O. Box 944246
Sacramento, Ca. 94244-2460

Dear Mr. Gentry:

As a member of the California Licensed Foresters Association and a professional resources manager with 35 years of experience practicing in this state I strongly support Alternative C1.

I assisted in blocking the very unwise legislation sponsored by Senator Chesbro that would have been an absolute disaster for sustainable forest management at JDSF.

And, while I find I cannot make the Ukiah or Sacramento Public Hearings I would ask you to make my feelings known to the Board of Forestry and other interested parties.

I find that the Association's comments for Alternative C1, as follows, are well reasoned:
1 a) Contrary to some viewpoints the very real threat of large-scale conversion of native forestlands to other, more environmentally degrading uses is unprecedented, unjustifiable from a natural resource management standpoint and it appears to be a growing problem.
b) The JDSF is a working laboratory to test resource managment hypotheses and to carry on projects necessary to compete in the global markeplace.
2 c) We cannot allow the other EIR Alternatives to shift the emphasis of management that will limit the value of the JDSF, thereby limiting its statewide value to a narrow segment of landowners and researchers.
d) It is a fact that rural jobs lost if sustainable forestry is not practiced on the JDSF cannot be replaced by adding recreation or tourism as some in lieu industry. Even in the urban centers of this state where
3 recreation workers are paid the highest salaries they usually make less then $10.00 per hour with minimal or no benefits. And, recreation pursuits are more volatile and seasonal then sustainable forestry which further erodes the regional economics of trading one industry for another with the expectation that working people and their families will be well served by the shift.

Sincerely,

Robert C. Nuzum

Applied Natural and Cultural Resource Management
1072 Juanita Drive
Walnut Creek, CA 94595

Email Letter E-10

Response to Comment 1
Please see response to comments in DEIR mailed comment letter P-6.

The Board recognizes the continuing and increasing pressures of land use conversion and the environmental degradation associated with the problem. The Board further recognizes the role of sustainable, economic forest management for maintaining natural land cover. The California Timberland Productivity Act of 1982 (PRC 51102) establishes as one of its goals to "discourage premature and unnecessary conversion of timberlands to urban and other uses". The management plan will continue the tradition of a working forest landscape that serves to demonstrate viable and sustainable forest management. It is hoped that by demonstrating economic alternatives to land use conversion this problem can be reduced.

Response to Comment 2
The JDSF management plan will maintain a viable outdoor laboratory by managing the Forest to create diverse stand and habitat types (see General Response 2). The ADFFMP places increased emphasis on the Research and Demonstration mandate. The legislation that provided for establishment of the State Forest system makes it very clear that demonstration of economic forest management and maximum sustained production of high quality timber products is one of the primary purposes of JDSF.

Response to Comment 3
The Board recognizes the importance of a diversified economy in the region, including timber. See Section III of the DEIR for a detailed discussion of regional economic impacts. See also General Response 14.

E-11

From: msmarytalt@aol.com
Posted At: Tuesday, February 07, 2006 6:01 PM
Conversation: Support draft EIR Alternative F

Subject: Support draft EIR Alternative F

Dear Members of the Board:

I urge you to do your job and adequately protect Jackson State Forest.
This is one of our precious and majestic redwood forests unique in the world only to
1 California. Our redwood forests are rapidly becoming polluted and unable to sustain the wildlife they once harbored. We need to do everything in our power to see these last remaining redwood stands are protected.

Jackson State Forest is a unique resource in the redwood ecosystem. It is situated in the central part of the coast redwood range, where there is no national forest with redwoods, and where redwoods are preserved at the lowest rate of their entire range. In the area
2 that includes Mendocino, Sonoma and Marin Counties, only 1.36 percent of redwoods are protected in parks and reserves according to an analysis published by the Save-the-Redwoods League in 2000. It is this context that brings a heightened urgency to management issues at Jackson.

If it were up to me, I would allow no logging of any kind in these last remaining stands of redwoods. Unfortunately, political pressures make this very hard to accomplish. If the
3 best you can do is adopt Alternative F, the "Older Forest Emphasis" plan, then so be it. California residents expect nothing less than the best you can do to protect our forests.

Thank you,
Sincerely,

Mary Altmann
1857 Lookout Drive
Agoura, CA 91301

1

Email Letter E-11

Response to Comment 1
See General Response 2. JDSF will remain a redwood forest. The ADFFMP establishes a high degree of protection to all of the associated resource values, including wildlife. One of the primary goals of the JDSF Management Plan is to achieve net improvements of conditions for all natural resources over time in comparison to existing conditions. The current plan is based on a monitoring and adaptive management feedback system. Goals are set for desired future conditions and monitoring is utilized to provide feedback regarding the effectiveness of management strategies in achieving those goals. Subsequent management actions will be modified as necessary to insure that resource conditions are on the correct trajectory to meet the stated management goals. The management plan represents state of the art management practices and implementation is not expected to produce significant adverse environmental impacts (see General Response 6, 10 and 11)

Response to Comment 2
See Form Letter 6/6A Response to Comment 2

Response to Comment 3
See General Response 2. Qualified support of Alternative F noted. The likely result of further restricting the economical management of redwood forests would be to cause private holdings to be converted to other land uses, such as residential housing. Economic pressure to convert expensive redwood forest properties to other land use is ongoing and the desire to preserve redwood forests by further regulating timber production must be balanced with this reality. The Board recognizes the value of JDSF to reduce this trend, and the inherent environmental degradation, by providing demonstration of viable and sustainable forest management.

E-12

From: alebus@mcn.org
Posted At: Tuesday, February 07, 2006 9:06 PM
Conversation: Support draft EIR Alternative F

Subject: Support draft EIR Alternative F

Dear Members of the Board:

In 1988 I bought a home adjacent to the Forestry Fire Station on Little Lake Road, Mendocino. I had no idea that Jackson State Demonstration Forest was right in my back yard. This was definitely the forest no one knew about.

In 2001, thirteen years later, in conversation with Vince Taylor, I discovered that this forest belongs to all the people of the State of California. What is now known locally as "The Kendrick Trail" is a beautiful example of how spectacular the forest can be when left alone.
The feeling of being in a cathedral strikes me each time I enter this forest.

1 Now in 2006 I write you again to remind you of the treasure this State forest is. With most of Mendocino private timberlands severly cut over, the oportunity is here to demonstrate restoration. RESTORATION! Yes, I fully believe this is the way the forest can most serve the people of the state, along with the private timber owners who need to restore their lands to healthy forest. Jackson can be a model forest, demonstrating restoration while repairing or decomissioning roads, restoring healthy salmon habitat, finding ways to control invasive plants without herbicides.

2 Any money generated by the sale of timber from Jackson must go into restoration and maintenance. Improving recreation oportunities will add jobs and enjoyment for generations to come.

Preserving the integrity of Jackson State Forest is of utmost importance to the ecology of our area, from the air we breathe to the water we drink and even the climate of this unique coastal area.

Jackson State Forest is an important public resource belonging to all Californians. I am very concerned that Jackson Forest has not been managed in a way that adequately balances the needs of fish and wildlife and the desires of most Californians with the Department's desire to log the forest.

In the area that includes Mendocino, Sonoma and Marin Counties, only 1.36 percent of redwoods are protected in parks and reserves according to an analysis published by the Save-the-Redwoods League in 2000. It is this context that brings a heightened urgency to
3 management issues at Jackson.

I strongly urge you to adopt Alternative F, the "Older Forest Emphasis" plan for management at Jackson. Given the legislative mandate under which the forest is operating, Alternative F balances a high level of environmental protection with a carefully implemented timber production program. A gently applied timber management program will be consistent with the existing legislative mandate while greatly reducing the long-running controversy at Jackson. At the same time, regionally scarce fish and wildlife habitat will be enhanced. Alternative F strikes a good balance.

For the past ten years there has been a high degree of dissatisfaction with Jackson's management. I urge you to adopt the meaningful reforms that are outlined in Alternative F, and finally put the controversy to rest.

Sincerely,

Annie LeBus
43151 Little Lake Rd.
Mendocino, CA 95460

1

Email Letter E-12

Response to Comment 1
The Board agrees that JDSF is well suited to demonstrate restoration. The ADFFMP has placed greater emphasis restoration, with the goal of improving all resource values. The management plan includes an accelerated Road Management Plan, higher levels of aquatic habitat protection, and plans for continuing research and demonstration of alternative methods to control invasive plants (see General Response 7, 11, 13, and 15).

Response to Comment 2
The Board does not control the operating budget for the forest. However, the Board supports the concept that the Forest be self sufficient, and develops sufficient funding to enable full implementation of the management plan. The management plan includes some expansion of the recreation opportunities, but economics of adding recreation based employment are not expected to replace timber based employment (see General Response 14).

Response to Comment 3
See Response to Form Letter 6/6A**.**

E-13

From: cmartins@mendolink.com
Posted At: Tuesday, February 28, 2006 9:23 PM
Conversation: Jackson State Forest

Subject: Jackson State Forest

Members Board of Forestry
PO Box 944246
Sacramento, CA 94244-2460

Dear Members Board of Forestry,

I oppose approval of the draft environmental document(Draft EIR)

1 From what I have been able to glean, I believe that Alternative D is the best choice for everyone. It allows a fairly large annual harvest but requires harvests to be made using the best science available instead of old, or irrelevent models of timber harvest practice. It forbids clearcutting. It goes a long way towards helping to protect aquatic habitat (spawning grounds etc...). I am unclear on how it relates to recreation but I believe that realistic preservation is more important now.

I believe that responsible timber harvest is beneficial to the forest. I believe that CDF is capable of implementing responsible timber harvest programs. I DO NOT BELIEVE THAT CDF is capable of writing a responsible timber harvest plan at this juncture.

2 The draft environmental document is so huge and obscure that I am unable to review it thoroughly. It's 1500+ pages make the electronic version impossible to use, and the printed copies are too expensive to buy - over $200 per copy!

The Draft EIR fails to meet its legal obligation to provide the information and analysis I need to be able to make informed judgments on the environmental effects of the proposed management plan relative to other alternatives. Please reject the Draft EIR.

Sincerely,

Chuck Martins
642 Stewart Street
Fort Bragg, California 95437
cc:
Senator Wesley Chesbro
Mendocino County Board of Supervisors
Assembly Member Patty Berg
Governor Arnold Schwarzenegger

2

Email Letter E-13

Response to Comment 1
Support for Alternative D noted. The comment does not provide evidence that the DFMP represents the implementation of "old, or irrelevant, models of timber harvest". The ADFFMP represents state of the art management practices and implementation of the plan is not expected to produce significant adverse environmental impacts. See General Response 10, 11, 14, and 15.

Response to Comment 2
See Response to Form Letter 2 and General Response 5.

E-14

Kraemer, Candace

From: Scot [Alfista71@sbcglobal.net]
Posted At: Thursday, February 09, 2006 2:35 PM
Conversation: Comments on EIR for Jackson Demonstration State Forest
Subject: Comments on EIR for Jackson Demonstration State Forest

Dear Mr. Gentry:

Please record and respond to my comments on the Draft Environmental Impact Report for Jackson Demonstration State Forest.

1 - A. I have serious doubts as to the sincerity of the research and demonstration functions supposedly performed in the Jackson State Forest.
It is not necessary to demonstrate techniques that are already in common usage.
Where is all the research data from the last 58 years?

2 - B. The Executive Summary belies that fact that the CDF is biased in it's concept of proper forestry management. In fact, in Part I Section 2, The EIR equates management with logging saying, "Due to litigation, only minimal management has been conducted on JDSF since 2003.
There are currently no timber operations occurring on the forest."

3 - C. The Executive Summary also goes on to state (Section 6b) that the Jackson Demonstration State Forest is surrounded by nearby State parks that "provide substantial benefits in terms of preservation and potential old growth". We must not overlook or minimize those substantial benefits (I believe the EIR does) when managing the Jackson State Forest, especially when these benefits are magnified by a large contiguous area of old growth.

Regards,
Scot Kelly

15 Corte Saratoga
San Rafael, CA, 94903

Email Letter E-14

Response to Comment 1
Forest management and the regulations associated with timber harvesting have continued to evolve over time, so research and demonstration of forest management practices retains its value for both timberland owners and regulatory agencies. Often the research and demonstration is aimed at developing new and improved management practices that either mitigate potential adverse environmental impacts associated with timber harvesting or aid in the development of desirable stand characteristics. Some examples would be: studying the effectiveness of retaining various habitat elements from the original stand to improve wildlife habitat when implementing even-age management; testing the effectiveness of various strategies to protect aquatic resources; and testing the use of different management techniques to accelerate the development of late seral stand characteristics. Private industry cannot be expected to implement experimental management practices and dedicate tracts of land to long term research.

CDF is currently developing a website to catalogue the research and demonstration projects and/or publications that have been developed on the State forests (http://demoforests.net/). The website is incomplete, but the intention is to provide a means to disseminate information, including data sets, regarding projects on the State forests. The commenter is encouraged to visit the website. This website will be moved to the main CAL FIRE website (http://www.fire.ca.gov/) in the near future.

Response to Comment 2
The comment erroneously interprets the statement. While no harvesting has occurred, some limited management has occurred. The revenue from timber harvesting is utilized to fund other management activities. Therefore, absent harvesting, and the funding it provides, the other management activities have been limited.

Response to Comment 3
The exact meaning of the comment is not clear, but it is assumed that the comment indicates that the DEIR does not adequately address the benefits associated with managing JDSF for the development of old growth in the context of the surrounding State parks.

The ADFFMP presents a workable approach to create and maintain multiple seral stages, along with important structural habitat elements. It preserves all existing old-growth groves, augmenting most of them to provide large, contiguous areas of older forest habitat. It provides for recruitment of late seral habitat in the Mendocino Woodlands Special Treatment Area, upper Russian Gulch, lower Big River, and upper Thompson Gulch, as well as along all Class I and II streams. See General Response 9. It also provides for a broad corridor of forest with the structural characteristics of older forest that extends from the west to the east and the north to the south. The Plan protects individual large old-growth trees and smaller residual old-growth trees with unique habitat attributes. See General Response 8. And it sets goals for increased structure retention of snags, downed logs, and large green trees and their associated biodiversity values. The management of JDSF is therefore expected to augment the “substantial benefits” of the preservation based management of the State parks by increasing the connectivity of late seral and older forest habitat.

E-17

Kraemer, Candace

From: Bob MacDougall [rtmkvm@pacific.net]
Posted At: Tuesday, February 21, 2006 7:35 PM
Conversation: Jackson State Forest
Subject: Jackson State Forest

February 21, 2006

Mr. George Gentry, Secretary,
CA State Board of Forestry,
P.O. Box 944246,
Sacramento CA 94244-2460

My final comments as to the Management of Jackson State Demonstration Forest.

As a retired California industrial forester, active during these last sixty years of California logging in an allied Consulting business to the lumber industry which has been largely run by the lawyers and bookkeepers in a mode of 'cut out and get out', I can see that we idealistic foresters in timber management are now suffering the consequences of the 'get-rich-quick' disposition of the Corporate Executives of these recent years.

With the very recent higher Court ruling that the Water Quality Board should regulate logging on account of muddy water runoff, perhaps it is truly time for the State Board of Forestry to renege part of its responsibilities and turn certain regulations over such as to the Fish and Game for Endangered Species control and to the Water Quality agency for road layouts and maintenance.

The trees will grow, with fire control as a proper tool, with nice forest management. The resulting growth over a hundred or more years will let the future public get back to welcoming logging when the California forests are producing so much wood that the public will demand its use to satisfy society's need for lumber and fiber.

Please remember in your reviews of public policy the desired and taxable private ownership of the Forest resources. And remember the impact on recent timber use (logging) of the events of wrongful public tax policies of the 1940s to 70s, the natural 1962 Columbus Day storm which so affected the whole Redwood Region logging management, even the 1906 Earthquake resulting in 1910-era clear cuts of sections of the coastal forests and, at that same time, the extensive tie cutting for the USA Railroad development, along with many other natural and public policy events that have helped lead to

E-17

this present negative opinion of California logging. One should even recognize the inevitability of use as taught in Forestry 10 where a review is made of timber use since the 1620 Pilgrim colonization of North America. For more clearly understanding past public policy decisions I think such a study alone would be an interesting review for some of the Forestry Board members.

Page 2, MacDougall Comments 2/21/06

Part of the recognized aim of the Board Policies is to understand and guide timber growth in California including our Redwood Region. Jackson State Forest is so important in learning how to manage our Redwood forests in the long term use.

1 Whatever your decisions might be, please do not let Jackson State Forest be damned, close it down or cut it up for Housing, Parks, and scenery. I would encourage the idea of educated foresters at Jackson State to be using their trained minds for what the State Demonstration Forest can do to benefit those people in the hundred year future as to what timber management right now in 2006 is needed and can properly do for the future.

We all recognize the present public's poor regard towards logging because of our recent past. But to emphasis Recreation over Timber Management is so short sighted that it would be a shame to the
2 future, and failure of honor to the past, for this Board to deny the intent of the 1948 farsighted Jackson owners of Caspar Lumber Company - regardless of what the Taylors, the present Judicial Lawyers, and the three members of our Mendocino Board of Supervisors indicate to be their opinion.

A forester, and it seems to me the members of the State Board of Forestry, should be thinking in terms of the Forest with generations of humans ahead and not the short sighted and short lived present human viewpoint.

Robert MacDougall, Jr.
105 Barbara Street
Ukiah CA 95482

PS to YG

If the spacing on the above came up gibberish, please tell me and I will send a hard copy.

I recognize that you can take no position.

Sometimes I feel like the Seattle Sea Hawks. Good, but the other guy

E-17

is stronger. I hope Foresters can do some good on this one.

Bob

5/22/2006

Email Letter E-17

Response to Comment 1
JDSF will not be sold off, converted to parks or residential housing, or set aside as a reserve. The legislation that provided for establishment of the State Forest system makes it very clear that demonstration of economic forest management and maximum sustained production of high quality timber products is one of the primary purposes of JDSF. The timber harvest level under the ADFFMP is based on providing a varied landscape with a set of forest structures designed to support a viable research and demonstration program rather than a goal of a particular level of production. This analysis has resulted in a planned average annual harvest level of approximately 20 to 25 million board feet. Please see General Response 16.

Response to Comment 2
See General Response 14.

E-18

From: Bill Palmer-Taylor [edibleland@earthlink.net]
Posted At: Wednesday, February 15, 2006 3:31 AM
Conversation: Option D or more conservation minded for Jackson State Foerst

Subject: Option D or more conservation minded for Jackson State Foerst

1 I am concerned with the last several years' over cutting on Jackson State Forest. What needs to be demonstrated is long-term sustainability of a forest with old growth characteristics. Redwood's uniqueness as a material is in its rot resistance which is most significant in old growth logs. A redwood forest's habitat is even more important than the human use. The only way to develop this resource and to have the ecological
2 value old growth forest provides is to allow more of it to exist. To pay bills by cutting much of the forest just approaching old growth characteristics is bad policy. Putting off the revenue stream by leaving the oldest trees is good policy because it will demonstrate what is best for the forest, not just for this year's budget but for the budgets of the 22nd century. When much of Jackson is old growth, then a small percentage can be sustainably removed - and this small percentage will finally be a significant number of
3 trees. Please invest in the future by choosing option D or one which reduces the cut
4,5 further. Herbicide use and any large scale cutting (clearcutting, shelterwood and similar methods) need to end. Thanks.

Sincerely,

Bill Taylor
2400 Highway 128
Philo, CA 95466
707-895-2512
edibleland@earthlink.net

--- Bill Taylor
--- edibleland@earthlink.net
--- Enjoy the beautiful Earth today.

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Email Letter E-18

Response to Comment 1
The comment provides no evidence of over cutting on JDSF. Average annual timber harvesting has never exceeded average annual growth over the "last several years". The timber harvest level under the ADFFMP is based on providing a varied landscape with a set of forest structures designed to support a viable research and demonstration program rather than a goal of a particular level of production. This analysis has resulted in a planned average annual harvest level of approximately 20 to 25 million board feet which is well below current growth. In addition, the commitment to monitoring and adaptive management will ensure not only that harvest does not exceed growth, but that other timber related resource conditions are on the correct trajectory to meet the stated management goals. Potential impacts to other resource values have been mitigated to "less than significant".

Response to Comment 2
See General Response 2, 8 and 9.

Response to Comment 3
Support of Alternative D noted.

Response to Comment 4
See General Response 7.

Response to Comment 5
See General Response 10.

E-19

Kraemer, Candace

From: A Morse [agmorse500@yahoo.com]
Posted At: Wednesday, March 01, 2006 4:54 PM
Conversation: JDSF Public Comment
Subject: JDSF Public Comment

Dear Chairman Dixon and Members of the Board,

I am writing to urge you to support Alternative C1, the Preferred Alternative, in the Jackson Demonstration State Forest (JDSF) Draft Environmental Impact Report. This Alternative will best support the research, demonstration, and forest management programs at JDSF that are so critical to the future of California's forests, while maintaining the many recreational opportunities valued by generations of Californians. 1

JDSF has contributed immeasurably to our body of knowledge about forest management, watershed processes, redwood ecology, and so much more. The research and exploration that has taken place at JDSF has been possible because of the management flexibility that has been allowed there, and Alternative C1 will maintain that flexibility. And as we face the future of American forest management, CDF foresters and independent researchers must be allowed to use all of the tools available to them to learn more about managed forests. Imagine if we had tied the hands of forest researchers just ten years ago: what would we have failed to learn about carbon sequestration, Sudden Oak Death, or water quality protection? 2

As you plan for the future of JDSF, I hope that you'll select an alternative that will allow for continued research and recreation, and an ongoing program of forest management that will ensure the production of sustainably grown forest products. I hope that you will support Alternative C1.

Thank you for your consideration.

Sincerely,

Andrew G. Morse

Yahoo! Mail
Use Photomail to share photos without annoying attachments.

Email Letter E-19

Response to Comment 1
Support for Alternative C1 and its inherent management flexibility noted.

Response to Comment 2
See Email Letter E-10, Response to Comment 2. See also General Response 2 and 14.

E-20

From: George Thompson [thompson@pangea.Stanford.EDU]
Posted At: Thursday, February 09, 2006 2:23 PM

Board of Forestry and Fire Protection

Dear Board Members:

1 We write in support of Alternative C1 for the Jackson Demonstration State Forest. Our family has 30 years of experience working on our Redwood-Douglas fir tract in the Santa Cruz Mountains. The dramatic improvements in this once heavily cut forest demonstrate the benefits of the JDSF model. Under the expert guidance of forester James E. Greig, our timber stand has evolved into a vigorous all-age stand with a great ecological balance. The JDSF has helped with economic support for timber stand improvements as well as showing the way to manage and build a healthy forest, including sustained yield harvests.

2 Similar areas near us are succumbing to subdivision and rural homes, usually without regard to deterioration of the forest. In contrast, good management and careful harvests enable the preservation of forest land for greenbelt and needed production. The JDSF is an excellent model and should be kept in production for esthetic, economic and ecological objectives.

Thank you,
George A. Thompson

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Email Letter E-20

Response to Comment 1
Support for Alternative C1 noted. The Board recognizes the important role that JDSF fills by demonstrating sustainable forest management practices for private landowners.

Response to Comment 2
See Email Letter E-10, Response to Comment 1 and General Response 16.

E-21

From: nathanstout@earthlink.net
Posted At: Monday, February 13, 2006 8:22 PM

Dear George D. Gentry and other people at the Board of Forestry and Fire Prevention,

I want to say that I think our forests need to be protected for

1 1) biological diversity and native species protection,

2 2) recreation, and sustainable use and enjoyment.

I understand that people need to harvest timber for several reasons. The wood is needed for a number of industries, as well as the fact that trees need to be thinned in order to prevent forest fires that are not within the natural pattern. Sustainable harvest and controlled burning may be good practices. Clear cutting is definitely not a good practice. 3

Some things that are wrong with the new, present approach to forestry at the Federal and State level are:

4 1) privatization of the industry of foresting and treating our public lands as commodities,

5 2) the possible liquidation of something, (the forests, the ecosystems, the organisms. etc.) that once was considered part of our national and natural heritage, and a source of the people's wealth in the true meaning of the word, which relates to enjoyment of life and its happenings.

Those are my points. Please take them into consideration as you make your decisions. Please do not clear cut or build unnecessary roads. Simply let the forests be.

Nathan Stout
1260 Hopkins Street
Apartment 40
Berkeley, CA 94702-1170

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Email Letter E-21

Response to Comment 1
Please see General Response 2, 8, 9, 11, and 12.

Response to Comment 2
Please see General Response 14 and 15.

Response to Comment 3
Please see General Response 10.

Response to Comment 4
Privatization of JDSF and its forest resources is not proposed.

Response to Comment 5
The Board supports a balanced, multiple use concept that provides high levels of resource protection and sustained production of high quality timber products. The ADFFMP has placed greater emphasis on protection and restoration, with the goal of improving all resource values over time in comparison to existing conditions. Protection is provided to wildlife and plants, and significant impacts are not expected to occur. Please see General Response 2.

E-22

From: candace hale [cxh@well.com]
Posted At: Thursday, February 16, 2006 4:35 PM

George D. Gentry, Executive Officer
Board of Forestry and Fire Protection
PO Box 944246
Sacramento, CA 94244-2460
Re: Oppositio to Alternative C-1 in EIR for Jackson Demonstration State Forest

Dear Mr. Gentry:

I am a volunteer naturalist for Salmon Protection and Watershed Network in Marin County.

1 I note in dismay that Alternative C-1, the proposed project
described in the Draft Environmental Impact Report for Jackson
2 Demonstration State Forest, is woefully short on protection for
wildlife habitat, precious old-growth forest, and the watercourses
3 that feed the entire ecoysystem.

4 Conversely, it is inappropriately long on permission for logging.

You are the representative of the people who are trusting you to
protect our precious natural resources. As the steward of Jackson
Forest, you as well as I I how crucial its maintenance as an intact
5 ecosystem is to indigenous animals, migration corridors, venerable
trees.

6 Clearcutting is simply not an acceptable management tool. Nor is
7 herbicide use or the harvest of old trees. Protection of water
8 quality, fish and wildlife habitat, and the general deep beauty of
the forest for the generations to come should be your highest
priority.

Once these forests are gone, we will never be able to replace them.
Please go back to the drawing board and come up with a plan that will
actually support the ecosytem rather than destroy it.

Thank you.

Sincerely,

Candace Hale

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Email Letter E-22

Response to Comment 1
See General Response 12.

Response to Comment 2
See General Response 8.

Response to Comment 3
See General Response 11.

Response to Comment 4
See General Response 2.

Response to Comment 5
The ADFFMP establishes a high degree of protection to all of the associated resource values, including old growth trees and wildlife. One of the primary goals of the JDSF Management Plan is to achieve net improvements of conditions for all natural resources over time in comparison to existing conditions. The management plan represents state of the art management practices and implementation of the plan is not expected to produce significant adverse environmental impacts. See also General Response 15.

Response to Comment 6
See General Response 10.

Response to Comment 7
See General Response 7.

Response to Comment 8
See General Response 8 and 9.

Kraemer, Candace E-23

From: Wortleysea@aol.com
Posted At: Tuesday, February 28, 2006 2:58 PM
Conversation: Support of Jackson Demonstration State Forest (JDSF)
Subject: Support of Jackson Demonstration State Forest (JDSF)

Attention:

George D. Gentry
Executive Officer
Board of Forestry and Fire Protection

1 As a forest landowners in Mendocino County, we are very interested in and support the proposed management plan for the JDSF. The fact that sustainable annual sales of timber from JDSF alone (when allowed to log) produce $10 million to $14 million net revenue to the state, and that this money has traditionally been used to fund the state nursery, California Forest Improvement Projects (C-FIP) and pay for CDF costs to regulate timber harvesting in the state, begs that the management plan be approved.

2 As a forest landowner in Mendocino County, the biggest harmful impact to us is the likely loss of a sawmill within our working circle if the ban becomes permanent. JDSF's annual timber sale of 29 million board feet of logs represents the production capacity of a typical sawmill in our working circle. If the timber supply from the forest is permanently withdrawn it is expected that one of the current mills will close. The number of mills competing for logs is too small for comfort now; loss of another mill will likely have a downward impact on log prices.

3 We firmly believe that a well managed forest is occasionally, carefully logged, within the terms of an apporved NTMP, for the sake of perpetuating healthy growth, and for the "thinning" of excess undergrowth that helps in the development of an old growth forest

In addition, for us to continue to afford to hold an otherwise non income producing asset, the ocassional logging will hopefully provide badly needed funds for us to use in manageing and maintaining our property.

We certainly do not agree with the opponents of timber sales on JDSF that it is immoral for the State to derive a profit from the sale of natural resources!, especially when the funds are put to good use, benefitting the citizens of the State!

Thank you for your consideration.

Richard C. and Barbara E. Wortley
RANK's Forest LLC

Email Letter E-23

Response to Comment 1
The Board agrees that it would be highly beneficial for the State Forest to fully resume management activities, so the Board is working actively to certify the EIR and approve a management plan. The Board recognizes that the lack of timber production in recent years has resulted in the loss of revenue for the State and the valuable programs that it supports. Forest practice regulation is no longer funded by timber revenue from the State forest system.

Response to Comment 2
A significant level of sustainable timber production will continue at JDSF. A discussion of the economics of the timber industry is contained in Section III.5.4 of the DEIR.

Response to Comment 3
Active management is required by the legislative mandate that created Jackson Demonstration State Forest. The Board supports a balanced, multiple use concept and sustained production of high quality timber products.

E-24

Kraemer, Candace

From: Thembi T. Borras [thembi@mcn.org]
Posted At: Monday, February 06, 2006 9:35 AM
Conversation: JDSF DEIR Alternatives Evaluation and Comments
Subject: JDSF DEIR Alternatives Evaluation and Comments

George D. Gentry
Executive Officer
Board of Forestry and Fire Protection
P.O. Box 944246
Sacramento, CA 94244-2460

RE: Jackson Demonstration State Forest (JDSF) Draft Environmental Impact Report (DEIR) Alternatives Evaluation and Comments

Dear Mr. Gentry:
Since 2001, timber harvest on JDSF has been suspended due to legal action; the DEIR for the proposed management plan is intended to move the status of management of JDSF from inactive toward active.

I evaluated the seven alternatives proposed in the DEIR based on silviculture, growth and yield and the use of herbicides, which I believe are essential issues.

Note: Uneven-Aged management includes prescriptions such as single tree selection and group selection. Even-Aged management includes prescriptions such as clearcutting, seed tree and shelterwood. Annual allowable harvest is projected out a minimum of 10 years.

Alternative A (minimal management)
Uneven-Aged Management/ Even-Aged Management: No harvest, no site preparation, no thinning, no planting.
Annual Allowable Harvest: Not applicable.
Herbicide Use: Limited for road maintenance.

Alternative B (continue 1983 plan)
Uneven-Aged Management: Yes.
Even-Aged Management: Yes.
Annual Allowable Harvest: 36 million board feet (MMBF)/year (nearly equal to the present estimated growth).
Herbicide Use: Yes.

Alternative C1 (CDF May 2002 DFMP, preferred Alternative by CDF)
Uneven-Aged Management: Yes, allowed on approximately 24,000 acres.
Even-Aged Management: Yes, allowed on approximately 11,000 acres.
Annual Allowable Harvest: 31 MMBF/year.
Herbicide Use: Yes.

Alternative C2 (CDF November 2002 Plan)
Uneven-Aged Management: Yes, allowed on approximately 22,500 acres.
Even-Aged Management: Yes, allowed on approximately 10,000 acres.

Annual Allowable Harvest: 31 MMBF/year.
Herbicide Use: Yes.

Alternative D (Citizens Advisory Committee proposal)
Uneven-Aged Management: Yes.
Even-Aged Management: No clearcutting. Other prescriptions restricted to limited demonstration.
Annual Allowable Harvest: 25 MMBF/year.
Herbicide Use: Herbicides would not be allowed in site preparation or vegetation control. There would be a three-year moratorium on chemical use for control of invasive species.

Alternative E (Late Seral Forests)
Uneven-Aged Management: Yes.
Even-Aged Management: No.
Annual Allowable Harvest: 8 MMBF/year.
Herbicide Use: No.

Alternative F (Older Forests Emphasis)
Uneven-Aged Management: Yes.
Even-Aged Management: No.
Annual Allowable Harvest: 19 MMBF/year.
Herbicide Use: Use herbicides only if other approaches fail.

Alternative D (Citizens Advisory Committee proposal), in my opinion, appears to have the greatest chance of successfully balancing environmental values, economic viability and public support. If there is enough public buy-in, then perhaps further legal wrangling can be avoided. Alternative D also best fits my vision of
1, 2 public forest management because it is strong on building inventory, strong on selection prescriptions and
3 does not suggest incorporating herbicide use as a customary part of forest management. Building inventory
4 and improving stand structure are cornerstones of sustainable forestry, although selection prescriptions do not inherently imply improved stand structure, this is only inherent in good decisions made on the ground
5 regarding which trees will be cut and which will be left. Selection prescriptions done well are opportunities to take value from the forest and improve the transportation infrastructure, at the same time keeping pre harvest habitat the same as post harvest habitat, improving aesthetics by maintaining a continuous forest canopy and encouraging fewer large stems and minimizing adverse watershed effects through a low level of canopy removal.

Sincerely,
Thembi Borras
Registered Professional Forester, #2700

Email Letter E-24

Response to Comment 1
Support for Alternative D noted. The timber harvest level under the ADFFMP is based on providing a varied landscape with a set of forest structures designed to support a viable research and demonstration program rather than a goal of a particular level of production. This analysis has resulted in an expected average annual harvest level of approximately 20 to 25 million board feet which is well below current growth. CAL FIRE has consistently harvested well below the growth of the forest, resulting in an ever increasing inventory of larger, older trees. In addition, the commitment to monitoring and adaptive management will ensure not only that harvest does not exceed growth, but that other timber related resource conditions are on the correct trajectory to meet the stated management goals. Taken as a whole, the implementation of the ADFFMP is expected to have many beneficial impacts to the overall forest health of JDSF.

Response to Comment 2
The ADFFMP limits the use of even-age management to approximately 26 percent of the Forest (see General Response 2 and 10). Most of the remaining 74 percent of the Forest will be restricted to either no harvest or uneven-age management. Clearcutting is further restricted as described in General Response 10. The designation of 30% of the land base in the DFMP, and 26% of the land base in the ADFFMP, is designed to allow some flexibility when locating even-age silvicultural prescriptions. The area designated to allow the use of even-age management will include clearcutting and variable retention prescriptions, but will also utilize uneven-age management. The use of even-age management is not expected to result in significant adverse environmental impacts.

Response to Comment 3
See General Response 7

Response to Comment 4
See General Response 2, 8, 9, and 12.

Response to Comment 5
The Board recognizes the importance of “good decisions made on the ground” when marking selection prescriptions. The Board further recognizes the advantages of this silvicultural method when properly implemented to reduce some types of potential adverse environmental impacts associated with timber harvest. The proposed management plan uses a set of structural goals to guide planned harvest actions. The central goal is not a particular level of timber harvest or a preferred method of harvesting but a set of forest structures that represent the full breadth of forest conditions. See General Response 2.

E-25

From: James R. Strittholt [stritt@consbio.org]
Posted At: Monday, February 27, 2006 4:44 PM
Conversation: DEIR comments

Subject: DEIR comments

DEIR_Strittholt_comments2-06.d...

Please accept the attached comments for the Draft Environmental Impact Report SCH# 20040222025.

****
James R. Strittholt, Ph.D.
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E-25

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Board of Forestry and Fire Protection
P.O. Box 944246
Sacramento, CA 94244-2460

February 23, 2006

SUBJECT: Comments on the Environmental Impact Report for the Comprehensive Update to the Jackson Demonstration State Forest Draft Management Plan

To the Board of Forestry:

Please accept these comments regarding the Environmental Impact Report for the Draft Jackson Demonstration State Forest Management Plan SCH#2004022025.

I am founder and Executive Director of the Conservation Biology Institute (CBI) located in Corvallis, OR with a satellite office in San Diego, California. CBI is a 501(c) (3) non-profit dedicated to conduct applied conservation biology research and transfer our understanding to the greater public through education and public service. We currently have 15 staff located in the two offices with many years of professional experience in conservation science. One of our strengths is applying computer mapping technologies to assessing natural resources (particularly forests) through descriptive and prescriptive planning. My professional qualifications include a Masters in population genetics and a Ph.D. in landscape ecology and conservation planning. I have authored numerous reports and peer reviewed papers on various topics including forest conservation planning using GIS, late seral forest mapping, and forest fragmentation. I co-authored sections in a book entitled, "The Redwood Forest: History, Ecology, and Conservation of the Coast Redwoods" and provided comments on the Jackson Demonstration State Forest Management Plan and 2002 Draft EIR.

Although I provided extensive comments during the last review process, two topics were of particular concern to me at that time – lack of consideration of the regional context and the treatment of cumulative effects. In light of my professional expertise, I will focus my comments on the Biological Resources and Cumulative Effects sections in the current DEIR report with some special emphasis on the GIS mapping aspects of the reported work.

OVERALL REPORT ORGANIZATION AND CONTENT

I have reviewed numerous EIRs during my career, and this one was the most difficult for me to review to date by far. The document is incredibly long and poorly organized (e.g., content related to the same topic scattered in multiple places throughout three volumes). More importantly, the document lacks proper balance – enormous amounts of background material are provided but painfully little logical synthesis offered. EIRs are expected to be read and understood by a broad, non-technical audience. This EIR is challenging for the most experienced professional to fully understand and critique. My guess is that most in the general public would find it virtually incomprehensible. The majority of the three-volume report is jargon-filled background material, and it reads like disparate pieces thrown together in outline form with little regard for thoughtful integration or synthesis. Background material is important, but so much of it in this report is unnecessary and often presented in such raw form as to make it virtually meaningless to most readers. Instead of being educated and informed, the reader is simply bludgeoned by tables, charts and descriptions that have little bearing on the impact assessment. It reminds me of my high school teaching days when some students would virtually copy entire sections from text books and try to pass it off as a thoughtful synthesis. They thought I would give them high marks based on the sheer length and depth of technical content (whether it was appropriate or not) and overlook the lack of critical thought and organization. There was obviously some new analyses carried out (some of which I comment on later in this review), but the document largely depends on existing studies that were then cobbled together to make forest management recommendations.

1.

ALTERNATIVE COMPARISON TABLES

I found the alternative descriptions to be quite vague, and I especially found myself wanting to see how alternatives compared to one another spatially. Maps were used throughout the DEIR that helped bring some focus for me (including a fairly lengthy Maps Section at the end of Volume 1B). It would have been more helpful to see the alternatives presented in map form as well.

2.

Also, I found the comparison tables at the end of many of the sections of little or no value. The impact levels – beneficial to significant – gave me little information to evaluate the alternatives. Out of 96 separate items that I found in the DEIR, 63 (66%) performed identically according to the impact levels. A better evaluation model would be constructed to help discriminate alternatives. For most of the items examined, the alternative plans would actually perform along some continuum, and that would be a much better way to report and evaluate them.

3

If we go back to what was presented in the DEIR, 30 items showed categorical differences between the plans, and the highest performing alternatives were Alternatives E and F – dramatically so in some instances. The tables clearly show the preferred alternative was inferior to many of the other alternatives for most of these 30 items and were the same for all of the others. I fail to see the function of having the comparison tables. If an evaluation and decision framework would have been developed ahead of time and presented for review, it would have allowed the assessment team to explain the pros and cons of each alternative more clearly and

explicitly. The DEIR lacks any comprehensive assessment and discussion of the alternatives. As it stands now, the comparison tables do little to help with understanding the plan differences pertaining to goals, values, and potential impacts.

AQUATIC RESOURCES

It is made clear by the background material provided that a number of the watersheds found within JDSF are experiencing serious environmental problems when it comes to overall aquatic ecosystem integrity and providing viable habitat to listed aquatic species (e.g., coho salmon) and other aquatic species of concern. The North Fork of the Noyo, the South Fork of the Noyo (including Parlin Creek), North Fork of the Big River (including Chamberlain and James Creek) and South Fork of the Big River have all been degraded significantly due to past forest practices and road building.

4 I found the background material in this section to be extremely erratic – for some topics (e.g., coho salmon) too much information was provided, and not always the most important pieces of information. For others (e.g., aquatic macroinvertebrates), not enough information was provided. Hard to grasp the importance of aquatic macroinvertebrates from the citation of a single paper that focused on Casper Creek. There is a good body of scientific work about the importance of macroinvertebrates and their usefulness in monitoring overall stream biological status (see Karr 1995 and Karr 1997).

5 There are other important omissions in the DEIR on other topics that should have been presented and considered in assessing the various alternatives. The complexity of how stream temperatures are regulated is a good example. The reader is being told that the primary driver to regulating stream temperatures is through riparian shading. While stream shading is one important factor, there are others such as ambient air temperature and ground water inflow. Bartholow (2000) found that stream temperatures are governed by a complex set of factors, not just one. So the overwhelming position taken by the DEIR that stream temperature is primarily governed by stream shading, and therefore only riparian management is required, is not accurate based on what the scientific literature states. Furthermore, Welsh et al. (2005) studying the Mattole River watershed found that the conversion of uplands to younger seral stages was likely altering ground water temperatures and thus contributing to elevated stream temperatures. Excluding these types of scientific inputs, which could have a significant impact on the final management decisions, is a serious flaw in the current DEIR. How are decision makers and the public supposed to understand the issues and fairly evaluate the merits of alternatives if all the pertinent facts are not presented.

In this section, there were approximately 90 pages of background information and 9 pages on the proposed management response which consisted of listing management guidelines within riparian strips and a very minimal discussion on monitoring hillslope conditions, stream channel conditions, stream temperatures, and selected fish and amphibian populations.

The conclusions presented at the end of this section stating project impacts would not require mitigation left me feeling like there was a serious disconnect between these conclusions and what I just read, what I know from the literature, and from my own experience. Addressing the very real issue of continuing aquatic degradation with sweeping generalizations about best management practices is totally inadequate. I would have much preferred to read a concise background section, a thoughtful synthesis of existing information with attention to spatial detail, and then a fully supported explanation about the conclusions presented. I see no meaningful watershed assessment for JDSF here. 6

With regard to coho salmon recovery, Bradbury et al. (1996) emphasize the need to secure existing strongholds and develop a restoration strategy anchored by these areas to bring the species back to sustainable recovery levels. Relying on data generated from KRIS projects on the Noyo River and Big River, Higgins (2002) reported that some of the last remaining regional stronghold watersheds are found inside JDSF. This type of regional contextual information helps provide guidance to any forest management plan for JDSF. Under these circumstances, any forest management activity carried out in the identified stronghold watersheds should be held to a higher standard because of its regional importance for maintaining this value. This is the kind of contextual information that I referred to that was missing in the original draft and in large part this deficiency still remains. 7

Using better management practices in the future will certainly be less damaging than many practices used in the past, but that does not equate to no significant impacts. The existing body of scientific literature unequivocally demonstrates that adding new stressors to already stressed systems (even if the severity of those stresses is lessened) will still result in added stress. The question is how much is too much, and too much for what? The DEIR states that State agencies (including CDF) has been directed to protect and manage California's aquatic resources through a variety of initiatives, including ESA, Clean Water Act, etc. This would be a place to start, but the DEIR lacks any clear direction about how to examine the inherent conflict between resource extraction and other values. I have intentionally focused on the biological and ecological values in my comments, but this would include other values as well (e.g., recreation, cultural, and aesthetics). 8 9

It appears from the background material presented in the DEIR that there are enough spatial databases and technical tools available to develop a functional GIS-based framework for monitoring activities on the forest, evaluating impacts of management decisions (including cumulative effects) on selected values, and for carrying out prescriptive mapping that scientifically supports and assesses the risks of activities on the forest. In my view, there needs to be some spatially explicit underpinning for managing JDSF and that foundation is currently missing. Without it, we are left with a tremendous amount of speculation that in all likelihood will later be found to be grossly inaccurate, and there will be real ecological costs associated with these inaccuracies. 10

BOTANICAL RESOURCES

In spite of all the background provided by the DEIR, I still do not have a good sense of what managers know about their forest with regard to the various values of interest. Does JGSF have its own species survey data? Stand-level data? I assume so, but I am not sure. If it does, why
11 does the DEIR rely so much on the CNDDB for rare plants? Standard practice should be to do pre and post harvest quantitative plant surveys and monitor impacts for a selected set of species. Species that are known to be sensitive to logging practices such as some perennial forbs are good candidates. Plant surveys should also pay particular attention to listed species or species of concern, and carefully monitor invasive exotics. Findings from these surveys should be incorporated into a GIS database so it can be easily included with other data to determine the type and magnitude of environmental impacts from various management activities.

Old Growth and Late Seral Forests

Botanists and ecologists have attempted to describe successional stages of forest communities for a very long time. This reached a fever pitch in the Pacific Northwest during the development of the Northwest Forest Plan, particularly with regard to defining and mapping old growth conifer forests. There is no one precise definition to what old growth is between or even within different forest community types. Furthermore, old growth is not simply a function of mean forest age – it also includes aspects of structural condition – but researchers often describe seral stages by assigning approximate ages that roughly correspond to when a particular forest type is expected to possess particular characteristics for each seral stage, including old growth. For Douglas-fir, Franklin (1982) specified ranges for several seral (or successional) stages: herb and shrub (30 years), young forest (30-100 years), mature (100-200 years), and old growth (>200 years). Bingham and Sawyer (1991) characterized redwood stands in the central redwood region (the location of JDSF) as young (40-100 years), mature (100-200 years), and old growth (>200 years). With these age classes serving as approximations, it is important to point out that there is tremendous variability on the actual expression of these forests in terms of size and density of trees, amount of downed wood, and detailed expression of layered substrata. The physical expression of these forests depend upon many factors, including stand history, site condition, and disturbance history (Sawyer et al. 2000).

In the scientific literature, late seral (or late successional) usually refers to forests that are both mature and old growth (see Jiang et al. 2004 and Strittholt et al. In Press). This is pertinent in the DEIR since there appears to be considerable confusion about this issue. In order to evaluate the
12 management alternatives for JDSF, it is important to know the approximate ages of the forest stands throughout JDSF and to have this mapped. Only then can the alternatives be compared and impacts fully assessed. The DEIR provided detailed spatial information on the size and location of the remaining old growth, and I assume data exists for other seral stages as well. One particularly important seral class to consider carefully is the "mature" category for two reasons. First, mature forests support a large number of species in their own right. Second, mature forest is the forest stage class closest in time to possessing old growth characteristics and thereby

become the immediate building blocks for meeting an important regional and forest conservation and forest management objective – increasing the area of functional old growth.

This is and deserves to be a major consideration because of how far the region has diverged from natural condition. Roughly 96% of the original, old-growth redwood forests are gone (U.S. Fish and Wildlife Service 1997) and the remaining forest is highly fragmented. It is not surprising that many old growth dependent species have been greatly reduced in number and distribution with some on the verge of regional extirpation. Much of the redwood forest region today is dominated by young forest, which is favored by generalist species. These species have value too, but the plant and animal species of most concern are those that evolved with the physical and
13 biological conditions of the old forests. Retention of existing and recruitment of new old growth is a conservation imperative for this region and should be prominently featured in the JDSF plan.

WILDLIFE AND WILDLIFE HABITAT

The wildlife habitat modeling conducted for the DEIR relies on Wildlife Habitat Relationships (WHRs) as originally attributed to vegetation databases such as FRAPVEG, which targets the entire State of California at an intermediate spatial scale. For contextual purposes it is reasonable to generate some basic potential habitat maps for species of interest, but it is scientifically inaccurate and inappropriate to rely on these relatively coarse (both thematically and spatially) relationship models to predict status or changes for the size area of JDSF or its larger assessment
14 area. And although the DEIR states on page VII.6.6.-2 that all analyses involving vegetation found of the JDSF were done using the JDSF vegetation layer and all vegetation outside JDSF from FRAPVEG, I found the maps provided based only on the more coarse vegetation database (FRAPVEG). Having worked at producing species-habitat relationship maps throughout different regions in California using FRAPVEG, we have found it necessary to significantly modify any WHR results with additional ancillary data and occurrence records (if possible) to more accurately reflect species use of habitat. This trend of overestimating wildlife habitat has been observed across the nation through efforts such as U.S. Geological Survey GAP. All second generation products from this project are showing a dramatic reduction in habitat potential for most wildlife species.

The results presented in the DEIR indicating how the different alternatives would affect the
15 percent of suitable habitat for wildlife species are extremely unreliable. Even as gross generalizations, they would have to be treated very carefully. There are always species who win and those that lose when conditions change on the ground, but the models presented fail to
16 provide adequate insight into those changes under the different alternatives and fail to put the stressors that alter habitat in any logical framework to compare alternatives spatially. The quality of the models cannot be properly evaluated by viewing the tables alone, but the few sample maps
17 provided in the Maps Section speak volumes to this problem. For example, the habitat suitability map provided on the marbled murrelet makes little sense. The map shows that the majority of James Creek is fully suitable for murrelets; however, it is unlikely that murrelets would travel that far inland to nest and when you look closely at the vegetation management classes presented

in Map Figure 8 in the original draft management plan, you find that the majority of the watershed does not meet the forest structure criteria to support this species even if they did travel there. The colored polygons obviously came from the FRAPVEG database as shown in Map Figures J and K even though the DEIR states the models run inside JDSF used a different (assumingly a more spatially accurate database), the examples provided do not support this claim.

18 The landscape measures section (starting on page VII.6.6-21B) looks at eight species (including marbled murrelet). From the outset, it is seriously flawed because it relies (as input) results from the habitat relationship models. The assessment team then ran FRAGSTATS (a fragmentation computer software) on the polygons from the habitat models using the results inside JDSF and outside JDSF as separate landscapes from what I can tell. The different suitability classes (low, moderate-high, and fully suitable) were treated as different classes in the FRAGSTATS program.
19 A handful of metrics out of the approximately 70 possible FRAGSTATS generates were then chosen to describe the differences between alternatives. The metrics chosen included: total class area, percentage of landscape, number of patches, mean patch area, mean nearest neighbor, and total edge index.

There are several serious problems with this approach.

20 1. The species inputs for the fragmentation assessments were spatially coarse and largely unreliable. Starting with solid input data is fundamentally important to gaining additional knowledge from this added assessment.

21 2. The treatment of suitability categories as "classes" in FRAGSTATS is interesting but fails on several grounds. It is assumes the species chosen respond to their own habitat suitability in the same way, and they do not. It assumes that the resolution of the habitat input data is at an appropriate spatial scale for each species, and I would argue that in most cases it is not.

22 3. There was no explanation as to why the five metrics were chosen and what bearing they have on the biology of the species in question. Why not a metric on overall landscape permeability such as contagion? Why these five particular metrics? What was the assessment team trying to understand? For example, five out of the eight species chosen were birds. How should we view mean nearest neighbor results? Does it matter if one result is 500 m and another 1,500 m? For all of the birds, this difference in distance means nothing – they could just as easily fly 1,500 m as 500 m. Does the amount of edge change the survival of the species in some way? More edge means more competition and predation for northern spotted owls for example. Was that being tested? Rather than provide this level of thought and explanation, the reader is buried with tables of numbers that provide little meaning at all.

23 4. It would have been much more helpful to treat each planning unit (e.g., watershed) as the analytical landscape rather than compile results for all of JDSF as one unit and everything outside as another landscape unit. That would provide a more spatially explicit

understanding of how past, current, and future projects might make the region more or less suitable to species survival and movement. For example, it is possible that a handful of watersheds or planning units, if managed heavily for a number of years, could easily fracture the larger regional landscape for some species having a greater overall impact. Not only are scenarios like this possible but likely given the history of JDSF, but none of the information provided can give us this level of information.

24 5. Lastly, there is no attempt to incorporate thresholds for the species for the different metrics to help guide our understanding of the alternatives. Thresholds are a major aspect of cumulative effects and for the species chosen, some guidance on landscape thresholds do exist.

With all of the page volume, background information, and modeling attempts in this section, we are left with very little information about how the different alternatives might impact wildlife habitat for targeted species or any other.

CUMULATIVE EFFECTS

According to the Council on Environmental Quality (1997), cumulative effects analysis involves assessing the capacity of the resource, ecosystem, and human community to withstand the stress caused by the combined effect of a repeated action and/or the combined effect of multiple actions. California Environmental Quality Act (CEQA) guidelines are consistent with this definition (14 CCR §15355). Although conceptually straightforward, conducting cumulative effects assessments has been proven to be extremely complex. With the inherent diversity of values and impacts, no single approach has emerged as a standard over the past 25 years. Rather, numerous approaches have been proposed and tested with varied results. Analyzing cumulative effects on ecosystems requires a better understanding of the interrelationships of the various ecological system components and is typically spatially explicit in nature. A conceptual model of how to combine primary methods of gathering and examining data and information into a cumulative effects analysis provides a starting place for new applications (Figure 1). Out of the 100 or more applications that have been reviewed by researchers, two basic approaches have been identified – (1) **impact assessment approach**, which analytically evaluates the cumulative effects of actions against an identified threshold on a stated value, and (2) **planning approach**, which sets out to optimize the allocation of stresses on values spatially over a region (Canter 1994).

I provide this background information to acknowledge the difficulty in conducting cumulative effects assessments, but also to demonstrate there is a solid body of scientific literature and government guidelines to assist in the creation of a meaningful cumulative effects assessment. This is a rapidly growing field of research, and ecological forecasting, which relies on using past and present conditions to forecast ecological condition into the future, is providing many valuable tools and approaches at addressing cumulative effects.

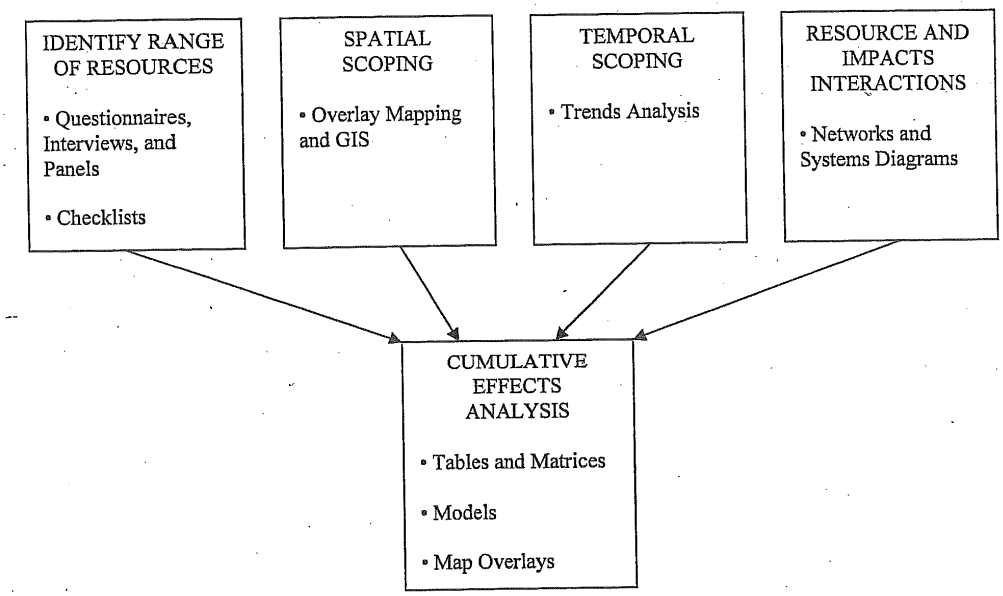

Figure 1. Conceptual model for combining primary methods into a cumulative effects analysis (CEQ 1997).

25 The JDSF DEIR has numerous serious shortcomings with regard to cumulative effects. First, there is no logical organizational framework presented explaining how cumulative effects were addressed in the DEIR. Instead, the topic of cumulative effects is addressed piecemeal (topic-by-topic) throughout the document without any clear attempt to combine the assessment of values [at-risk species (e.g., coho salmon, Northern Spotted Owl, Marbled Murrelet, etc.), special habitats (e.g., pygmy forest community), aquatic ecological integrity, terrestrial ecological integrity (including late seral or old-growth forests), wildlife, soil productivity, recreation, aesthetics, noise, traffic, air quality, and cultural heritage resources] with identified combined stressors [timber management, road building, water quality and quantity changes, herbicides/pesticides, and recreation]. Not even in Section VIII entitled "Cumulative Effects", can a logical organizational framework be ascertained.

26 The dominant stressor discussed throughout the DEIR is forest management, which is understandable but this is not the only important stressor that needs close consideration. Roads and the use of chemical treatments are not developed properly and definitely not integrated with forest management for a more holistic view. A cumulative effects approach is supposed to consider all dominant stressors collectively in order to better understand the cumulative impacts from them.

Roads

Roads have been shown to have major ecological impacts on both aquatic and terrestrial ecosystems (Trombulak and Frissell 2000). Roads contribute more sediment to streams than does any other land management activity including timber harvesting (Meehan 1991), and examples exist in the scientific literature on how to conduct a cumulative effects assessment combining both roads and logging (e.g., McGurk and Fong 1995). According to Table VIII.6b, JDSF contains slightly over 457 miles of roads at a density of 6.0 mi/mi^2. If you assume a 20 m direct impact zone width (road surface and cleared roadsides), approximately 3,600 acres of JDSF are impacted directly by roads, which is approximately 8 times more area than the amount of existing old growth. The overall road density of 6.0 mi/mi^2 is far above thresholds established in the scientific literature for long-term persistence of certain aquatic species such as salmonids (2.5 mi/mi^2; NMFS 1996). But one needs to be very careful not to over simplify the situation. If you calculate road density on a smaller analytical unit across the forest (subwatersheds or grid cells), there are some units that are higher and some lower than the average for the entire forest. This level of spatial clarity is important to know and to monitor to help guide effective road removals and new constructions. The lack of spatial clarity is common throughout the DEIR
27 making it virtually impossible to evaluate the various alternatives in a systematic, thoughtful way. Furthermore, special attention must be paid to roads along streamsides as these are often the most problematic roads on aquatic systems.

Based on research in the Interior Columbia River Basin, Wisdom et al. (2000) identify more than 65 species of terrestrial vertebrates negatively affected by many factors associated with roads. Specific factors include habitat loss and fragmentation, negative edge effects, reduced densities of snags and logs, over-hunting, over-trapping, poaching, collection, disturbance, collisions, movement barriers, displacement or avoidance, and chronic, negative interactions with people. Certainly not all of these factors apply to JDSF, but this research illustrates the serious impacts roads have on terrestrial wildlife species as well as aquatic ones.

Roads are also well known to be important conduits for invasive species and that risk must be considered. Roads disturb the soil, open the forest canopy, and allow more light to reach the ground. Plants seeds disperse in many ways. But the quickest route is via rapid, efficient, and pervasive hitchhiking on radiator grilles and muddy tires. Many of the same noxious invasive plants that easily use roads to disperse also do extremely well on sites impacted by logging that exposes soil and increases light availability.

Not only does the scattering of information throughout the document make it extremely difficult to understand, it also suggests the lack of understanding or lack of resources to address cumulative effects in any comprehensive way. This is further supported by the way components of the stated cumulative effects categories are treated. For example, the various subcategories in the Watershed Cumulative Effects treatment are disaggregated and addressed separately.

28 Cumulative effects assessments need to try to integrate the various components (flow effects, water temperature effects, sediment effects, etc.) not break them apart, because of the reasonable possibility of components interacting with each other in some additive or synergistic way. By treating each one separately and dismissing the components that are deemed not significant, the assessment team is missing the point. The serious lack of organization in the document and frequent illogical mixing of background materials, assumptions, and management generalities makes it extremely difficult to sort it all out and allow for constructive comments to be made.

The assessment team obviously did not choose to follow an impact assessment approach that would have relied on an analytical (quantitative) assessment with known thresholds even though some values stated in the DEIR (e.g., coho salmon) do have known tolerances (e.g., lethal water temperature thresholds). Also, the assessment team did not follow a planning approach, because there was no attempt to evaluate the distribution of stressors spatially over time in any optimal fashion. Some GIS modeling was performed, which I will address more later in this review, but nowhere was a framework provided to help the assessment team or reviewers understand the relative importance of specific stresses and there interaction on stated values, which is the essence of a solid cumulative effects assessment.

29 Rather than cobble together whatever could be found that might have some bearing on cumulative effects, it would have been far more helpful to: (1) choose the values to be evaluated in advance; (2) map the identified stressors on these values using a meaningful geographic extent(s) and analytical unit(s); and (3) build a transparent knowledge base to evaluate the interaction of stressors on the values spatially over time. Tools are available that do this well such as Ecosystem Management Decision Support (EMDS), which is mentioned in the DEIR as part of an independent In-Stream Channel Condition modeling effort, but there was no obvious attempt to employ this type of logic to the larger cumulative effects challenge before JDSF. Putting resources in building such a decision support system for JDSF would have tremendous value far beyond the immediate need for assessing the latest management alternatives. One of the many benefits would be having an ongoing logical and programmatic framework from which 30 to organize management and monitoring for making more informed decisions and doing so in a way that is easily communicated to policy makers and the public.

According to CEQA guidelines, past, present and future project actions are to be considered in assessing cumulative effects with considerable emphasis on predicting future impacts. CEQA 31 does not explicitly state a specific time period for past projects, but the DEIR states that 10 years is the general rule-of-thumb. It would be more beneficial to decision makers to understand as much about the history of the region of interest as possible. While there is no legal obligation to go back any particular distance in time, it would be in everyone's benefit to go back as far as data exist to support the modeling. JDSF was formed in the late 1940s and underwent considerable management between then and the 1986 threshold chosen by the assessment team. This would help explain why some watersheds received considerable forest harvest activity and why others received very little. For example, places like Chamberlain Creek watershed saw very little forest harvesting from 1986-2004. This watershed is not intact but was harvested extensively prior to the 1986 cutoff date. Chamberlain Creek was also one of the watersheds of concern with regard to some watershed quality parameters (e.g., stream temperature). This level of detail and spatial

representation into an overarching cumulative effects framework is important if you are interested in becoming ecologically sustainable.

32 According to the DEIR, approximately 62% of the assessment area experienced some form of timber harvesting over the nineteen year window. Some of the sixteen watersheds were heavily impacted with over 80% of their area harvested over this time period (e.g., Noyo headwaters, Middle Noyo, and Big River). If you factor in the projected impacts into a ten-year future, ten of the sixteen JDSF watersheds will have greater than 20% of their areas impacted by some form of logging. Having a better understanding of when, where, and how this harvesting would be carried out is necessary as input into a cumulative effects assessment. Based on the information provided, I find it impossible to understand how anybody could conclude the combined impacts from this one activity would be less than significant. The information presented suggests otherwise.

33 The scattering of GIS models under cumulative effects are descriptive models not prescriptive ones, and explain nothing about how future projects are likely to impact values. Although the labels sound like they are thinking ahead by using terms like "recovery potential", there is really nothing prescriptive about these models and do not predict the impacts from future projects on values spatially over the planning period. Again, framing the overarching questions in advance would be hugely beneficial and necessary in my view to pass scientific review.

The handling of cumulative effects lacks a decision framework as well as clear statements of what is being assessed from both the value side and stress side. Without these deficiencies adequately addressed, sweeping conclusion statements, common in the DEIR, cannot be supported.

CONCLUSION

34 The question before the management board of JDSF is how to continue existing as a working forest landscape without causing further degradation to the many values present on the forest. Unfortunately the errors of the past now place an added burden and operational constraints on the future if these values are to be maintained. There are very real ecological costs to managing resources for human use, and these costs cannot be continually pushed into the future. Doing so results in many negative unintended consequences.

35 In spite of these constraints placed on JDSF, these issues are not unique as they pertain as much or more so to the majority of the northern California coast. This provides an incredible opportunity for JDSF to fulfill its stated mission of leading the way through demonstration and education on how to return ecological integrity to a degraded forest landscape and still maintain a steady and reliable economic return.

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Electronic Comment E-25

Response to Comment 1
The DEIR and RDEIR are intended as a public disclosure and decision making tool to be used by the Board to analyze the significant potential effects arising from implementing the draft JDSF Draft Forest Management Plan (DFMP) and the Administrative Draft Final Forest Management Plan (ADFFMP), to identify alternatives, and to disclose feasible measures to reduce or avoid significant impacts. The lead agency, in this case the Board, is obligated to produce a comprehensive document that addresses the full range of potential significant environmental impacts in sufficient detail that a determination of significance can be made with regard to the proposed project and the alternatives. The size of the document is largely determined by the complexity of the potential effects of the proposed project, plus the alternatives, and the requirement of CEQA that the EIR adequately address those potential effects.

The DEIR is also responding to a judicial decision that required an expanded regional setting and cumulative effects sections. The DEIR is complex because it examines a number of complex issues. The use of existing studies is not an uncommon information source in EIR development. CEQA does not require the sole use of original research for alternative development and impact analysis.

Response to Comment 2
The DEIR alternatives are described generally in the text, then explained in a detailed, comparative fashion in Table VI.1.

DEIR pages II-10 to -14 describes the programmatic nature of the DEIR and its relationship to future projects. The DFMP contains both general planning elements and specific proposed projects. The programmatic nature of the DEIR focuses on planning documents that generally contain a lesser level of detail than that found for an individual project. The DEIR examines a series of potential future projects that are geographically similar, carried out under the same authority, and have similar environmental effects and are mitigated in similar ways.

For the DEIR, spatial comparison of Alternatives was not conducted beyond the first decade given the speculative nature of the precise location of land management activities in space and time under any particular Alternative. Where supportable, spatial analysis was conducted using harvest units and prescriptions identified for Alternative C1 over the first ten year planning period. Retention or removal of Alternative C1 harvest units and/or change in harvest prescription was done for each Alternative to spatially characterize each Alternative for the Wildlife and Wildlife Habitat Analysis (See DEIR page VII.6.6-216 Spatial Pattern Analysis for Species of Concern). The DFMP included maps (figures 5 and 7) that illustrated attributes of Alternative C1. In the DEIR the spatial attributes for action alternatives were included (Map Figures D & Z) as well as the alternative with spatially unique attributes, (F) was included, (Map Figure AA.) The RDEIR included Map Figure 1 to illustrate Alternative G.

Response to Comment 3
The comparison tables were developed to demonstrate similarities as well as differences between Alternatives. Consistent with CEQA guidelines, CAL FIRE evaluated a broad range of alternatives and used a matrix to summarize the differences among alternatives (Guidelines § 15126.6d). The impact levels used to characterize effects are required in environmental impact analysis reporting. While the check-boxes alone may appear to provide a somewhat coarse (but CEQA-compliant) ranking, the text within the tables provides finer-grained information about the performance of the various alternatives at addressing potential environmental impacts. Further discriminating information about the alternatives can be found in the text portion of the various impact analysis sections.

That there are only relatively minor differences in identified impacts after mitigation and management measures are incorporated is a positive result and not an indication that significant

impacts were not identified or ignored. Alternatives that are at the extremes of the spectrum of management activities will exhibit clear differences. Management activities that are more conservative or closely related on the spectrum will exhibit differences that are less distinct.

Apparently, the commenter used the comparison tables to inform the very analysis conducted by the commenter to identify the “highest performing alternatives” thereby demonstrating the utility of the tables. There is no CEQA requirement that the proposed project be environmentally "highest performing" than any of the Alternatives; either before or after mitigations are applied. CALFIRE identified Alternative E as being the "Environmentally Superior Alternative" (DEIR page VI-13).

Differences in alternatives’ goals and values are compared clearly and in detail in DEIR Table VI.1, which runs some 38 pages. The impact comparison tables at the end of each resource analysis section clearly compare (with check-boxes and text) the impact differences among the alternatives.

Response to Comment 4
The wide range of background information, varying at times in its detail or spatial comprehensiveness, is reflective of the information that was reasonably available for use in the DEIR. Taken as a whole, however, this information provides a robust picture of the aquatic resource conditions on JDSF, the larger watershed cumulative effects assessment area, and the broader regional setting. One intent of the DEIR was to provide the reader with a regional context that could then be applied specifically to considerations of JDSF. Threatened and endangered salmonids are of significant public concern. The Aquatic Resources section was arranged purposefully to respond to judicial direction to explicitly improve upon the setting section with additional information of a regional context. The section is arranged to examine the topics of habitat, populations, and the regulatory environment first at a regional scale, and then at the local scale of the JDSF ownership and adjacent ownerships. For example, section 6.1.2 provides a regional overview of aquatic habitat conditions followed by section 6.1.3 describing aquatic conditions within the JDSF ownership and by section 6.1.4 which examines aquatic conditions on adjacent watersheds and downstream areas. Similarly, section 6.1.6 examines salmonid population status in a regional context, followed by section 6.1.7 that examines fish distribution and status on JDSF proper. Finally, section 6.1.11 describes elements of the state and federal regulatory environment that guide JDSF management, followed by section 6.1.12 that describes specific regulatory and other specific management measures already incorporated in the JDSF management plan. Addressing aquatic resource setting issues at multiple scales for a programmatic EIR is clearly complex. That complexity was recognized early on and the DEIR aquatic resources section organized to minimize reader confusion. See also response to Comment 1.

Macroinvertebrate population composition and density is frequently considered as a measure of overall stream biological condition. That macroinvertebrates can be a useful indicator of overall stream condition is well known. However, one issue relative to their use for this purpose is the wide range of stream conditions occupied by species within the same family. The wide range of environmental conditions represented by macroinvertebrates that are not keyed to species and the general lack of macroinvertebrate data across JDSF and the cumulative effects assessment area led to the use of other metrics.

Response to Comment 5
The commenter does not specify which topics have “important omissions,” making a reasoned response difficult. Regarding the specific examples provided by the commenter, they are recognized in the DEIR. The DEIR focuses on riparian shading as an important determinant of stream temperature because it is the principle driver that can be influenced by management activities. A comprehensive review of stream temperature is provided in Appendix 12 of the DEIR. This includes a discussion of the implications of the research presented by Bartholow (2000). Appendix 12 (page 1) specifically identifies upland vegetation as a factor in stream temperature. The Mattole River watershed has experienced a marked increase in acreage

converted to early seral stages of forest development since the 1940s. Accepting the hypothesis that ground-water temperature increases with the extent of early seral acreage, it is likely that project-associated effects would result in a decrease in ground water temperature on JDSF, since the proposed Administrative Draft Final Forest Management Plan will increase the area of later seral stages on JDSF. Site-specific results of extensive (>50% of watershed area) even age harvests specifically at JDSF in NF Caspar resulted in small, temporary increases in temperature that were within the tolerable range for coho salmon and steelhead (DEIR VII-6.34).

Regarding monitoring of hillslope conditions, stream channel conditions, stream temperatures, and fish and amphibian populations, Chapter 5 of the DFMP or ADFFMP provide further details, beyond the information provided in the DEIR, on monitoring plans for each of these areas and more.

Response to Comment 6
The commenter is apparently basing his concerns and observations only on review of DEIR Section 6 (Biological Resources), and more specifically Section 6.1 (Aquatic Resources) as a stand alone watershed assessment. DEIR sections VII.7 (Geology and Soils), VII.10 (Hydrology and Water Quality), VIII (Cumulative Effects), Appendix 10 (Peak Flow Analysis), Appendix 11 (Sediment Studies), and Appendix 12 (Stream Temperatures), also provide important watershed analysis elements for JDSF and informed the evaluation of project impact. Given the complexity of watershed processes and aquatic ecosystem functions, it was necessary to both integrate and split the various resource analysis elements. The basic conclusion reached by the analysis and independent research reported in these sections is that aquatic conditions are not “continuing to degrade” but are improving and are expected to continue to do so.

Response to Comment 7
The relative value of certain watersheds found on JDSF to the sustainability of coho in a regional context is acknowledged in the DEIR. The distribution of coho salmon is illustrated on DEIR page V-16 (Environmental Setting). Similarly, the value of JDSF as a provider of important aquatic habitat for coho and other species is noted on DEIR pages V-29 (Environmental Setting), VII.6.1-2 (Aquatic Resources), VII.6.1-31 (Habitat Suitability Overview), VII.6.1.53-64 (Regional Salmonid Population Status) and VII.6.1.85-87 (Critical Habitat). The commenter’s own GIS analysis (Strittholt et al. 1999) to identify focal areas for redwood ecosystem conservation was used in the DEIR and provides information on the relative condition and intact nature of JDSF watersheds in a regional context (DEIR pages V-26 to -29 and VII.6.6-26 to -28).

Another example of how the DEIR identifies watersheds with high value for fisheries is found in section VIII.7.1 of the DEIR. Here, a GIS model is used to identify watersheds with the best riparian habitat indicators and the lowest sediment delivery potential. This model provided one indicator of the watersheds within the cumulative effects assessment area with some of the best potential habitat conditions for salmonids.

In addition to the programmatic measures provided in the DEIR/RDEIR and ADFFMP, forest management activities that are conducted in a “stronghold watershed” or other area of recognized importance to salmonids would be provided protection on a site- and project-specific basis that may exceed programmatic requirements. These protections would be commensurate with the resource values requiring protection and would be determined following a detailed analysis of potential impacts. Project and site-specific management planning is part of a tiered approach to environmental review that will result in greater detail and identification of potential impacts and mitigation.

Response to Comment 8
The commenter does not recognize the evidence provided in the DEIR analysis that ecosystem processes on JDSF and adjacent ownerships are in a state of recovery, and recovering at a rate that is greater than that added by expected future disturbance (Section VIII Cumulative Effects). That adding new stressors to already compromised systems results in a net negative is broadly

recognized where that system is in a state of decline. The aquatic environment on JDSF and surrounding ownerships is considered to be improving under current management. The degree of impact associated with new and added stressors was determined to be markedly less than the net effects of natural recovery processes and the application of proposed mitigation and management measures to protect and enhance aquatic values.

Response to Comment 9
See response to Comment 7 regarding the programmatic nature of the DEIR. The California Environmental Quality Act (CEQA) provides direction regarding the examination of negative and positive influences of land management activities. The DEIR clearly addresses a broad range of resources that are potentially affected by timber harvesting and other management activities. One of the primary functions of the Demonstration State Forest is to examine the potential conflict between timber management and other resources.

The broad range of alternatives considered in the DEIR and the detailed analysis of their potential environmental effects provides a clear evaluation of the tradeoffs between various levels of forest resource utilization (e.g., annual average harvesting levels ranging from zero to 36 million board feet per year).

Response to Comment 10
The central thrust of the comment appears to be the identification of the need for a monitoring and adaptive management approach for JDSF. Chapter 5 of the DFMP or ADFFMP provides information on the extensive monitoring and adaptive management approach for the Forest. This approach will provide the information needed to evaluate, over time, the changes in environmental conditions on the Forest, thus providing an opportunity to validate the environmental impact conclusions made in the DEIR and RDEIR. Where departures from anticipated environmental indicator values are found, steps will be taken to identify and address the causes for the departures. To the extent feasible, a GIS will be use to store, present, and evaluate the monitoring information that is collected over time.

The commenter does not articulate a specific concern regarding the need for “spatially explicit underpinnings for managing JDSF.” We do not believe that “spatially explicit underpinnings” are missing from JDSF management. The commenter’s contention that data must be spatially explicit to inform management decisions is not supported. The DEIR went to significant lengths to avoid the speculative interpretation of available data “that in all likelihood will later be found to be grossly inaccurate…” whether those data were spatial or non-spatial in nature.

With respect to the level of GIS-based analysis already included in the DEIR, see the response to Comment 2 and other comments below. Where spatial information existed and was not considered overly speculative, a spatial analysis of Alternative impacts was conducted. For example, see DEIR Pages VII.6.6-216-240 Spatial Pattern Analysis for Species of Concern and DEIR Pages VII.7.1-43 Geology and Soils.

Response to Comment 11
For rare plants JDSF has both a GIS layer and list of occurrences on JDSF**.** CAL FIRE provides all new CNPS list 1& 2 occurrence information to CNDDB so that this information can be formatted in a standard manner and shared. JDSF has draft quality floristic lists for upland areas of the forest that could be affected by timber management. For individual projects the information has varied historically from full floristic lists to general descriptions. JDSF also maintains plant lists from several research projects focusing on plant occurrence and ecology.

Species survey requirements for plants are described in the RDEIR page II-38 and in the ADFFMP. The survey process will include pre-harvest qualitative surveys (DFG 2000 Protocol). Monitoring is also described in Chapter 5 of the ADFFMP.

Response to Comment 12
The definitions of the terms "late seral" or "late successional" are broadly recognized to include both mature and old-growth forests. Current "old-growth" forest stands are identified and mapped in the planning process. The late-successional development areas are described in the ADFFMP (Chapter 3): "Late seral stands are dominated by large trees and have multiple canopy layers, relatively few trees per acre, and substantial amounts of large, down wood". In addition, individual old-growth tree characteristics are defined. "Late successional" or "late seral" as used in the ADFFMP when referring to late-seral development areas is meant to identify those forest stands that will be managed toward those conditions. The intent of the language used was, in part, to avoid confusion with current identified and mapped "old-growth" stands on JDSF that are recognized by the public.

It is not determinable what proportion of late seral (successional) stands would be considered "mature", "over-mature", or "old-growth" over the 100-year planning period and within the designated recruitment areas given the forest structure underpinnings of the terms definition and their related positions along the continuum of forest development-- although all of these forest conditions can be represented in the more general "late successional stage" of forest development.

The commenter discusses the broadly understood limitations of age as a basis for assigning forest acreage to a successional stage but then suggests that age is an important forest variable to map in order to evaluate Alternatives. Age is less important as an ecological variable than is structural condition (tree size, canopy closure, presence of special habitat elements etc.) in an assessment of ecological function. The latter was mapped and reported in detail which formed the basis for a habitat assessment by Alternative. The US Forest Service sought to identify ecological characteristics for a number of forest types in the early 1990s (US Forest Service. 1992. Old growth definitions/characteristics for eleven forest cover types. Pacific Southwest Region, California. Memo and report compilation from Regional Forester Ronald F. Stewart, Director, USDA Forest Service Pacific Southwest Experiment Station, to Forest Supervisors, Albany, CA. June 19, 1992.):

> Successional stages are most often recognized by structural characteristics such as size of trees, distribution of tree sizes, presence and size of snags and logs, understory composition and heterogeneity, and horizontal diversity in structure. Late successional forests in general contain trees that are large for their species and the site, often a variety of tree sizes, large snags and logs, and a developed and often patchy understory. While the structural features of late successional forests, or old-growth, are generally recognizable, a myriad of community and ecosystem interactions (or functions) may also be diagnostic but are more difficult to measure and describe.… Stand age is often considered less important than structure in describing late successional forests because the rate of stand development depends more on environment and stand history rather than age alone.

Stand age can be roughly estimated from harvest history maps kept at JDSF. However, the results should be considered only as an estimation, because some relatively historic harvest operations were not mapped, and other non-harvest events that impact stand development (e.g. stand replacement fires) have not been recorded. The CWHR maps provide a better description of stand conditions than an age-based map.

Response to Comment 13
The DEIR recognizes the regional conservation value of old-growth retention and recruitment and clearly describes the effort to meet this long-term management objective. The ADFFMP provides for:

- Protection of all old growth groves and aggregations;

- Creation of a contiguous 6,803-acre Older Forest Structure Zone, extending across much of JDSF from west to east and north to south, composed of older forest structure development area, old growth reserves, and late seral development areas;
- Management of riparian zones on Class I and II streams for the development of late successional habitat and the recruitment and placement of large woody debris;
- Upper Russian Gulch/Lower Big River (1,549 acres) designated as a late seral development areas for Marbled Murrelets and their habitat and
- Designation of most the Woodlands Special Treatment Area (2,207 acres) for late seral development;
- Overall, designation of one-third of the forest for maintenance or development of a range of older forest conditions.

Response to Comment 14
The commenter may be confusing the application of two different habitat data sets. Table VII.6.6.1 is found in the Regional Setting section and uses the California Wildlife Habitat Relationships System (CWHR) to describe extent of habitat types. In order to provide a relative comparison of habitat types for JDSF and the region in general a common and regionally derived vegetation coverage was necessary. FRAP Veg was utilized for this purpose and reference to the mapping methodology used is noted in the footnote DEIR Page VII.6.6-2.

Table VII.6.6.18 describes the extent of CWHR habitat types on JDSF derived from vegetation mapping and forest plot sampling. The habitat type mapping completed at the scale of JDSF was used for alternative analysis and wildlife habitat relationship modeling. Locally derived data were utilized as the preferred option wherever possible.

Contrary to comment, CWHR was explicitly developed to be applied to areas of the size of JDSF and its larger assessment area. The limitations, benefits, and assumptions inherent in a variety of wildlife habitat relationship modeling tools were considered prior to application to alternative analysis. The CWHR was judged to be the best modeling system available to examine trend in habitat capability for as many terrestrial vertebrates as were likely to occur within the project area. As required, ancillary data and occurrence records specific to JDSF were also utilized to refine species occurrence outputs of the CWHR model.

CWHR is the most comprehensive wildlife information system for vertebrates in California today -- containing life history, geographic range, habitat relationships, and management information on 692 species of amphibians, reptiles, birds, and mammals known to occur in the state.

Development of the CWHR System started in the late 1970s. The California Interagency Wildlife Task Group (CIWTG) was formed in 1981 to provide guidance for system development, with a final Memorandum of Understanding (MOU) signed by sixteen total state and federal resource agencies and public universities in 1985. CIWTG continues to meet quarterly on scientific research and policy issues related to CWHR. The System represents nearly 30 years of work by wildlife biologists, vegetation ecologists, geographers, land managers and planners, computer programmers, Geographic Information Systems (GIS) analysts, statisticians, modelers, database managers, research writers, and wildlife artists working in a wide array of public and private organizations devoted to resource protection.

There are currently approximately 900 professional users of the CWHR System, representing biologists, environmental scientists, researchers, and land managers from public and private organizations throughout California.

The CWHR System is managed by professional biologists and GIS analysts in the Biogeographic Data Branch (BDB) within the California Department of Fish and Game (CDFG). BDB actively

acquires, integrates, improves, and distributes biological resource data sets in support of conservation needs. CWHR represents its most analytical tool, predicting species presence based upon geographic location and habitat conditions. It complements data representing wildlife sightings, such as the California Natural Diversity Database (CNDDB), because it predicts the presence of species in locations or habitats where they are likely occur but for many reasons have not been seen. Many species are difficult to detect and many places in the state have not been surveyed often for wildlife. A model such as CWHR can alert land managers to the potential presence of a species that may otherwise be missed in a resource assessment based solely upon wildlife surveys and databases of positive wildlife sitings.

The DEIR recognizes some of the complexities of using CWHR modeling, especially for late seral habitat. (VII.6.6-19).

Response to Comment 15
See response to Comment 14. The CWHR model is clearly described as are important model assumptions. The comment does not suggest an alternative modeling approach that would provide more accurate results nor is it specific regarding the habitat or species predictive error that leads to an “extremely unreliable” conclusion.

Response to Comment 16
The Board believes that non-spatial CWHR model outputs provide a reasonable assessment of trend in habitat capability (as derived from reproduction, foraging and cover requirements) for a wide range of species potentially occurring in the project area. The CWHR model considers all habitat types and stages used by the terrestrial vertebrate species expected in the project area. However, the Board recognized the inability of the CWHR model to explicitly report which habitat type and structural characteristics were primarily responsible for the modeled change in habitat capability and made model output adjustments to capture that information. Habitat type and structure changes responsible for marked change in species habitat capability are described for many taxa and for each Alternative.

CWHR is a non-spatial model and as such should not be expected to provide insight into a spatial evaluation of Alternative impacts. A spatial representation of habitat capability was developed using the BioView model described on DEIR Pages VII.6.6-219-221. See also response to Comment 17.

Response to Comment 17
The limitations and assumptions associated with the spatial representation of Marbled Murrelet habitat are clearly described on DEIR Page VII.6.6-78-79 and Page VII6.6-238-239. This species requires very specific forest stand and individual tree characteristics that are not readily mapped or captured with the CWHR habitat classification system. It would be incorrect to assume that the species specific habitat issues identified by the commenter and reported in the DEIR for the potential Marbled Murrelet habitat map (Map Figure R) would also extend to the other species that were considered in a spatial context in the DEIR.

The following explanation can be found on pages VII.6.6-78 to -79 (Marbled Murrelet):

> In addition to old-growth stands, other forest stands of various CWHR classes may provide suitable habitat in the form of single or small groups of large old-growth residuals. However, specific data is not available. Therefore, for purposes of this analysis, JDSF provides 459 acres of old-growth and numerous scattered residuals that are considered potential murrelet habitat (DFMP Appendix V, Table 2). The suitability for Marbled Murrelets would depend on the specific characteristics of the stand, including the presence of mature trees with large branches, deformities, and other formations that provide nesting platforms. For this analysis, these habitat types are used to represent potential habitat for

Marbled Murrelets, although it is important to recognize that many of these stands may not provide suitable habitat.

Recognizing the limitations of the CWHR system, and limitations associated with available survey for murrelets and other species, it is possible and even likely that some of the stands identified as being either suitable or unsuitable for any given species may not be correct. In the absence of field assessment and survey at the stand level, it is impossible to state with certainty that a given habitat area is suitable or not suitable. CAL FIRE may not "take" the marbled murrelet. Prior to the conduct of projects that propose to impact potential marbled murrelet habitat, an assessment of impacts must be conducted, including survey for the species. In the case of identifying potential future murrelet habitat for management purposes, it should be recognized that the assessment can serve only as a rough indication, and that further, more detailed analysis, is required at the project level.

Marbled Murrelets are known to nest inland at distances similar to that of James Creek in eastern JDSF. James Creek is approximately 17 miles inland and is similar to the greatest distance from the coast for 10 murrelet nests reviewed by Hammer and Nelson (17.34 miles) (See DEIR Page VII.6.6-75). However, the commenter is correct in the generalization that forest stand occupancy likely decreases with distance from the coast. This relationship is described in the Marbled Murrelet species account in the DEIR. Recovery Zone 5 that includes Mendocino County extends inland for a distance of 25 miles from the Pacific Coast.

The spatial pattern analysis conducted for species of concern did not utilize the FRAP Veg database as asserted by the commenter. JDSF Veg (2004) formed the basis for a distribution of CWHR habitat types for the analysis. JDSF Veg differentiates vegetation conditions to a greater degree than the habitat classification system and so cannot be used within the CWHR system to estimate the value of the habitat for various species. This is why the JDSF vegetation types were converted to CWHR habitat types. Map Figure 8 in the Draft Management Plan uses an older, less accurate vegetation coverage than that which was used in the DEIR (JDSF Veg 2004). Map figures J and K of the DEIR use the 2004 JDSF Veg for polygons within the forest boundary. Mendocino Redwood Company (MRC) vegetation polygons were used for MRC lands, and CALVEG was used for the remaining areas outside the forest boundary. It was CAL FIRE's intent to use the best available data even though it originated from several sources. JDSF and MRC vegetation layers were used because they were created in 2004 by foresters using aerial photos and field surveys and were considered more accurate than remotely sensed data based on the older satellite imagery.

Response to Comment 18

The habitat relationship model results from the CWHR System are considered the best available for the purposes of a programmatic DEIR. See response to Comment 14. CWHR produces a non-spatial characterization of habitat capability. BioView, a model developed by the California Department of Fish and Game, was used to illustrate habitat suitability for the eight species in a spatial context after consultation with the Department of Fish and Game. This model is described on DEIR Page VII.6.6-220 to -221 and a URL provided for additional information. There are limitations with any modeling approach. The model allowed an objective evaluation of the amount and configuration of habitat available under each alternative for each of the eight species.

Response to Comment 19

CAL FIRE, after consultation with the Department of Fish and Game, selected 6 landscape measures to apply to each of the 7 Alternatives and for each of the eight species. The six measures were chosen for a variety of ecological and reporting considerations, including relative ease of understanding by the reviewing public. In addition, many of the FRAGSTATS metrics are highly correlated and the additional reporting of all FRAGSTATS metrics would not necessarily result in new or better information (DEIR page VII.6.6-28-33).

Response to Comment 20
The Board used the best data available for a spatial assessment conducted at the scale reported. The degree that inputs to the Spatial Pattern Analysis for Species of Concern are "spatially coarse" and "largely unreliable," as asserted by the commenter, is a species-specific determination.

That the spatial data generated are coarse is recognized. However, precise and spatially fine-grained analytical findings were not sought. The intent of the spatial analysis was to report the relative magnitude of differences between commonly used landscape metrics for each of the selected species under each DEIR Alternative. A key assumption, as indicated in the DEIR, was that all else being equal, a marked change in landscape metrics could, when viewed in the aggregate, indicate an important trend in habitat suitability as a result of Alternative implementation. Such a finding would require additional review of possible impacts and mitigation or management measure development..

Response to Comment 21
The limitations and uncertainties of the modeling approach are described in detail on DEIR Pages VII.6.6-216 to -221, including mapping resolution, minimum mapping unit, and home range size. The commenter is not specific as to which species are not considered at the appropriate scale. The analysis does not assume that each species will respond in the same way as suggested by the commenter. Habitat suitability values are species-specific and derived from the reproduction, foraging and cover values a species finds for a particular CWHR habitat type and structure. The mapped polygon is then categorized as to suitability for that species. In other words, what is considered fully suitable for one species may be determined to be of low value for another species.

Response to Comment 22
See response to Comment 19 and Comment 20. The DEIR followed a coarser more general analytical approach than that presumed by the commenter. The DEIR sought to examine for each species of concern the relative change in simple landscape metrics across all alternatives. The DEIR did not attempt to speculate on the ecological functionality of metric values derived for each species of concern by alternative beyond basic landscape ecology principles. For example, as described on DEIR pages VII.6.6-216 to -221, species preferring interior forest conditions and larger blocks of habitat closely spaced on the landscape would likely be better served by one alternative over another. Any alternative may well meet the spatial habitat requirements of a particular species over time, the objective of the analysis was to rank or group alternatives for each species using the metrics selected.

The relative ranking of alternatives as a result of the spatial analysis was summarized for the reader on DEIR Pages VII.6.6-237-240. This includes species-specific information. Habitat relationships for each species of concern were described in detail for each species of concern in the species accounts, DEIR Pages VII.6.6-44-110.

Response to Comment 23
Individual planning units or watersheds were not used as the analytical landscape for a variety of reasons. First, for several of the species examined, individual home range and proportion of the landscape used by the population are not influenced by watershed boundaries. Second, conducting the analysis for each planning watershed by alternative and for each of the eight species of concern would have resulted in markedly more analytical effort and data of uncertain utility. Third, determining the spatial distribution of future THPs by watershed, beyond the first decade, and those silvicultural prescriptions to be applied is highly speculative. The result is a large number of possible management scenarios impossible to effectively analyze. The intent of the analysis was to provide a relative ranking of alternatives by the expected effect on widely recognized landscape metrics as guided by the habitat requirements for eight species of concern. The Board believes that the analytical objective was met.

Response to Comment 24
See responses to comment 20 and 22. No thresholds beyond the recognition of basic landscape ecology tenets were considered. Developing a threshold based on percent change in a particular metric would have been arbitrary. Note that comments 14 though 24 entail specific comments on analysis process. In responding to specific comments, the Board is attempting to explain the analysis process. Most comments do not suggest a specific flaw, rather set forth an opinion on a theoretically preferred analysis method. The comment provides no factual basis to assume that the Board failed to use adequate data inputs or analysis processes. Any analysis can only be legitimately conducted to the level of detail present in the initial data. The Board has recognized that fact, and has cautiously modeled and analyzed potential impacts.

Response to Comment 25
The JDSF DEIR and RDEIR follow the CEQA Guidelines by providing a discussion of cumulative impacts of a project (the JDSF management plan) that is both comprehensive and rigorous. The CEQA guidelines state that the discussion of cumulative effects should be "guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact" (15130b). The DEIR and RDEIR provide listings and discussion of all past, present, and probable future projects that potentially contribute to cumulative effects, which is considered one of the necessary methods for an adequate discussion of significant cumulative effects [15130 (1a)]. In addition, following the Dunne report (Dunne et al. 2001) the DEIR uses spatially specific models to evaluate aquatic habitat conditions and potential cumulative impacts from timber harvesting, roads, water flow, and water temperature (DEIR pages VIII.66 – VIII.72; Appendix 10).

The DEIR and RDEIR provide discussions of cumulative effects in multiple, appropriate places throughout the documents. Cumulative effects are addressed in a number of the individual resource analysis sections, as well as a single section that deals entirely with cumulative effects (Section VIII in the DEIR and Section IV in the RDEIR). Sections of the DEIR and RDEIR that address cumulative effects can be readily identified in the table of contents. Some cumulative effects issues are crosscutting: For example, how do sediment, stream temperature, nutrients, flow, and large woody debris combine to affect in-stream fish habitat? Such issues are appropriately addressed in integrative sections like VIII in the DEIR and IV in the RDEIR. Other cumulative effects issues are more focused on how a single impact type may accumulate over space and time, such as loss of a particular habitat type and its impacts on a species that prefers that habitat (e.g., needs of Marbled Murrelets for trees, typically old growth, with large platform branches to provide nesting sites). This kind of focused impact can be appropriately contained within a section addressing wildlife and wildlife habitat.

As a detailed example of integration of crosscutting cumulative effects in the DEIR, Section VIII.4 addresses in one place the five important "watershed products" that are the key factors for in-stream fish habitat. These are the five factors that are most often influenced by forest management activities.

Further integrative analysis is found in the use of several models and large quantities of data in the cumulative effects section VIII.7.1, Aquatic Resources, of the DEIR. For an example of how the DEIR uses a model to integrate across multiple cumulative impacts, see the discussion of Model 1: GIS Evaluation of Cumulative Watershed Effects and Recovery Potential (DEIR page VIII-66 et seq.). This model integrates the following factors across planning watersheds within the JDSF cumulative effects assessment area and yields an aquatic habitat recovery score that provides an integrated indictor of cumulative effects:

- Structure of riparian forest stands;
- Riparian shade;
- Channel characteristics;
- Road sediment;

- Density of road and stream crossings;
- Riparian road density;
- Stream temperature; and
- Timber harvesting history.

This integrative analysis in Section VII.7.1 also includes the use of the EMDS model (see Comment 29).

The table at the end of the cumulative effects section in the RDEIR, Table IV.2. Summary of Potential Adverse and Beneficial Potential Cumulative Effects, provides a thorough overview of the results of the cumulative effects analysis and the broadly-encompassing range of factors (both individual and integrative) examined. The results shown here indicate that Alternative G, the basis for the ADFFMP, would provide a large number of significant beneficial cumulative effects and no significant adverse cumulative effects.

The DEIR and RDEIR make it clear when they are addressing cumulative impact issues. When addressed in single resource area sections, cumulative impacts are typically addressed after individual impacts. Further, the impact summary sections provided at the end of the executive summaries of DEIR and RDEIR, at the end of each resource analysis section, and at the end of the cumulative impacts sections all clearly identify where cumulative impacts have been identified in the analysis.

The comment suggests that every individual impact combines with every other individual impact, resulting in an implied matrix of myriad interactions. No models exist to evaluate such a matrix. Further, interactions of impacts are in reality more limited than this. The DEIR identifies where meaningful impact interactions occur and addresses the potential for those impacts to be significant. For an example of a simple interaction, the discussion of Marbled Murrelet identifies that recreational use in areas in or adjacent to the seabird's habitat can be problematic because the food waste that recreationists often leave behind attracts corvids that also prey on Marbled Murrelet eggs (see DEIR Table VII.6.6.34, page VII.6.6-246). An example of more complex interactions is the GIS Model 1 discussed a few paragraphs above.

Response to Comment 26
The comment notes that "the dominant stressor discussed throughout the DEIR is forest management." Forest management broadly encompasses virtually all land use on JDSF and the other portions of the designated cumulative effects assessment area. Forest management includes roads (their construction, use, maintenance, upgrading, removal, etc.) and the use of chemical treatments to control vegetation. Both of these areas of forest management are thoroughly addressed and evaluated in the DEIR and RDEIR. The RDEIR finds no significant adverse impacts, cumulative or individual, that would result from Alternative G.

Forest management also includes the use of forests for recreation, gathering of minor forest products, protection of cultural resources, restoration, monitoring, collection of information about resource conditions, fire protection, and many more items. All of these forest management elements and others are thoroughly addressed in the DEIR and RDEIR. The comment does not specifically identify any relevant stressor that the DEIR or RDEIR has failed to address adequately.

Response to Comment 27
The comment expresses a simplified view of roads, road density, and associated impacts that does not reflect the variability of forest conditions. For example, while two separate watersheds may share the same road density, one may have much greater potential for impacts to watershed resources, due to the type, maintenance, and location of the roads that exist. A given length of road constructed with little excavation, located on a gently sloped ridge does not share the potential for impact of a similar length of old road constructed in the inner gorge adjacent to a

stream. An overarching consideration with respect to this comment is that fact that the ADFFMP proposes to implement an aggressive Road Management Plan that will reduce the mileage of potentially damaging roads on JDSF and reduce the sediment and hydrologic effects of the remaining roads. New road construction will follow modern construction and maintenance practices, and will be largely located on the upper slope away from watercourses. The Road Management Plan will thus reduce the current level of road-related environmental impacts, resulting in a long-term improvement of environmental conditions.

An overall average road density for JDSF of 6.0 mi/mi^2 does not in itself present a problem for aquatic resources. The road density on JDSF is in fact generally less than for other ownerships within the cumulative effects assessment area. There is unlikely to be single road density threshold that is appropriate for all watersheds. Theoretic and simulation analysis suggests that road density is a poor measure of road-related sediment delivery to the stream network. (University of Washington 2000). While sediment is produced on all forest roads used in timber harvest operations, its delivery to a stream is a function of its distance to the stream. Separation of roads from streams is an effective means of reducing sediment delivery, and JDSF has an active road abandonment program for high risk roads located near streams. CAL FIRE is committed to identify sediment sources from roads and decommissioning roads that are no longer needed or pose high environmental risk.

The Board agrees that roads can have major ecological impacts on ecosystems. The DEIR rigorously identifies the Forest's road network, to estimate its contributions to sediment production, to identify measures that will be taken to reduce road sediment, and to assess the likely effects of sediment on aquatic resources and water quality. The DEIR uses a much more objective, evidence-based assessment approach to roads and sediment than the approach that the commenter uses. In addition to reviewing the significant existing body of studies of roads and other sediment sources in the cumulative effects assessment area (see DEIR Appendix 11, Overview of Existing Sediment Studies Relevant to the JDSF EIR, which cites 55 studies and reports), the DEIR uses the widely accepted spatially explicit road sediment model "SEDMODL2" to estimate road sediment sources within the cumulative effects assessment area.

Section VII.7, Geology and Soils, presents the results of SEDMODL2 and other GIS analysis in a highly detailed fashion at the planning watershed level (see DEIR Tables VII.7.1 and VII.7.2, and Figure VII.7.1). The planning watershed level is a very robust level of spatial analysis for a programmatic EIR; for example, the planning watershed is the typical unit of analysis used for watershed cumulative impacts at the project level, such as a timber harvesting plan. The SEDMODL2 results are incorporated into the integrated cumulative impacts analysis model detailed in the response to Comment 25.

The comment expresses a specific concern that the road density information provided in DEIR Table VIII.6b is too coarse for meaningful analysis. DEIR Table VII.7.1 provides highly detailed road density information, and other road information, at the planning watershed, subwatershed, watershed, and cumulative effects assessment area level. Density information is provided for both JDSF and non-JDSF ownerships. From this table one can ascertain, for example, that road density on JDSF is generally less than for other ownerships within the cumulative effects assessment area.

The Board concurs with the stress the commenter places on the importance of roads along streams, since these roads can be very detrimental to riparian and aquatic ecosystems. As stated in the comment, sediment potential is not equal for all roads—roads within 200 feet of streams or near stream crossings have a much higher potential for sediment delivery than roads near ridgelines. Therefore, riparian road densities and crossing densities are a better index of potential impacts to streams and aquatic habitats than road densities for entire watersheds. DEIR Table VII.7.1 provides the same level of detail on riparian road miles as described previously for overall road density. Table VII.7.2 provides equally detailed information on road crossings. In addition to its use in assessing cumulative impacts, the detailed information in this

table also will be useful in helping to set priorities for implementation of the ADFFMP's Road Management Plan. For example, watersheds with the highest road sediment risk will be inventoried first. Road segments identified during the inventory process as having the highest sediment potential will be treated first.

In addition to discussing current conditions with respect to roads (which the DEIR and RDEIR do thoroughly), it is critical that the CEQA analysis discuss how the proposed project would lead to changes—to the environmental good or detriment—in those existing conditions. The DEIR and RDEIR also do this. For example, it is anticipated that implementation of the ADFFMP and its Road Management Plan will result in a reduction in the miles of potentially damaging roads on JDSF. It will result in the proper abandonment (permanent closure of roads in a way that reduces long-term sediment production, maintains hillslope stability, and re-establishes natural drainage patterns) of some road segments and the likely construction of other road segments that pose a lower level of environmental risk. Remaining roads will be improved to reduce their sediment and hydrologic impacts. Overall, the road sediment impacts of JDSF will be reduced substantially as the Road Management Plan is implemented over time. The Road Management Plan is detailed in ADFFMP Appendix IV.

The DEIR and RDEIR find that, for Alternatives C1 and G, respectively, the proposed management, with application of identified management measures and mitigations, would have:

- Less-than-significant individual or cumulative effects of sedimentation on listed aquatic species (DEIR Sections 6.1.16 and VIII.8.5; RDEIR Sections III.6.2 and IV.3);
- Less-than-significant individual or cumulative effects related to violation of water quality standards or waste discharge requirements (DEIR Sections VII.10.9 and VIII.8.5; RDEIR Sections III.10 and IV.3);
- Less-than-significant individual or cumulative impact on soil erosion or loss of topsoil (DEIR Section VII.7.6; RDEIR Section III.7).

It is anticipated that implementation of the ADFFMP will result in a net decrease in the total amount of potentially damaging road length and area on JDSF over time. This change will result in improvements in wildlife habitat conditions related to roads over time. We also note that road edge is a positive habitat value for some species. The DEIR discusses road related impact to habitat utilized by various terrestrial wildlife species (e.g., Cooper's Hawk, Marbled Murrelet, Northern Spotted Owl, Sonoma red tree Vole, southern torrent salamander, tailed frog, foothill yellow-legged frog).

The DEIR includes a mitigation to Alternative C1 to address potential project impacts, including those from roads, to snag and LWD dependent species:

> **Mitigation 1**
> Retain all snags within all timber harvest areas with the exception of snags that pose a fire or safety hazard, or are within the alignment of roads proposed for construction. The largest snags, including residual old-growth snags, should have priority for protection until the snag retention goals of the DFMP are met. (DEIR p. VII.6.6.131)

The commenter incorrectly speculates that roads significantly open the forest canopy and allow more light to reach the ground. This is an over-generalization. With the exception of main haul roads, forest roads are usually sufficiently narrow that the forest canopy closes above the road within a few years of construction. It is common industry practice to estimate no loss of growing space due to forest roads. The DEIR addresses the issue of invasive species at length. The Board agrees that the literature supports the contention that roads and roadside habitats can be invaded by a suite of exotic (nonnative) plant species, which may be dispersed by "natural"

agents such as wind and water as well as by vehicles and other agents related to human activity, and that they can adversely impact some terrestrial species (Gucinski et al. 2000). To reduce this impact, the management plan calls for implementation of an integrated weed management program (see ADFFMP Chapter 5 and DEIR sections VII.6.2 and VII.8). The risk of spread is expected to be reduced over time. Some important elements of the program will include shade management, maintenance of ground cover adjacent to roads, encouragement of revegetation by native species, and monitoring of new road segments. The DEIR and RDEIR examined and did not identify any potential significant effects related to invasive species.

Response to Comment 28
See response to Comment 25 regarding organization and integration of cumulative effects in the DEIR and RDEIR.

We note, as described in the response to Comment 25, that the cumulative effects analysis in the DEIR and RDEIR point to a number of positive cumulative effects from the implementation of Alternative C1 or Alternative G (the ADFFMP), given the various management measures and mitigations applied. The fact that many beneficial effects would result reduces the need to utilize even more fine-grained or quantitative analytical approaches than the ones already applied. Where potential impact outcomes tend to be adverse, there is a greater need for fine-grained quantitative analysis that more precisely assesses whether various quantitative thresholds might be breached, leading to likely significant adverse impacts. Given that these circumstances do not exist with respect to the proposed JDSF management, the level of analysis conducted in the DEIR and RDEIR is more than adequate to assess potential cumulative adverse impacts. Further, existing models and reasonably available data are substantially limiting in permitting a more detailed quantitative analysis than that already provided in the DEIR and RDEIR.

The DEIR discussed quantitative threshold values in many areas, these include:

- Air quality (see DEIR section VII.5);
- Stream temperature impacts on salmonids (see DEIR pages VII.6.1-15 et seq., VII.6.1-26 et seq., and Appendix 12);
- V* measurement of instream pool filling (see DEIR pages VII.6.1-21 et seq.);
- Turbidity impacts on fish (DEIR pages VII.10-7 et seq.);
- Flow effects (DEIR pages VII.10-4 et seq. and Appendix 10).
- Change in measures of species habitat capability.
- Existing snag densities and recruitment.

All items in this list of thresholds are potentially measures of cumulative effects, since each may represent an accumulation of effects within the ambient air, within a stream system, or forestland condition.

In many cases, models do not exist to specifically evaluate the effects of management activities on these parameters, especially at the level of a programmatic EIR. However, modeling used in the DEIR did specifically evaluate potential quantitative effects on stream flow, road sediment, and wildlife habitat,

The analysis made full use of the best available information and analysis methods. In addition to being limited by existing models and reasonably available data, the ability to fully conduct spatial analysis of potential effects over time is limited by the programmatic and long-term nature of the project and the EIR. It also is limited by the need to use a cumulative effects assessment area that includes substantial amounts of privately held land (77 percent of the 214,000-acre cumulative effects assessment area is owned by landowners other than JDSF, mostly private industrial timberlands). Retrospective and forward looking spatial information was used to the extent it was available (e.g., the short-term harvests identified for JDSF). Historical trends were used to generate projected average spatio-temporal relationships at the planning watershed level,

even if site-specific information was not available. For example, historical harvesting trends on non-JDSF lands were used as a predictor of future harvesting activities.

Dunne et al. 2001 state that computer models should be used to scientifically address cumulative impacts from different stressors, but no one has been able to actually develop and link all of these models for the necessary components in a comprehensive way. Perhaps the closest computer model we currently have for doing this work is NetMap, but this tool is not currently available since most of the JDSF assessment area has not been inventoried. See also response to Comment 29.

Response to Comment 29
The cumulative effects analysis in the DEIR and RDEIR goes well beyond "cobbl[ing] together whatever could be found." See responses to above comments 25, 27, and 28.

The Board and Department have experience in using the EMDS model in a collaborative context with the Department of Fish and Game and other collaborators (see, e.g., Walker et al. 2007). EMDS is used in the DEIR for the assessment of cumulative effects related to in-stream habitat quality (see DEIR pages VIII-73 et seq.). While the EMDS system has some advantages, EMDS is a sometimes elegant compromise between hard science and "arm waving." Walker et al. note a number of limitations of the model, but state that agency scientists found it useful for the in-stream reach condition form it was used in the DEIR.

No one has yet moved beyond the largely conceptual level in the development of a convincing method for transparently and comprehensively analyzing or predicting cumulative watershed effects in a single, all-encompassing model. For example, Dunne et al. (2001) provide the conceptual framework for a comprehensive risk-based approach to cumulative watershed effects assessment. They describe that "The risk assessments would be made through spatially registered mathematical simulation of watershed processes, using recently developed methods of modeling and spatial data acquisition and processing," (*ibid*. at p. 1). However, Dunne et al. describe 10 different legal, conceptual, information, knowledge, economic, and social impediments to achieving their assessment approach (*ibid*. at p. 54). They specifically note, "The implementation of the proposed modeling approach for predicting [cumulative watershed effects] will require a significant increase in our current state of knowledge, particularly of the linkages between physical watershed changes and their biological consequences," (*ibid*. at p. 59). While some progress has been made against the impediments identified by Dunne et al., the current state of knowledge and data still falls far short of what is needed to achieve implementation of their recommended approach.

Cumulative effects analysis is commonly accomplished through approaches that fall short of scientific perfection, but that nevertheless provide a level of assessment adequate to meet the requirements of CEQA. By all accounts, scientists and practitioners are still searching for better analysis methods to measure and predict cumulative watershed effects. What is presented in the DEIR and RDEIR meets the requirements of CEQA and is adequate to ensure public disclosure and protection of the environment. Modeling environmental responses to management can take a variety of forms and levels of sophistication.

Response to Comment 30
Chapter 5 of the DFMP or the ADFFMP provides the monitoring and adaptive management framework that the commenter suggests here.

Response to Comment 31
The DEIR provides information about historical management at JDSF and within the broader redwood region. Section VII.6.3.1 provides quantitative information on timber harvesting from 1949 forward for JDSF, as well the North Coast region and Mendocino County. It also provides a qualitative description of the harvesting history on JDSF and for the region from the first Euro-American harvesting in the 1800s forward. For related historical information also see, e.g., DEIR

sections III.5 through III.6.3. Historical harvesting Information also is provided in Chapter 2 of the DFMP or ADFFMP.

The DEIR provides a general understanding of how older historical management has influenced current conditions. While information on harvesting prior to 1986 is not brought in detail into the data presentation, analysis, and discussion in the cumulative effects section, it is important to recognize that the current conditions within JDSF and the larger cumulative effects assessment area reflect older harvesting activity. Extensive presentation and use of information on current conditions within the cumulative effects assessment area occurs throughout the DEIR and RDEIR. This information on current conditions provides the baseline of information from which the potential for future cumulative effects can be assessed.

Historic harvesting on the Chamberlain Creek watershed, an area specifically identified in the comment, is briefly discussed on page VII.6.3-3 of the DEIR and in Chapter 2 of the DFMP and ADFFMP. Stream temperature issues and data are covered at length in the DEIR, including section VII.6.1 in the main body and in Appendix 12. For example, with respect to the stream temperature example the commenter used for Chamberlain Creek, Appendix 12 identifies in detail the various determinants of in-stream water temperature. Table 1 in the appendix focuses on land management influences on stream temperature. Given the land use and water resource use of JDSF and other lands within the cumulative effects assessment area, the most relevant factors for water temperature in the Chamberlain Creek watershed are removal of upland vegetation and riparian management that affects large woody debris or shade canopy. Appendix 12 (starting at page 6) has a section discussing logging history and water temperature. While this section does not discuss Chamberlain Creek specifically, it provides an overall understanding of logging history and the way it influenced streams in the area. Table 4 in Appendix 12 provides information on stream canopy for Chamberlain Creek and other JDSF streams. The table indicates that Chamberlain Creek has a high degree of canopy closure (which is significantly related to stream shading), and that 95% of the stream length has 70% or greater canopy (rated as “high” canopy coverage).

Upland vegetation removal and conditions also are factors for stream temperature, as mentioned above. Table VIII.3 in the DEIR shows that the Chamberlain Creek watershed has had just 50 acres out of 7,863 acres (or 1%) harvested since 1986. The harvesting done is identified as being of a type that only partially removes the forest canopy. Given the lack of recent harvesting, the current vegetation conditions should largely reflect the influence of the longer term-harvesting history for this watershed. Map Figures K in the DEIR and 2 in the RDEIR show information about current vegetation conditions in the Chamberlain Creek watershed. Map Figure K from the DEIR uses the California Wildlife Habitat Relationships System (WHR) of classification. It shows that the Chamberlain Creek watershed is predominantly Douglas-fir in WHR Class 4 (mean tree diameter of 11-24 inches), with significant areas of redwood in WHR classes 3 (mean tree diameter of 6-11 inches) and 4. Map Figure 2 from the RDEIR provides information on the number of trees per acre greater than 30 inches in diameter at breast height. It indicates that the Chamberlain Creek watershed is dominated by stands with 4 or fewer of these larger trees per acre; with the exception of the western edge of the watershed, which has stands with up to 15 larger trees per acre. These larger trees play an important role in habitat structure for wildlife, as well as for potential recruitment into streams as large woody debris to provide a key in-stream habitat structure element.

While the discussion above goes on at some length about the Chamberlain Creek watershed, it illustrates the high level of detail of information that is included in the DEIR and how that information is used to draw inferences about the relationships among past land use, existing vegetation, and habitat conditions.

Response to Comment 32

Past research and professional experience have shown that limiting harvest to a certain percent of the basin per year to keep sediment levels or other impacts below a set level is too simplistic to

be a robust indicator of potential environmental impacts. The approach does not account for regional or watershed variability, harvest location, silviculture, yarding system, roading, etc., and assumes a direct causal mechanism between harvest and the magnitude of impact. In most cases, it is not the fact that trees were harvested, but how they were harvested, where on the landscape, methods of roading and yarding, degree of riparian protection, and other factors that determine the impact of a forestry operation (Beschta et al. 1995).

JDSF-specific research is relevant to the issue of rate of harvest and potential for watershed cumulative effects. On the North Fork of Caspar Creek, approximately 45 percent of the watershed was clearcut harvested in approximately three years for the purpose of answering these questions. Research conducted in the North Fork of Caspar Creek watershed began in 1985 and directly addressed cumulative watershed effects. Most of the logged units were cable yarded and new roads were built along the ridge lines (thus avoiding sensitive riparian areas). Nested watersheds with individual gauging stations measured sediment routing. None of the statistical tests performed on the sediment data revealed significant positive interactions that would indicate disproportionate disturbance effects at downstream gauging stations (Lewis 1998). In both pre and post-treatment, main stem gauging stations had higher unit area sediment loads than in the tributaries, which could reflect the greater availability of sediment stored in lower gradient reaches. The intensive level of timber management in the North Fork of Caspar Creek watershed also did not cause large changes in watershed physical or biological variables in this moderately stable geologic formation (Ziemer 1998, Lewis 1998, Cafferata and Spittler 1998, Nakamoto 1998, Bottorff and Knight 1996, Bawcom 2003). Ziemer (1998) states that “the effect of logging on stormflow response in Caspar Creek seems to be relatively benign. The resulting changes in streamflow do not appear to have substantially modified the morphology of the channel (Lisle and Napolitano 1998) or the frequency of landsliding (Cafferata and Spittler 1998).” The Caspar Creek results show that significant adverse hydrologic and geomorphic changes resulting from timber operations can be prevented by the application of mitigation and management measures such as those contained in the California Forest Practice Rules and embodied in the ADFFMP.

The Report of the Scientific Review Panel on California Forest Practice Rules and Salmonid Habitat (SRP Report; Ligon et al. 1999) looked at percentage-based harvest limitations and found agreement that, “it would be difficult to set specific limitations of percent harvest goal per decade due to the effect of confounding and, in some cases, mitigating factors, (page 67). The SRP did not find “any widely accepted methodology or program that quantifies the level of harvesting with either cumulative effects or flooding,” (*ibid*. at page 68). Despite such problems, the SRP suggested that a harvest limitation based on percentage of watershed harvested per decade should be considered for application on watersheds, pending completion of a watershed analysis. However, the DEIR provides a significant level of watershed analysis, thus largely eliminating the usefulness of a simple rate-of-harvest threshold.

Response to Comment 33

See response to Comments 25, 27, 28, and 29. The DEIR uses a substantial quantity of spatial and nonspatial data and a variety of models and other analytical approaches to describe current conditions and assess how future actions are likely to affect those conditions and values of interest.

The discussion of cumulative impacts found in an EIR does not need to provide as great detail as for the individual project effects and should be guided by reasonableness and practicality (CCR §15130(b)). And, the sufficiency of an EIR is to be determined in light of what is reasonably feasible and not by the exhaustiveness of the analysis and review (CCR §15151). In that this is a programmatic EIR the degree of specificity is limited, with greater analytical detail provided in support of individual site specific projects prior to their approval (CCR §15146).

Cumulative effects analysis is commonly accomplished through approaches that fall short of scientific perfection, but that nevertheless provide a level of assessment adequate to meet the

requirements of CEQA and to ensure the protection of the environment. By all accounts, scientists and practitioners are still searching for better analysis methods to measure and predict cumulative watershed effects. What is presented in the DEIR and RDEIR meets the requirements of CEQA and is adequate to ensure public disclosure and protection of the environment at a programmatic level.

Response to Comment 34
The ADFFMP provides a clear path to the improvement of ecological conditions on JDSF, and the analysis in the DEIR and RDEIR indicate that many beneficial ecological effects will result and that no significant adverse impacts will occur. These improvements will build on the many steps, documented in the DEIR, that have been taken in recent years to improve ecological conditions within the cumulative effects assessment area for JDSF. DEIR Table VIII.7 identifies 126 projects undertaken since 1991 to improve conditions related to stream sedimentation, fish passage, fish habitat, riparian restoration, or planning activities. While impressive, this list does not identify all such improvement projects.

Response to Comment 35
The DEIR provides substantial information on the regional and local ecological context for JDSF (see, e.g., DEIR Sections III and IV, and each individual Resource Analysis section). The Board believes that the ADFFMP provides a viable approach to lead "the way through demonstration and education on how to return ecological integrity to a degraded forest landscape and still maintain a steady and reliable economic return." Just one indicator of the fact that JDSF is already well along the road to demonstrating this ecological and economic balance is the simple fact that JDSF stands are so much better stocked than private timberlands in the North Coast region. Average timber volume on JDSF is greater than 40 thousand board feet (MBF) per acre; private lands in the region have an average volume of about 15 MBF/acre (Waddell and Bassett 1996). However, JDSF is public land, subject to a different set of constraints and management objectives than most private timberland holdings. None-the-less, JDSF management serves as a demonstration of sustainability under the appropriate set of conditions and management incentives.

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February 21, 2006

Re: **Review of Environmental Impact Report for the Comprehensive Update to the Jackson Demonstration State Forest Draft Management Plan, December 2005**

Dear Mr. Gentry,

Below you will find my comments on the *Environmental Impact Report* (EIR) for the *Comprehensive Update to the Jackson Demonstration State Forest Draft Management Plan*, December 2005. The following incorporates by reference all points made in my letter of comments (Higgins, 2004) on the previous release of the *Jackson Demonstration State Forest Management Plan* (CDF, 2004) and the associated *Environmental Impact Statement* (EIS). I am a consulting fisheries biologist with extensive knowledge of the watersheds surrounding Jackson Demonstration State Forest (JDSF), having completed projects on the Noyo, Big and Ten Mile rivers for the California Department of Forestry (CDF). These CD and Internet (www.krisweb.com) compendiums of information, known as KRIS projects, have been filed into the record as compact disks with my past submissions.

1 While the new EIS is sometimes encyclopedic, it does not specifically recognize the reliance of endangered coho salmon (Oncorhynchus kisutch) on JDSF and potential regional consequences of mismanagement of the State forest at this critical time.

2 Although CDF FRAP included more information on cumulative effects, sediment yield, roads, water temperature, riparian conditions, sensitive amphibians, restoration, and timber harvest, there is still a fundamental failure to deal with these subjects in a scientific, meaningful and quantitative way.

3 There is no clear monitoring program for tracking effects of management as required by CEQA nor do the *Draft Plan* and *EIS* meet that law's requirement to "emphasize feasible mitigation measures."

4 Reliance on the "functionally equivalent" JDSF Management Plan measures and Forest Practice Rules (FPRs) does not meet CEQA standards and the FPRs have been shown to be insufficient to prevent cumulative effects (Dunne et al., 2001) and the decline of Pacific salmon species (Ligon et al, 1999; Collison et al., 2003).

Overall Organization and Flaws of EIS Approach

5 The *JDSF EIS* (CDF, in press) is 1449 pages in length and is exhaustive in its coverage of issues and the range of literature that it sites. It is, however, scientifically vacuous and completely insufficient in its understanding and explanation of cumulative watershed effects. There are no clear means of minimizing risk of these effects or any quantifiable and well defined monitoring program that would guarantee positive trends in aquatic health or fish populations in concert with the suggested management approaches.

6 Although high levels of impacts are explicitly acknowledged, most are ascribed to old logging not more recent widespread clear cutting. CDF fails to prove that planned

7 actions will not cause incremental additions of pollution in already critically stressed aquatic ecosystems within and adjacent to JDSF. It seems that there has been a great deal of effort put into invoking literature and giving lip service to issues raised in previous

8 comments (Higgins, 2004), but no point made in portions of the document adjacent that explain the significance of citations or references (see Restoration below).

9 Specifically there are basic problems with scientific assessment and selective use of data that undermine the credibility of the *JDSF Plan* and *EIR* (see Temperature). Despite a substantial increase in discussion of coho salmon and a more frank characterization of

10 their imperiled status, there are no specific steps in the preferred options of the *EIS* and *JDSF Management Plan* that I would expect to lead to their recovery. CDF Fire and Resource Protection (FRAP) generated maps for the EIR (Appendices 1-14) that are very

11 attractive, but very unenlightening and in some cases colors are used that are actually misleading.

Summary Response to Range of Alternatives

12 Alternative B is to continue with business as usual under the outmoded 1984 *JDSF Management Plan*, although this option has been defeated in court and is not a viable management strategy. The EIS preferred alternative is C1, which relies mostly on protections under the California Forest Practices Rules (FPRs) for maintaining aquatic health and allowing ecosystem recovery. Numerous studies, such as Ligon et al. (1999), Dunne et al., (2001) and Collison et al. (2003), have explicitly pointed out that California

13 FPRs have failed to protect Pacific salmon species. That CDF clings to the strategy that they can devolve management back to reliance on FPRs shows that the institution is in denial. JDSF management will continue to give rise to public opposition (and likely legal challenge) unless an Alternative other that C1 is selected. The "non-management" option Alternative A is not viable because ecological perturbations are so far advanced, and the

14 ecosystem so far outside the normal range of variability, that return to good forest health through any unmanaged succession would be unlikely.

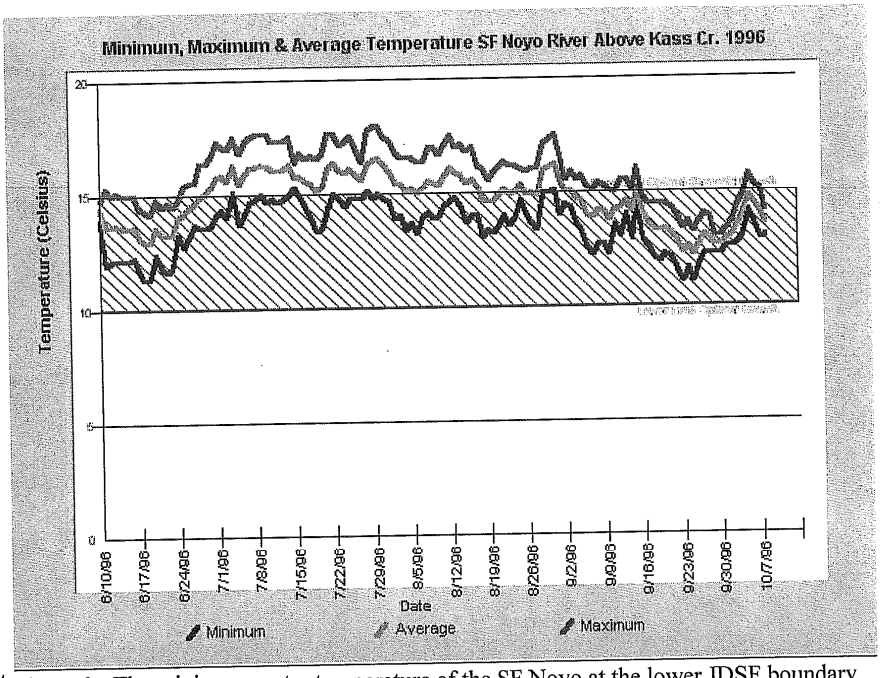
15 Alternatives C2-E would all be acceptable. Alternative E makes the most sense ecologically, since it would move upland conditions in the direction of their normal range of variability. Fish and key herpetafauna evolved in old growth conditions, with trees up to 20 feet in diameter that live for hundreds or sometimes thousands of years (Figure 1).

16 Figure 1. Early logging in the Fort Bragg area circa 1870 showing that the redwood forest before disturbance at JDSF likely had trees that were very large and hundreds of years old. Photo courtesy of the Held-Poage Historical Library and the Mendocino Historical Society. From KRIS Ten Mile.

Scientific Problems

CDF FRAP is misrepresenting or cherry picking data to minimize problems of cumulative effects or to make points that are not supported by wider data sets.

17 *Water Temperature*: JDSF owns and commonly deploys a number of automated temperature sensors that allow data to be downloaded within minutes for a whole season. CDF FRAP only used temperature data that spanned from 1996-2001, a period ending more than five years ago. CDF is claiming that there is no temperature problem on JDSF, except on James and Chamberlain Creek, when in fact my last comment letter (Higgins, 18 2004) and data from the KRIS Noyo system (IFR, 1999) shows quite clearly that both Parlin Creek and the SF Noyo at the lower JDSF boundary were over the range that supports coho in 1997 (Figure 2). Automated temperature probes were undoubtedly deployed in JDSF in the five years since 2001. This raises questions as to whether CDF omitted these data because they didn't support the hypothesis that there were no existing temperature problem related cumulative effects. Collison et al. (2003) point out that in order for management decisions to be trustable, that raw data supporting management 19 conclusions must be provided. JDSF and CDF FRAP need to provide analysis of temperature data from 2001-2005 for the Noyo and Big Rivers as part of the revised *EIS* and post raw water temperature on the Internet for use by scientists and the general public.



20 Figure 2. The minimum water temperature of the SF Noyo at the lower JDSF boundary was over optimal on some days in 1997, while maximums exceeded levels stressful to coho salmon (McCullough, 1999; Welsh et al., 2001). From KRIS Noyo.

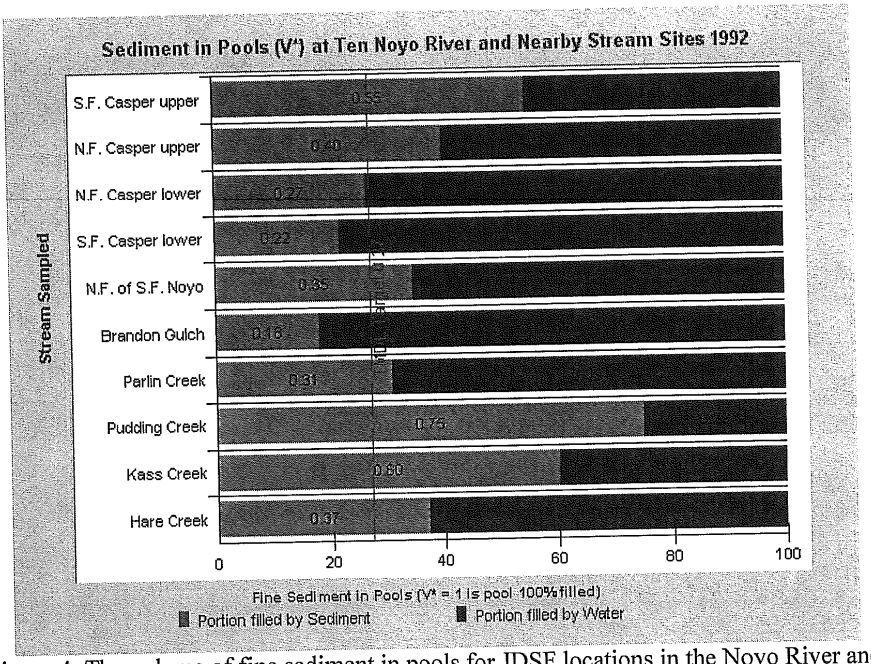
21 *Sediment Data*: CDF makes many charts from sediment data, particularly from Casper Creek, but the latter is likely not representative of JDSF as a whole. The CDF analysis of turbidity uses invalid thresholds. Sigler et al., (1984) showed clearly that levels over 25 nephlometric turbidity units (ntu) inhibit juvenile steelhead growth. CDF chose 40 ntu as the level of impact on salmonids and did not report exceedence of the more relevant 25 ntu level. As CDF FRAP revises this *EIS*, they need to use 25 ntu as the point of concern and raw data must be made available to the scientific community and the public.

22 CDF FRAP needs to collect data similar to Caspar Creek on turbidity in streams like Parlin Creek, which was logged intensively from 1994-1998 (Higgins, 2004). Methods should follow those of Lewis and Eads (2001) and JDSF samples should be compared with the same watersheds as studies by Klein (2003). Klein (2003) found relationships between disturbance related to logging and the maximum and duration of turbidity. Levels of timber harvest over 2% of a watershed per year (2% POI) lead to substantial increases in turbidity. Rates in sub-basins like Parlin far exceed this level between 1994-1998 causing sediment pollution (Figure 3) and elevated turbidity. Turbidity in Parlin and the Noyo exceed the maximum 20% increase over background allowed by the North Coast Regional Water Quality Control Board *Basin Plan* (2003).

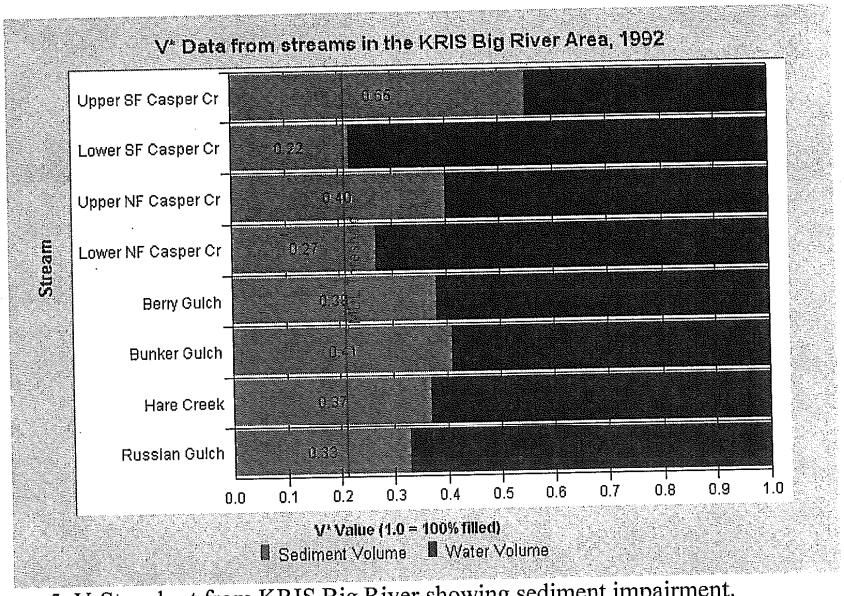
23 Figure 3. This photo shows Parlin Creek in 1999 on JDSF where large wood has been added to the stream for restoration purposes. Not also, however, the turbidity of the water and fine sediment stored at right. This deposit is indicative of recent surface erosion and transport related to logging. Photo from JDSF and CDFG. KRIS Noyo.

24 CDF FRAP failed to recognize the significance of Knopp's (1993) north coast study of streams that showed strong relationships between the volume of sediment in pools and upland disturbance related to logging. JDSF streams were part of Knopp's (1993) universe of samples of sediment in pools (Figure 4) that covered over 60 northwestern California locations. The volume of sediment in pools relative to the volume of water and sediment is the V-Star (V*) score (Hilton and Lisle, 1993). The U.S. Environmental Protection Agency (1998; 2001) has set a target of 0.21 for V* in the Noyo and Big River basins as part of the TMDL (U.S. EPA, 1998, 2002). Data from Knopp (1993) show that JDSF streams were already sediment rich according to this metric as of 1992 (Figure 5), including Parlin Creek pools that had roughly 30% (0.31 V*) of their volume filled with sediment. Data have been released for Caspar Creek that show a wave of sediment moving through the North Fork (Figure 6) in the mid-1990's immediately after widespread clear cutting in that watershed (Figure 7). It is obvious that this cost-effective tool, which requires only one day per stream per year for inventory, should be used strategically as an adaptive management tool. CDF uses sediment data like the Casper
25 Creek model to show trends, but doesn't acknowledge logging related sediment waves.

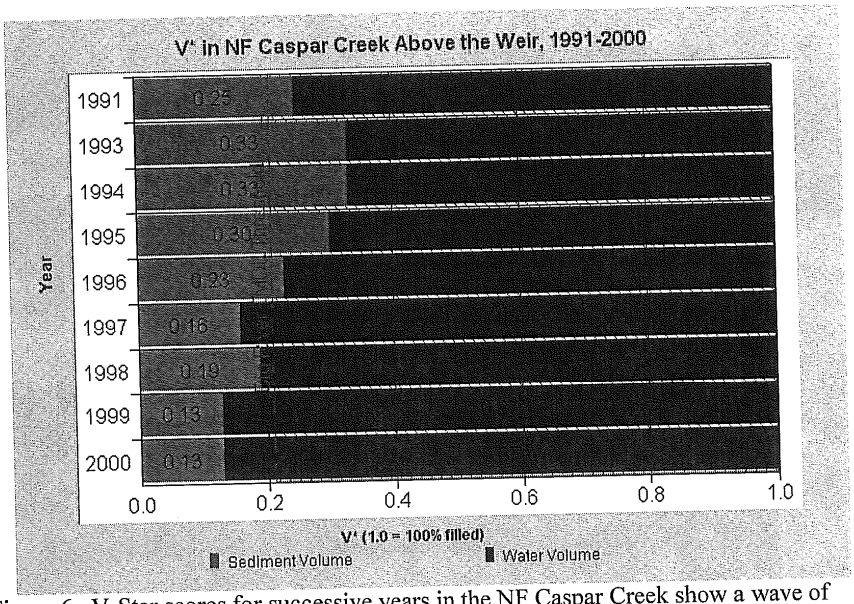
26 Habitat typing data cited by CDF and shown in EMDS model outputs are classic examples of existing cumulative watershed effects, yet the authors of the EIS fail to recognize their significance. Figure 8 shows habitat typing data for the North Fork Big River and its tributaries, including some on JDSF. Murphy et al. (1984) found that undisturbed old growth streams had pool frequencies by length of 39-67%. Pudding Creek surveys in the 1960's found 90% pools while post logging CDFG surveys found nearer 30% (IFR, 1999).



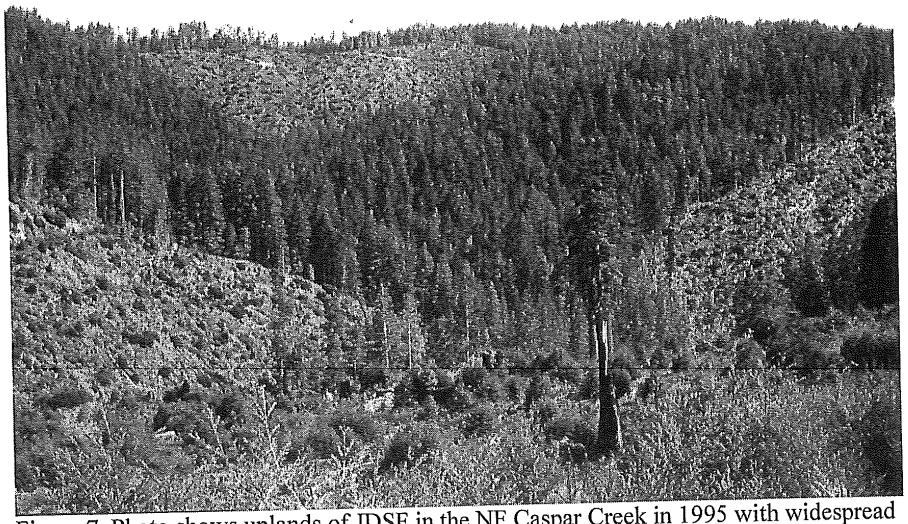
24 Figure 4. The volume of fine sediment in pools for JDSF locations in the Noyo River and nearby streams show very high V* in extensively logged watersheds like Pudding Creek.



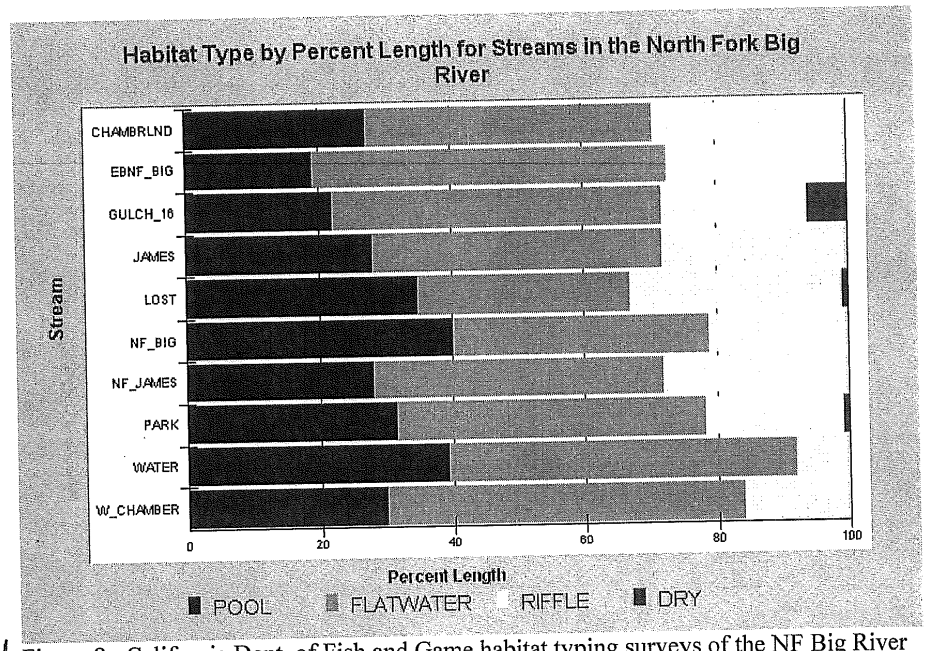
24 Figure 5. V-Star chart from KRIS Big River showing sediment impairment.



24 Figure 6. V-Star scores for successive years in the NF Caspar Creek show a wave of sediment being transported immediately after widespread clear-cutting. KRIS Big River.



24 Figure 7. Photo shows uplands of JDSF in the NF Caspar Creek in 1995 with widespread patch clear cuts in early recovery. Photo by Pat Higgins from KRIS Big River.



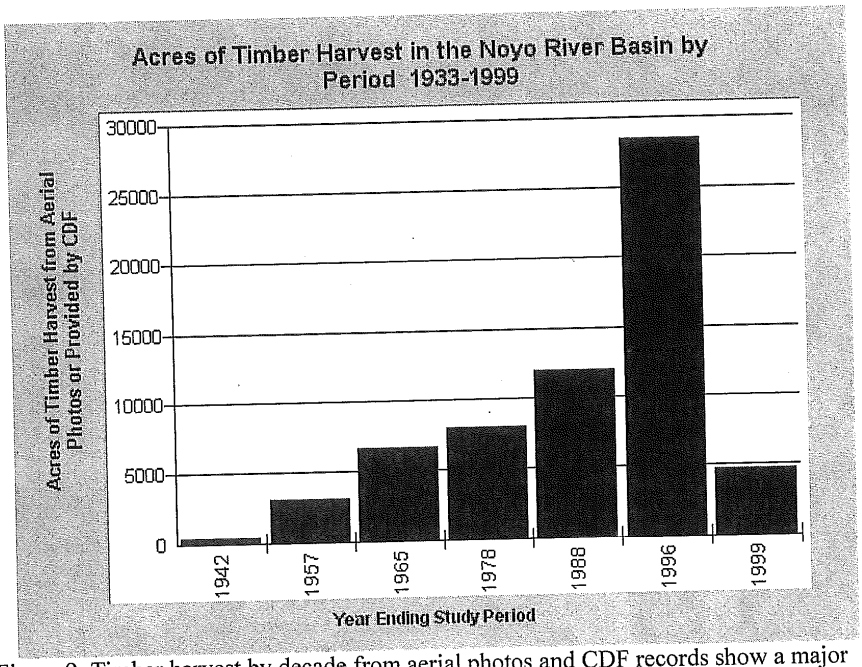
26 Figure 8. California Dept. of Fish and Game habitat typing surveys of the NF Big River show that only the mainstem North Fork and Water Creek attain 40% pool frequency. Compromised pool frequency and depth is a manifestation of sediment over-supply. KRIS Big River.

Cumulative Watershed Effects

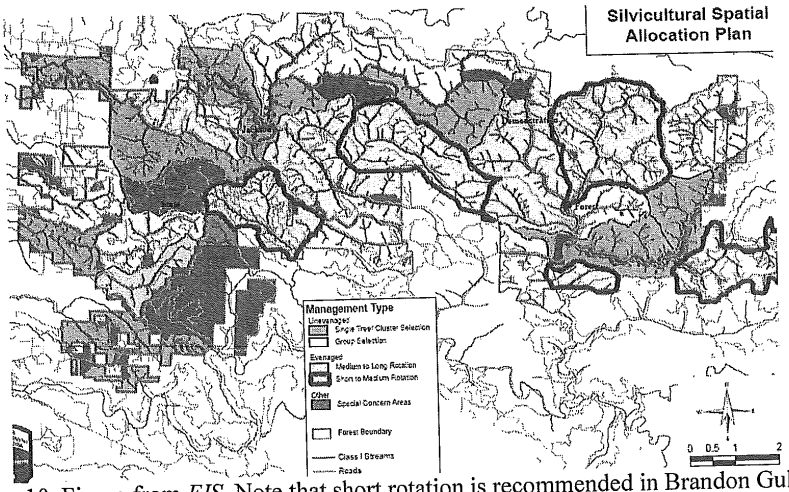
27 *Timber Harvest Data*: CDF does not use timber harvest data to quantify impacts, but rather indulges in the fantasy that all impacts are fully mitigated. Reeves et al. (1993) showed that coastal Oregon watersheds logged in over 25% of their watershed area in less than 30 years experienced major declines in salmonid diversity and abundance. Matthews and Associates (1999) showed a major increase in logging beginning in the mid-1980's and continuing to the late 1990's (Figure 9). CDF FRAP fails to discuss the significance of the impact of the increased rate of harvest. JDSF is over 50% harvested since 1986, the Noyo 75% and the Big River 62%. Some sub-basins in the region have

28 been re-entered and harvested at levels as high as 122% since 1986! The extent of cut on adjacent private lands and the previous intensive management on JDSF suggest that only thinning from below, full cable suspension selective logging and light touch forestry are appropriate for JDSF for at least the next 20 years. Timber harvest maps in the EIS show colors for management that are difficult to distinguish between short and long harvest

29 rotations, which makes it challenging to see where they are applied to sensitive ground (Figure 10).



27 Figure 9. Timber harvest by decade from aerial photos and CDF records show a major wave of logging in the Noyo River from 1988-1996 but the *EIS* doesn't acknowledge logging impacts such as sediment and temperature increases. KRIS Big River.



29 Figure 10. Figure from *EIS*. Note that short rotation is recommended in Brandon Gulch even in high risk landslide zones. Outlines in red provided by Pat Higgins.

30 *Roads*: CDF FRAP does not have a meaningful discussion on roads and their effects on flow and sediment yield. Matthews and Associates (1999) found that sediment yield related to roads in the Noyo River basin greatly increased with the most recent waves of logging (Figure 11). Despite the listing of the Noyo and Big Rivers as sediment impaired and their current pending status under Total Maximum Daily Load requirements, CDF does not deal quantitatively or substantively with roads and sediment.

31 Gucinski et al. (2001) found that "Even a well-designed road system inevitably creates a set of changes to the local landscape, and some values are lost as others are gained; for example, road density and fish populations correlate negatively over a large area in the interior Columbia basin." Bull trout disappeared in Interior Columbia River Basin watersheds that had road densities of over 1.7 miles per square miles of watershed area (mi./sq mi.) (Quigley at al., 1997). The National Marine Fisheries Service (1996) suggested guidelines of 2.5 mi/sq mi and no stream side or valley bottom roads. JDSF needs to commit to lower road densities beginning immediately, not study for 5 years and then act, and there should be an explicit goal of removal of almost all streamside roads.

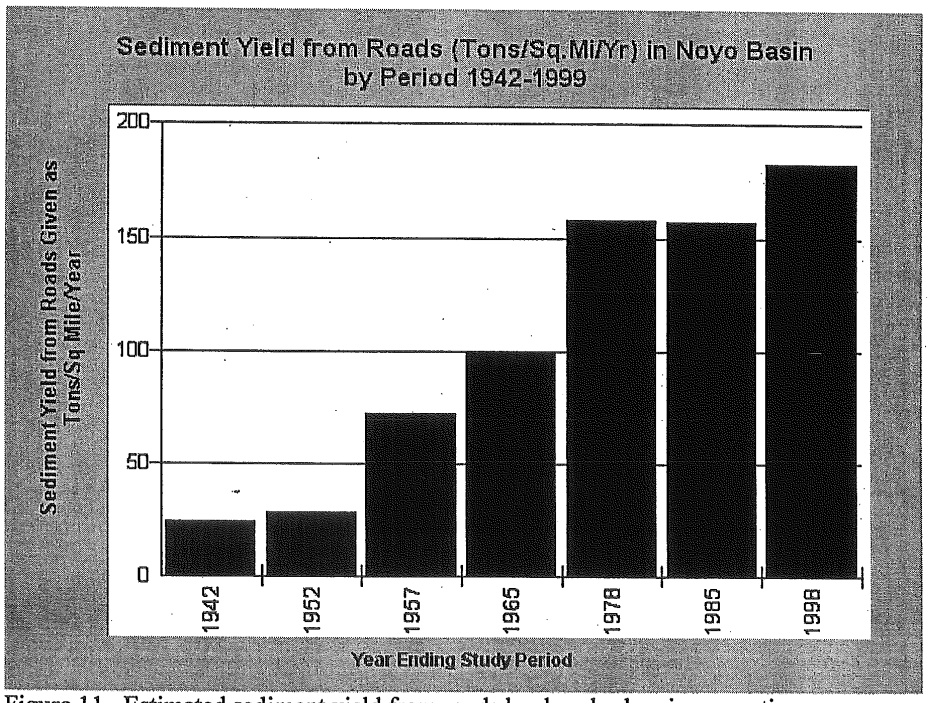


Figure 11. Estimated sediment yield from roads by decade showing a continuous increase in the Noyo River watershed associated with the recent wave of logging and road building. From KRIS Noyo.

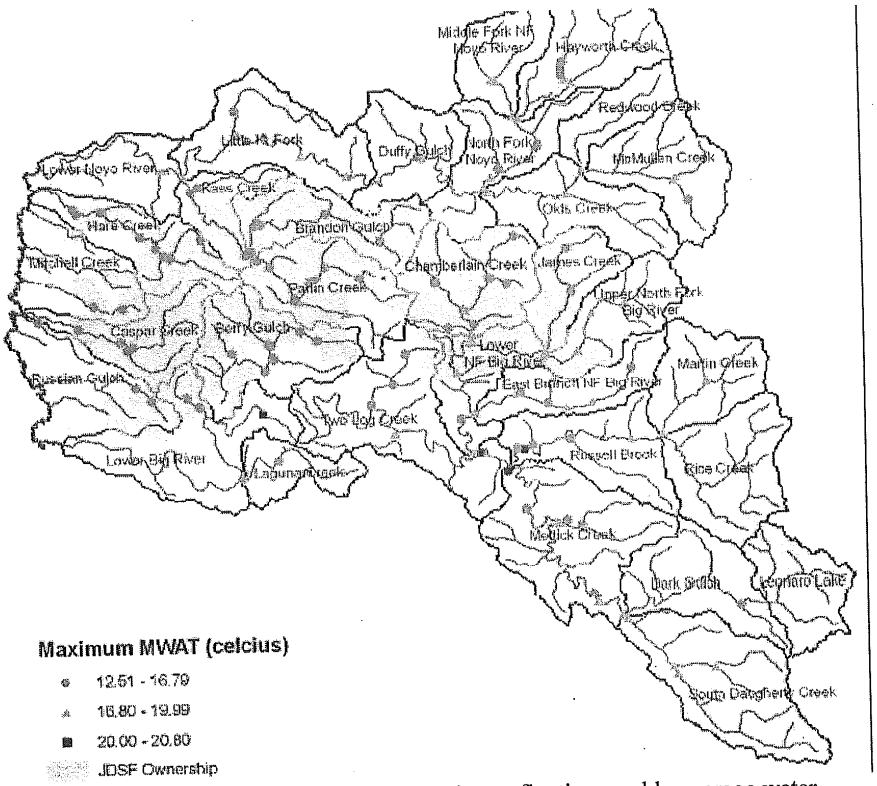
32 *Disturbance Indices Using Landsat*: Welsh et al. (2005), in a paper on the Mattole River watershed found, that conversion of uplands to early seral conditions was likely altering ground water temperatures and leading to water temperatures in exceedence of thresholds required by coho salmon and tailed frogs. CDF FRAP participates in vegetation mapping using Landsat in cooperation with the U.S. Forest Service (Warbington et al., 1998). In the revised *EIS*, CDF needs to quantify seral stages and projected recovery and succession. CDF FRAP needs to dust off the data from Keithley (1999) on riparian zones quantified by tree diameter and show quantitative charts of conditions on and off JDSF for the revised *EIS*.

33 CDF and the USFS Spatial Analysis Lab in Sacramento also have Landsat "change scene detection" that shows landscape vegetation changes by comparing two years worth of scenes (Fischer, 2003). Data for 1994-1998 for change scene are available for JDSF and CDF FRAP should run queries on how much changed in JDSF in that period and provide bar charts by Calwater Planning Watershed. Another query that CDF FRAP should run in revising the *EIS* is the overlap of changes according to Landsat with functional riparian zones that would extend be at least 200-240 feet given local site potential tree height (Spence et al., 1996), including Class II and III water courses.

34 *CWE Temperature/Sediment/Riparian Interactions*: The EIS completely ignores the relationships between the sediment problems related to logging, riparian canopy removal and increased water temperature. Chamberlain and James Creeks are hot because they have a previous history of logging and large wood removal from which they have not yet recovered. Sedimentation caused by previous waves of logging has changed the width to depth ratio to shallow and wider, which facilitates stream warming (Poole and Berman, 2001). The low pool frequency, shallow maximum pool depths and high embeddedness suggest watersheds in early recovery from past logging, not candidates for a new wave of clear cutting. Past logging and large wood removal projects on JDSF have starved streams of large wood, which in turn can reduce downwelling that can moderate stream temperature through connection with the cooler hyporheic zone (Poole and Berman, 2001).

36 In addition, CDF FRAP needs to look at temperature problems and riparian conditions and more honestly explore relationships. The excellent work by Keithley (1999) regarding restoration potential of the Big and Noyo River basins is invoked in the EIS, but the significance of its conclusions is overlooked. JDSF has the last contiguous riparian zones in the coastal redwood belt of Mendocino County suitable for coho salmon restoration. CDF ignores effects of industrial timber harvest of riparian trees in the rest of the Noyo and Big River watersheds, although their map of the pattern of temperature suitability shows widespread CWE (Figure 9). Large tree diameters in JDSF shown by Keithley (1999) are correlated to the cold stream temperatures. Restoration of coho in streams that are currently too warm to support them today are decades away from any recovery potential.

37



35 Figure 12. Map from JDSF EIS showing maximum floating weekly average water temperatures for the Noyo and Big Rivers. Only green sites would support coho salmon (<16.8 C) and there are many sites off JDSF no longer capable of doing so.

38 *Shallow Landslide Stability Model*: The Shallow landslide stability model (Dietrich and Montgomery, 1998) or SHALSTAB can be used to detect unstable headwater and inner gorge areas. IFR (1999) created SHALSTAB coverages for JDSF and the Noyo River basin that CDF should use quantitatively to show the overlap of unstable areas and management options proposed, including road building. The *EIS* points out that:

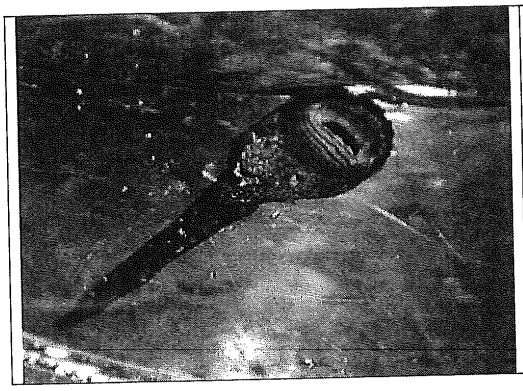
> "JDSF has a higher percentage of its area in potential inner gorge than does the area outside of the Forest. This situation is of concern because these potentially unstable areas tend to be directly connected to watercourses and have a high likelihood of delivering sediment to watercourses, if they release material due to either natural causes or anthropogenic disturbance."

The JDSF inner gorges are extremely fragile and prone to mass wasting, but logging would be allowed under Alternatives B and C1. Mapping areas with high risk and sharing

38 the data with the public is useful, although SHALSATB is only a screening tool and does not take the place of a registered geologist.

39 *Tailed Frogs*: Welsh et al. (2005) found that early seral stages conditions in riparian zones were not compatible with maintaining water and air temperatures suitable for supporting tailed frogs. In addition to the coho salmon, the tailed frog should be the aquatic keystone species for JDSF. The condition of Noyo River tailed frog populations are likely similar to those of the Mattole Basin characterized by Welsh et al. (2005):

> "The few small populations of these species now appear to be sufficiently isolated from one another by distance that they are likely nearing extinction in this watershed. These fragmented distributions are the legacy of the large-scale anthropogenic alteration of much of the watershed."



Because tailed frog larvae live for up to four years in streams adhering to rocks with a sucking disc, they are extremely susceptible to being dislodged by sediment transport. High sand supply may also scour algae from rocks, thus reducing food supply for this sensitive indicator species. Widespread timber harvest has eliminated tailed frogs from many Noyo and Big River tributaries outside JDSF.

Fish

40 There is more discussion about the dire condition of north coast coho populations than in the previous *Draft EIS*, but still no real recognition to how important JDSF is to regional recovery. Brown et al. (1994) recognized the South Fork Noyo River as one of the last adult coho populations in the hundreds from Marin County to Oregon. CDFG data on adult trends, downstream migrant trapping and standing crops of juveniles in the Noyo and other nearby tribs show poor recruitment of juveniles to adults, but that fact is never stated in the *EIR*. Steelhead show poor survival and from young of the year (0+) to yearling (1+) or two year olds (2+), which indicates poor freshwater habitat. Again CDF FRAP shows examples of data, but avoids the associated conclusion.

41 There is exhaustive discussion of life history requirements of juvenile salmonids, but no discussion of how poor JDSF habitat affects them! Fore example, coho salmon are acknowledged as needing pools in the EIS, but there is no discussion of the diminished frequency or volume of pools as indicated by V* and habitat typing data.

42 While CDF invoked CDFG data on coho presence and absence, they failed to use spatial data to show that the distribution has greatly diminished (Figure 13). JDSF streams have a higher consistent presence than streams on private land, although some year classes are weak. The EIR map of the present range of coho and steelhead masks the fact that they were much more widespread. We need to see where coho once ran and what temperature conditions are in these various locations and correlative riparian. The *Draft Plan* and *EIR* are not frank about the diminishment of range of coho and the causal mechanisms.

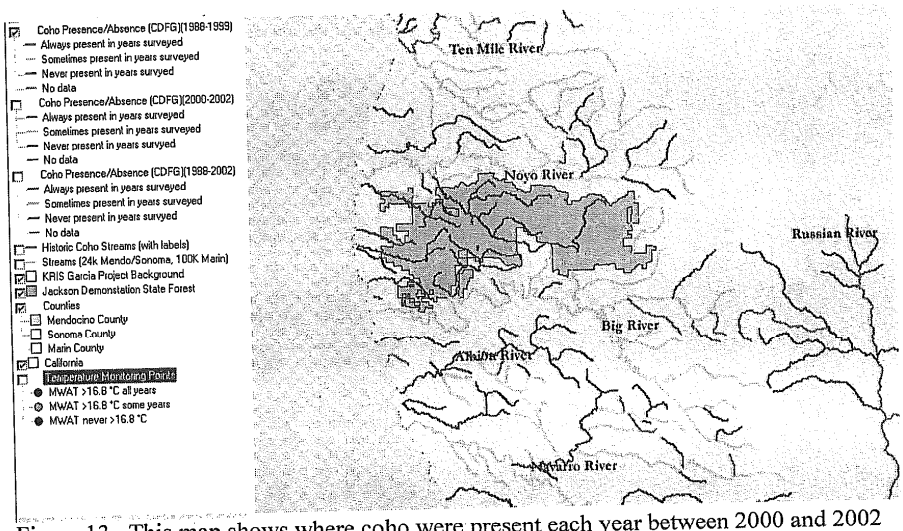


Figure 13. This map shows where coho were present each year between 2000 and 2002 on the Mendocino coast. JDSF has more consistent coho presence than most other areas indicating its importance as a regional refugia and seat of recovery for the species. From KRIS Garcia.

43 Fires before European contact would have fragmented the landscape, but would have caused nothing to mimic the last 50 years of industrial logging. JDSF should be a leader in showing how thinning from below can lead to stand release and how ecological forestry can produce commodities and truly accelerate development late seral conditions and healthy streams supporting a diverse assemblage of salmonids..

Monitoring

44 There is no commitment to measurement of tried and true water quality indicators in Monitoring section of the *Draft JDSF Plan* or in *EIS*. The documents acknowledge condition of habitat as impaired but set no time table or trajectory for recovery. The next version of the *EIR* needs to define specific monitoring parameters that are scientifically valid, cost effective and strategic. Sediment monitoring should conform to standard techniques such as McNeil (McNeil and Ahnell, 1964) or shovel samples (McHenry et al., 1994) and reference progress toward TMDL targets of <14% less than 0.85 mm and

44 <30% fine gravel and sand less than 6.4 mm. As mentioned above, V* should be used to measure trends toward recovery with a target for all of JDSF of less than 0.21. Automated temperature sensors should be arrayed in riparian zones of different streams with different seral stage conditions and recovery of stream temperature projected with models, similar to the Elk River Watershed Analysis (Siskiyou NF, 1996).

45 The Project Impacts section (10.9 *ADEIR*, Chapter 8) says: "Hydrologic and water quality impacts are considered significant if they exceed targets set by federal, state, or local guidelines." If JDSF is not strategically monitoring trends and showing appropriate protection, they are not meeting NCRWQCB or Porter Cologne requirements. There should be equivalent targets for TMDL in the *JDSF Plan* and *EIR* and an explicit time table for their being met. Such monitoring would support adaptive management and meet TMDL and ESA requirements as well as those of the NCRWQCB with regard to new THP waste-discharge requirements.

Recovery

46 There is no scientific foundation for recovery planning in the *JDSF Plan or EIS* (i.e. Bradbury et al., 1996). The *Plan* and *EIS* make the claim that JDSF has "improved in most of the resource categories" since being acquired in 1948, but provide absolutely no data to support that contention in so far as it applies to aquatic resources. Instead of recognizing a hierarchy of recovery with expected time frames (i.e. physical channel attributes followed by biological response), CDF makes statements like "Recovery of a more natural stream geometry from these substantial historic impacts will take a long time."

47 Bradbury et al. (1996) make the point that salmonid populations that are thriving and the areas of best habitat must be protected as a priority, if Pacific salmon populations are to be recovered. The *JDSF EIR* references Keithley (1999), but none of his findings are brought forward. Instead his conclusions are stood on their head:

> "Most of the planning watersheds composed primarily of JDSF lands received ratings that indicate good or moderate habitat conditions with low or moderate disturbance ratings. This outcome suggests that in the context of the assessment area, these planning watersheds may represent a lower relative priority for restoration. In addition, the expected recovery time for these healthier planning watersheds is less than for the more heavily impacted planning watersheds."

48 The patterns shown by Keithley (1999), where JDSF is the obvious center of recovery potential for salmon, is also paralleled by the Marble Murrellet Recovery maps. They both indicate that if these species are to be saved that JDSF must be managed to their benefit.

49 I hope that JDSF will change its management to:

- Increasing basal diameter of riparian zones/cool microclimate over streams,
- Accelerating growth of large trees to support terrestrial species like murrellets,
- Returning watersheds to more normal ranges of flows,

49

- Managing restoration and production of wood products secondarily,
- Inviting the community to participate in studies,
- Making JDSF a recreational Mecca for Ft Bragg residents and tourists.

Sincerely,

Patrick Higgins

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Email Letter E-26

Overall Response to Comments in Electronic Comment E-26
Many of the comments in this letter raise the issue of historic and recent land management practices as contributors toward the existence of significant cumulative environmental impacts today. These are important factors; however, it must be recognized that the intent of CEQA is the evaluation of the effects arising from proposed future actions relative to the baseline conditions that exist today, which by definition include the legacy of past practices. While the DEIR and RDEIR look extensively at the potential cumulative interaction of the past practices with proposed practices (i.e., the DFMP and the Administrative Draft Final Forest Management Plan), CEQA does not require future actions to mitigate for past effects. Nonetheless, the DFMP, Administrative Draft Final Forest Management Plan, DEIR, and RDEIR contain many elements that will contribute toward the recovery of environmental conditions within the watershed cumulative effects assessment area evaluated in the DEIR. The issue of recovery is discussed further below.

Response to Comment 1
The DEIR provides a thorough discussion of coho salmon and their use of habitat on JDSF (see Aquatics section VII.6.1). This section of the DEIR includes a discussion both of the regional setting for coho (VII.6.1-10 to -21) and the environmental setting within JDSF. This discussion largely consists of comparisons of habitat conditions both on and off JDSF (see, e.g., DEIR Figures VII.6.1.3 and VII.6.1.4 on p. VII.6.1-23).
The proposed management plan does recognize the importance of habitat conditions provided on JDSF to coho salmon. The management emphasis of promoting late seral conditions in the WLPZ areas bordering Class I and Class II streams is intended to maintain and enhance aquatic habitat conditions. The Additional Management Measure for Large Woody Debris Survey, Recruitment, and Placement, provided in the DEIR, has the same goal. Over time these improving conditions are expected to contribute to recovery and are consistent with the Recovery Goals as stated in the Fish and Game Recovery Strategy for California Coho Salmon (DFG 2004, p. ES.2).

Response to comment 2
The JDSF DEIR and RDEIR follow the CEQA Guidelines by providing a discussion of cumulative impacts of a project that is both comprehensive and rigorous. The CEQA guidelines state that the discussion of cumulative effects should be "guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact" (15130b). The DEIR and RDEIR provide listings and discussion of all past, present, and probable future projects that potentially contribute to cumulative effects which, is considered one of the necessary methods for an adequate discussion of significant cumulative effects [15130 (1a)]. In addition, following the Dunne report (Dunne et al. 2001) the DEIR uses spatially specific models to evaluate aquatic habitat conditions and potential cumulative impacts from timber harvesting, roads, and water temperature (DEIR pages VIII.66 – VIII.72).

Response to Comment 3
Public Resources Code (PRC) §21081.6 requires a lead agency to adopt a reporting or monitoring program designed to ensure compliance with the measures intended to mitigate project impacts. California Code of Regulations (CCR) §15097(b) goes on to explain that where the project is the adoption of a plan-level document the mitigation monitoring plan may consist of the policies included in the adopted plan. The final Forest Management Plan will incorporate all measures identified in the certified final EIR thus ensuring compliance during individual project implementation.

The JDSF Administrative Draft Final Forest Management Plan includes a Chapter 5, Monitoring and Adaptive Management." The approach was developed to track critical ecosystem processes that are potentially impacted by management practices. Many of the management measures

described in the Administrative Draft Final Forest Management Plan and the mitigations and Additional Management Measures provided in the DEIR are designed to protect and mitigate potential impacts from management practices. Examples of this include the no-cut zones in WLPZ areas bordering Class I and Class II streams. In addition, any mitigation measures or monitoring requirements discussed in the DEIR and RDEIR are presented with the intention that they shall be implemented.

Further, CEQA emphasizes the application of mitigation measures when analysis indicates that there is the potential for significant adverse environmental impacts. Since the DEIR analysis found few potentials for significant adverse impacts for most of the alternatives, the DEIR needs to "emphasize feasible mitigation measures" only in a limited number of instances. Table I.2 in the DEIR (p. I-10 to -25) and Table I.1 in the RDEIR summarize the potentially significant impacts and proposed mitigations for the proposed project.

Response to Comment 4

The DEIR and RDEIR provide a full CEQA programmatic analysis for the DFMP and Administrative Draft Final Forest Management Plan. They do not rely on the "functional equivalency" of the certified state regulatory program found in PRC §21080.5. Where later activities include timber harvesting, requiring the preparation of timber harvesting plans, environmental protection will be ensured through adherence to the Forest Practice Rules (FPRs) as well as compliance with the relevant sections of CEQA. However, the DEIR and RDEIR do not solely rely on the standard FPRs to mitigate the Plan's cumulative or individual effects. Rather the DEIR and RDEIR identify specific activities where the FPRs or other management practices are not sufficient to prevent significant effects and require additional mitigation to lessen those impacts. For example, the DEIR identifies a potential for impacts to snag and LWD dependant species as a result of implementing the DFMP. As such, mitigation is required, that is in addition to the standard FPRs, which mitigates this impact (Page VII.6.6-131). Even where no potential impacts are identified, the DEIR requires additional Management Measures in certain instances to ensure protection of sensitive resources (e.g., Section VII.6.2.7, Additional Management Measures for Botanical Resources).

The Dunne Report does discuss limitations in the current framework for addressing cumulative effects, but it does so with the intent of improving the review of timber harvesting plans. Consistent with the Dunne Report, the DEIR, RDEIR, and the JDSF Administrative Draft Final Forest Management Plan are designed to reduce, not eliminate the risk of further impairment of environmental resources from timber harvesting. Additionally, while the Dunn report provides considerable commentary on perceived limitations with cumulative effect analysis included as part of THPs in the late 1990s, it suggests requirements to deal with cumulative watershed impacts that would require additional budgetary and regulatory authorities. Also, all of the comprehensive computer models suggested for addressing cumulative watershed effects prediction were not, and have not yet, been developed for this type of work.

Regarding the Collison report, conclusions included were made with the panel apparently unaware of provisions in the Forest Practice Act (FPA) and FPRs that give CDF the ability to require and enforce practices that protect water quality. This report also includes criticism of FPR sections that are restatements of legislative intent in the FPA and misconceptions about the THP review process, which indicates that the Panel did not have an adequate understanding of the legal framework for the preparation, review, and approval of THPs. Therefore, many of the criticisms found in Collison and others (2003) are already addressed in the existing THP process. Finally, regarding the Ligon et al. (1999) report, while the Scientific Review Panel concluded that the FPRs did not ensure protection of anadromous salmonid populations in 1999, the current rules in effect for JDSF have been considerably expanded with the passage of the July 2000 Threatened or Impaired Watersheds Rule Package and with the additional measures included in the DFMP, Administrative Draft Final Forest Management Plan, DEIR, and RDEIR. Further, the DEIR contains cumulative effects assessment approaches consistent with those recommended in Dunne et al.

Response to Comment 5
See response to Comment 2 for a discussion on the adequacy of the DEIR to address cumulative watershed effects (CWE). Chapter 5 of the JDSF Administrative Draft Final Forest Management Plan provides a clear and well-defined monitoring program for the Forest. No monitoring plan or management plan could "guarantee positive trends in aquatic health or fish populations." Rather, the monitoring program is designed to minimize the risk of further impairment and by design the Administrative Draft Final Forest Management Plan is expected to aid in recovery of fish populations. Monitoring is used in part to track progress towards a desired goal or future condition. If monitoring shows that resource conditions are deviating from the desired condition, then an adaptive management approach is used to make adjustments to the management plan (see Chapter 5 of the Administrative Draft Final Forest Management Plan).

Response to Comment 6
Impacts from relatively recent clearcutting have been monitoring very intensely in the Caspar Creek watershed study—North Fork Phase and results have been described in depth in the DEIR as well as in numerous publications (Ziemer 1998, Lewis 1998, Lewis and others 2001, Keppeler and others 2003, Lewis and Keppeler 2004). In summary, the Caspar Creek results have shown that the impacts of clearcutting nearly half the watershed in three years were relatively benign and did not cause large changes in watershed physical or biological variables.

More broadly, Bawcom (2003) evaluated the amount of landsliding on 50 clearcut units throughout JDSF produced from 1982 to 1994. She found a total of 32 shallow seated landslides failed within the clearcut units. Of the 32 landslide failures, all but four were associated with roads, landings, and skid trails. Bawcom (2003) reported that these results suggest that there is little evidence that vegetation removal associated with clearcutting alone was a significant contributor to slope instability or reactivations of dormant landslides. Almost all of the observed landslides that delivered sediment to watercourses were shallow failures that were associated with old roads constructed decades ago. In general, this study found no increase in the rate of landsliding or initiation of movements of older landslides within clearcuts on JSDF.

Based on these two comprehensive studies conducted on JDSF, it is possible to conclude with assurance that relatively recent clearcut harvesting has not produced high levels of impacts to aquatic resources. Proposed harvesting under Alterative C1 or the proposed Administrative Draft Final Forest Management Plan based on Alternative G would treat much smaller percentages of watersheds than were treated by clearcutting in the North Fork of Caspar Creek.

Response to Comment 7
The adequacy of an EIR is not determined by whether it "prove[s]" that a proposed action will or will not result in a significant effect but rather whether it discloses the potential for significant effects and identifies feasible mitigation. Two or more experts may reach completely opposite conclusions in interpreting the same information presented in an EIR, yet the EIR may still be deemed adequate. The courts will not attempt to determine if the EIR's conclusions are correct as long as the decision that is reached is supported by substantial evidence.

The Board does recognize that timber harvesting and other forest management projects can incrementally contribute to pollutant loads, but the Administrative Draft Final Forest Management Plan has built in management measures to anticipate these incremental impacts and to reduce the impact to level that is less than significant. Further protections, such as the DEIR's Additional Management Measure for an Accelerated Road Management Plan, have been incorporated into the Administrative Draft Final Forest Management Plan. The watershed analysis results presented in the DEIR and RDEIR also recognized that aquatic habitat conditions on JDSF and surrounding areas continue to improve over historic conditions.

Note also that the analysis performed for the EIR found that most of the aquatic system within the assessment area is in a state of recovery. Relatively small and well distributed incremental

effects are expected to occur, but these are not expected to prevent recovery or produce significant impacts.

Response to Comment 8
The comment is non-specific and as such the BOF is unable to provide a detailed response. However, the BOF has attempted to address previous comments in the DEIR and RDEIR. Where appropriate, the BOF has provided references that further the discussion and analysis. The BOF believes that the significance and relevance of most references is evident, but without specific examples is unable to provide additional explanation.

Response to Comment 9
Please see Response to Comments 17-21, below.

Response to Comment 10
The DFMP, Administrative Draft Final Forest Management Plan, DEIR, and RDEIR include and clearly describe a variety of measures designed to protect and improve coho habitat quality based in large part on environmental risk factors identified in the California Department of Fish and Game Coho Recovery Plan and by the National Marine Fisheries Service Biological review Team. DEIR pages VII.6.1-90 through -98 lists other pertinent measures. These include but are not limited to an accelerated road management plan, WLPZ management to enhance late successional forest conditions and recruitment of large woody debris to stream ecosystem processes, measures to improve canopy cover and stream temperature, and provisions for providing extensive areas of late seral and older forest (over one-third of the Forest under the Administrative Draft Final Forest Management Plan).

Response to Comment 11
Map colors were carefully chosen to illustrate the intended message of the various map figures. In some cases, due to the large number of classes of information the maps are intended to show, the level of distinction between colors/classes may have been somewhat difficult to discern.

Response to Comment 12
As explained in the DEIR at page VI-9, Alternative B provides a baseline of recent past management direction against which the potential effects of the other alternatives can be compared. Management of JDSF under the 1983 Plan will continue until a new plan is adopted by the Board. The CEQA Guidelines [CCR 15126.6(e)(3)(A)] require an EIR to consider a “no project” alternative which discloses the impacts of continued management under an existing plan. While the alternative is “infeasible” in the sense that it is precluded by Board policy and the settlement agreement, it is still an alternative to the Plan that is useful in disclosing the environmental consequences of continuing current management practices.

Response to Comment 13
The DFMP, Administrative Draft Final Forest Management Plan, DEIR, and RDEIR provide numerous protections that go beyond those explicitly enumerated in the Forest Practice Rules. These documents provide numerous protections that go beyond those explicitly enumerated minimum standards in the Forest Practice Rules. In addition, the Rules provide for an assessment of potential impacts, and the implementation of protection practices is not limited in any way by the Rules themselves. Protection provided by the DFMP, Administrative Draft Final Forest Management Plan, DEIR, and RDEIR includes:

- Twenty-five-foot buffers along Class I and I streams where harvest is prohibited or limited to habitat improvement (DFMP/ Administrative Draft Final Forest Management Plan);
- Watercourse and Lake Protection Zones are established as Special Concern Areas designated for special management to protect aquatic and riparian resources, maintain terrestrial habitat connectivity for wildlife, and promote development of late-successional forest stand conditions; silviculture is limited to no harvest or special uneven-aged regimes

designed to promote development of late-successional forest stand conditions (DFMP/Administrative Draft Final Forest Management Plan);
- Retention of a minimum 240 ft^2 basal area of conifers (DFMP/ Administrative Draft Final Forest Management Plan);
- Road Management Plan (DFMP) and Additional Management Measures for Accelerated Road Management Plan (DEIR/ Administrative Draft Final Forest Management Plan);
- Additional Management Measure for Survey, Recruitment, and Placement of Large Woody Debris (DEIR/ Administrative Draft Final Forest Management Plan);
- Monitoring and Adaptive Management approach including hillslopes, stream channels, stream temperature, and fish and amphibian populations (DFMP/ Administrative Draft Final Forest Management Plan).

The comment related to Ligon et al. (1999), Dunne et al. (2001), and Collison et al. (2003) is addressed under the Response to Comment 4, above.

The analysis presented in the DEIR and RDEIR indicates that the proposed Administrative Draft Final Forest Management Plan will not result in significant adverse impacts to salmonids and that it will result in beneficial impacts to a number of important factors for salmonids, including water temperature, large woody debris recruitment, migration barriers, riparian forest quality and extent, and instream habitat and streambank stability (see DEIR p. VII.6.1-99 to -120 and Table VII.6.1.12; see RDEIR p. III-25 to -45 and Table III.6).

Response to Comment 14
As noted in the DEIR (p. VI-9), Alternative A "…is not intended as an alternative that could feasibly be adopted; rather, it is intended as a baseline for purposes of comparing the project setting (and the absence of any management plan activities) to several different management strategies represented by Alternatives B through F."

Response to Comment 15
Alternatives C2 through E vary slightly to substantially from Alternative C1. Alternative G, which is the basis for the Administrative Draft Final Forest Management Plan, incorporates a number of the elements from Alternatives C2 through F that will provide an overall higher level of resource protection and recovery than would Alternative C1. Of particular relevance to this comment, the proposed Administrative Draft Final Forest Management Plan would designate over one-third of the Forest for the development of late seral or older forest characteristics.

As directed by (a) existing statues for JDSF and the Demonstration State Forest Program in general and (b) Board policies (see Appendix 5 of the DEIR), the Board must consider many other factors in addition to ecology when determining the appropriate management direction for JDSF.

Response to Comment 16

The DFMP documents that prior to the first harvest entries in JDSF beginning in the 1860s, most of the Forest was assumed to have been virgin old growth (see DFMP p. 6).

Response to Comment 17
The DEIR analyzed data for a period spanning 1991-2003. However, the locations of the monitoring stations (or data loggers) have moved periodically, and thus not all locations have data for the entire duration that monitoring has occurred. The comment most likely refers to figures VII.6.1.6 and VII.6.1.8 in the Aquatics section that showed data for the time period 1995-2003. These figures are just two examples from the entire data set that was analyzed. The entire data set is provided in Appendix 12 of the DEIR. At the time that the NOP was issued (January 2004) stream temperature data from the summer of 2003 included the most recent observations.

Response to Comment 18
Both of these areas currently support coho salmon (per DFG stream surveys), and shade levels are expected to increase as the trees within the riparian zone in these locations continue to grow and develop. Increasing shade levels are expected to result in lower water temperature.

The DEIR discusses the elevated temperature issues in Parlin Creek and along the South Fork of the Noyo (p. VII.6.1-29 and Appendix 12 p. 9, 12-14, 21). Valentine (1996) provides the most comprehensive study of stream temperatures in this specific location. The conclusions in his report suggest that conditions did not represent a serious cause of concern with regard to coho salmon. JDSF continues to monitor water temperature along the SF Noyo at the lower JDSF boundary. There were several years of decreasing temperatures since 1997 followed by two years of increasing temperatures recorded in 2004 and 2005 (see Table 1, below). With no timber harvesting during 2004 and 2005, changes in temperature likely represent natural variation. JDSF will continue monitoring at this location and modify management practices as needed.

Table 1. Stream Temperature Data SF Noyo at the lower JDSF Boundary (ID 25010).

YEAR	1996	1997	1998	1999	2000	2004	2005
MWAT	16.2	17.3	16.2	15.9	15.8	17.1	16.5
Note that no data were recorded at this location between 2000 and 2004.							

Response to comment 19
The cautions noted by Collision et al (2003) are broadly recognized. The Board does not omit data to support or refute a stated hypothesis. See Response to Comment 8. The water temperature data that were analyzed, covering the time period 1991 – 2003, are provided as attachment A in Appendix 12 of the DEIR.

Response to Comment 20
The Board is aware of historic water temperature data in this location. Detailed discussion of water temperatures on the South Fork Noyo can be found in DEIR Appendix 12, starting a page 12 and in the main body of the DEIR on pages VII.7.6-27 to -30. Stream temperatures recorded along the SF Noyo in 1997 did exceed optimal conditions for coho salmon, but as shown in Figure 5a the temperature decreased by a degree (Celsius) or more for the next three consecutive years. More recent data for this gauge site collected in 2004 and 2005 shows a slight increase, but still below the temperature recorded in 1997. With little or no management activity in the last several years the recent increase is not likely to be management related, but instead reflects temporal variability.

Response to Comment 21
The DEIR analysis of turbidity included a range of thresholds from 40 NTU to 500 NTU (DEIR, Table VII.10.3). Table VII.10.3 reported all of the turbidity data provided in Lewis 2000. Recent field and laboratory studies have revealed that while the foraging efficiency of juvenile salmonids was decreased by increased turbidities, fish continue to capture prey at turbidity levels in the range of 40-50 NTUs (Hadden and others 2004). The value of the lower threshold is acknowledged and will be taken into consideration for future water quality monitoring. The Big and Noyo Rivers are listed as impaired for sediment, and suspended sediment concentrations are highly correlated with turbidity for a given watershed.

All data produced on JDSF are available to the public. Much of this data has been published or is available on the Internet. Any other data is available on request to CAL FIRE. CAL FIRE State Forest Program staff are continuing to make additional data sets available on the Internet over time, as funding allows.

Response to Comment 22
The results from the Klein (2003) study are based on a small sample size and are not conclusive. In the report Klein states that the results are preliminary and in need of further replication. The implications from the study are discussed in the Cumulative Effects section of the DEIR (VIII-53). However, the need to collect additional turbidity data in other planning watersheds is a valid comment and will be given consideration as a research project or as part of the monitoring program, pending the availability of funding.

While it would be advantageous to install continuous recording turbidity monitoring stations in several locations throughout JDSF, the cost is prohibitive. It is unusual and highly beneficial to already have 21 continuous recording turbidity stations currently operating within the boundaries of a forest ownership the size of JDSF. Considerable amounts of suspended sediment and turbidity data exist from these South and North Fork Caspar Creek stations and were reported on in the DEIR in considerable detail.

Klein's (2003) report suggests that there are thresholds of harvested acres beyond which additional harvesting will cause large increases in turbidity. Beschta and others (1995) write, however, in a comprehensive review of watershed relate cumulative effects, that natural systems rarely recognize discrete thresholds and can respond incrementally and interactively to change.

Additionally, Klein states in his report that that while turbidity levels might be decreased by reducing the density of roads in a watershed and limiting the annual rate of timber harvest, his "*results should be considered preliminary and not be used alone for policy decisions or regulatory standards"* (italics added). He also wrote that while his study argues for quantitative limits on annual harvest rates, they should be "*perhaps customized to accommodate the variability in erosional sensitivity found within the northcoast*. *But a stronger analysis, one that includes a greater sample size of northcoast streams, is needed to establish defensible harvest rates that ensure protection of beneficial uses*" (italics added).

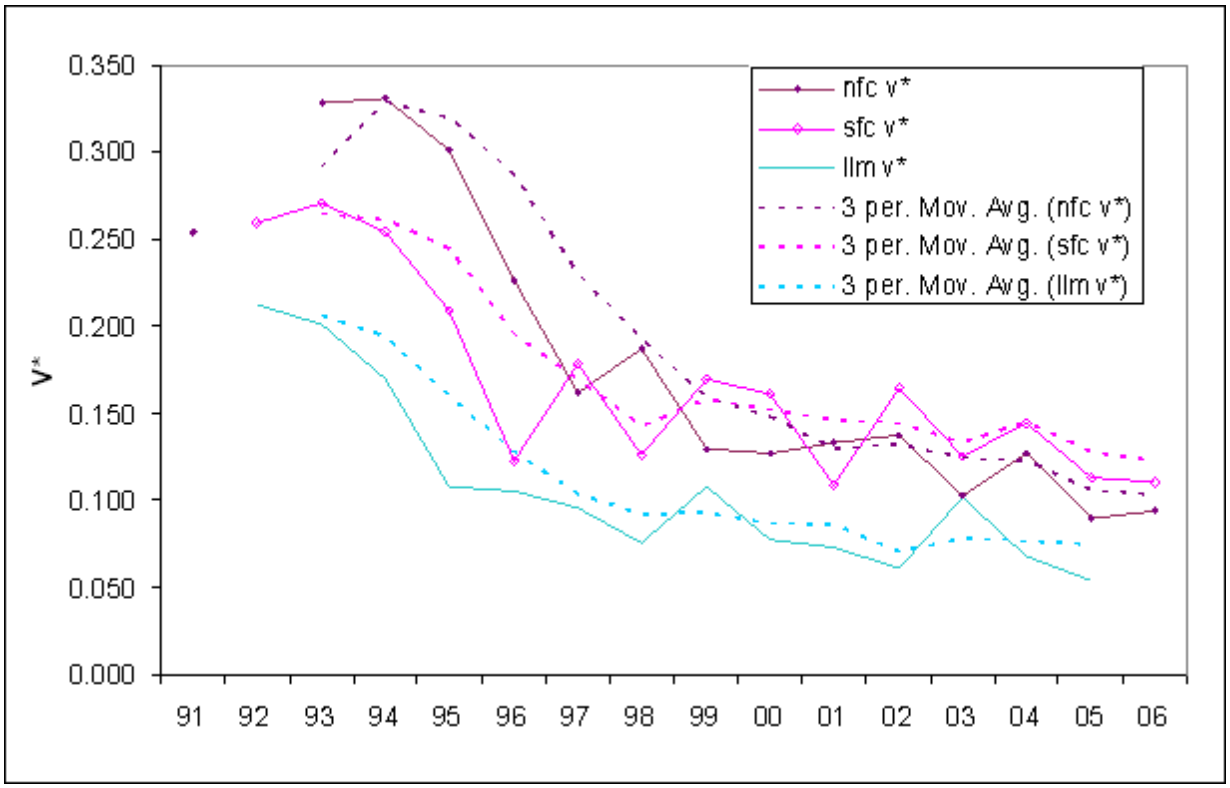
Observing just the data from Klein's (2003) paper collected on JDSF (the North Fork and South Fork Caspar Creek stations), the data show that the relationship described between increased harvesting rate and increased turbidity duration does not apply—the South Fork turbidity value is higher than the North Fork, even though the recent North Fork harvesting rate was higher. This outcome is likely explained by past roading practices and road abandonment work in the South Fork conducted in the late 1990s. Therefore, it appears from the data collected on JDSF that road construction, maintenance and abandonment practices are a very important factor to consider when discussing duration of turbidity—and more important than harvest rate.

Response to Comment 23
The comment suggests that the source of the deposit seen in the photo is related to logging, but does not indicate how this determination was made. Natural processes such as landsliding and bank erosion can lead to similar sediment inputs to streams.

Response to Comment 24
The DEIR discusses the significance of Knopp's (1993) study in the Aquatics section of the DEIR (VII.6.1-18 to VII.6.1-24). The DEIR explicitly acknowledges that management activities have affected channel geomorphology on Class I and Class II streams (VII.6.1-104). As stated in the DEIR, Knopp's results suggest that V* measurements for pools on JDSF are twice as high as undisturbed channels with similar geology (VII.6.1-104). More recent data reported by Stillwater for the draft 1999 HCP/SYP showed a much lower range of values for V*. The V* metric is very difficult to collect in a consistent fashion, which may contribute to the vast difference in V* numbers related to the same stream system. Most likely more consistent monitoring protocols are needed.

V* data also have been collected by the USDA Pacific-Southwest Research Station in the North and South Forks of Caspar Creek (Lisle and Napolitano 1998), and values from the early to mid-

1990s are generally similar to those reported by Knopp (1993). More recent values are lower, as displayed below in the following plot provided by Sue Hilton (USDA Forest Service, Pacific-Southwest Research Station, personal communication) in 2006 [note that data from Little Lost Man Creek (shown as "llm"), a reference watershed located in Redwood National Park is also included in this plot with the North Fork ("nfc") and South Fork ("sfc") of Caspar Creek]. Observe that there is a general decreasing trend for both forks of Caspar Creek over time.



Response to Comment 25
CAL FIRE funded a very detailed study of sediment storage and transport in the South Fork Noyo River Watersheds (Koehler et al. 2001). The DEIR discusses the results in Appendix 11. The findings suggest that large amounts of historic logging-related sediment are stored in channels and transported downstream during high discharge events (DEIR Appendix 11, p. 3). Not much is known about sediment waves because they are difficult to observe and model and have highly variable behaviors (Lisle 1997).

Response to Comment 26
The DEIR does acknowledge potential cumulative effects, particularly from historic management practices. Language from the DEIR such as "Streams on JDSF lands may also be more advanced relative to their recovery and flushing of sediment than pool habitats in other streams that were studied," (DEIR p. VII.6.1-22) and "A number of streams outside of JDSF within the Noyo Basin have pool frequencies below 20% (Figures VII.6.1.3 and VII.6.1.4), which may indicate a higher level of recovery in the streams of JDSF (Figure VII.6.1.2)," (DEIR p. VII.6.1-12), and "The habitat frequency chart from the North Fork of the South Fork Noyo within JDSF depicts some degree of recovery from past activities but pool frequency is still below the optimal range cited in the literature," (DEIR p. VII.6.1-12), clearly indicate that the DEIR is addressing this topic from a cumulative effects perspective. Further, the DEIR states on p. VII.6.1-37, "Historic management practices and more recent (mid-1980s to mid-1990s) harvest levels in assessment

watershed areas (Noyo and Big River) and other adjacent watersheds (Pudding Creek, Ten Mile) at the regional scale may have contributed to the decline of salmonid habitat quality ."

Habitat typing data are presented and discussed in the DEIR Aquatics section (p. VII.6.1-18 to 24, and are further discussed in DEIR section VII.6.1.4 (beginning on p. VII.6.1-37).

Response to Comment 27
The cumulative effects sections of the DEIR and RDEIR rely on timber harvesting data from 1986 to the present to disclose and discuss potential impacts (see, e.g., DEIR p. VIII-4). Further detailed timber harvesting data, THP by THP, are presented in DEIR Appendix 14. The data in the DEIR are summarized by CALWATER Planning Watershed and by silvicultural system. Timber harvesting data also were used explicitly to evaluate and quantify hydrologic impacts related to changes in peak flows (DEIR Appendix 10).

The BOF, in evaluating the DFMP, did not find that "all impacts are fully mitigated". Rather the BOF found a number of instances where implementation of the DFMP would lead to potentially significant effects and has required that measures to mitigate those effects be adopted. Further, it should be noted that CEQA is primarily concerned with the identification of potentially significant impacts and feasible mitigation. CEQA does not require that less-than-significant potential impacts be discussed in the same detail as significant potential impacts, nor does CEQA require that less-than-significant potential impacts be mitigated. We note, however, that the DFMP and DEIR contain numerous provisions that will avoid or mitigate both significant and less-than-significant potential impacts. Many of these elements with respect to aquatic species and their habitat have already been detailed in the Responses to Comments above.

The Reeves et al. (1993) article is of limited application to JDSF and the larger watershed area within which it lies. Oregon forest practice regulations during the 1985-1989 period examined in the article were less restrictive than those of California at the time, and were far less restrictive than today's California Forest Practice Rules. California has had significant Watercourse and Lake Protection Zone rules in place since 1984, and those rules in place for the JDSF area were further strengthened with the implementation of the WLPZ rules for Threatened and Impaired Watersheds in 2000 (see the Forest Practice Rules at 14 California Code of Regulations § 916.9 et seq.)

There are several differences between the Oregon Forest Practice Rules and those enforced in California. While watercourse protection measures for fish-bearing streams have improved considerably in Oregon, major revisions to the Oregon Forest Practice Rules did not take place until September 1994. Oregon currently does not have buffer strip requirements that require conifer trees to remain post-harvest for non-fish bearing streams [the current Hinkle Creek watershed study in Oregon has as primary objective to determine the impacts of contemporary logging practices on non-fish bearing streams--with implications for the need for buffer strips on non-fish bearing streams]. Clearcut size in Oregon is limited to 120 acres [as compared to 20-40 acres under the California Forest Practice Rules (14 CCR §913.1)] within a single ownership. In many situations, a written plan is not required, only a 2 page notice of operation document is filed. Prior approval from the ODF before operations can begin and a written plan are only required for logging proposed in areas with a high potential for causing resource problems (operations within 100 ft of certain types of streams, high risk landslide sites, operations within 300 ft of areas identified as important sites for certain wildlife species, etc.) (Adams 1996).

The DEIR acknowledges that applicability of the Reeves et al. article also is limited by the different precipitation regimes and geology of the coastal Oregon basins examined by the authors as compared to the central Mendocino coast of California. There are considerable differences between trees species growing on JDSF and those found in the Oregon Coast Range in terms of slope stability. Sidle and others (1985) report that the influence of timber harvest on slope stability depends on the density of residual trees and understory vegetation, rate and type of regeneration, site characteristics, and patterns of water inflow after harvesting. In areas with

marginal slope stability, loss of root strength and/or increased soil moisture from reduced evapotranspiration following logging can lead to an increased rate of slope failure (Sidle and others, 1985; Ziemer, 1981a). The influence of timber harvesting on slope stability depends on site characteristics (slope, geologic parent material, past landslide history), the tree species present, density of residual trees and understory vegetation, rate and type of regeneration, and size of storm events that occur after harvesting (Sidle and others, 1985).

Data collected to date in northwestern California areas with sprouting coast redwood does not show a clear relationship between clearcutting under the current FPR regime (sometimes in combination with requirements included in landscape level documents) and landslide rates. Most of the recent mass wasting features are related to roads and landings (Spittler and Cafferata 2004, Bawcom 2003). Improved Forest Practice Rules, mass wasting avoidance strategies, and requirements for professional input appear to be substantially reducing rates of mass wasting from northwestern California recent clearcuts. As stated in the above response to Comment 6, Bawcom (2003) examined rates of mass failures for redwood dominated clearcuts in western Mendocino County on Jackson Demonstration State Forest (JDSF). For this area, little evidence was found to indicate that vegetation removal associated with clearcutting alone conducted under the modern California Forest Practice Rules (1982 to 1994) was a significant contributor to slope instability or reactivations of dormant landslides. Almost all of the observed landslides that delivered sediment to watercourses were shallow failures that were associated with old roads (particularly low on the slope near watercourses) that were constructed decades before the recent harvesting. Similar conclusions were reached earlier for the North Fork of Caspar Creek on JDSF by Spittler (1995) and Cafferata and Spittler (1998).

In the Pacific Northwest, including the Oregon Coast Range reported on in Reeves and others (1993), where the tree species harvested do not sprout from the root mass, the period of increased landslide frequency after timber harvesting is elevated the most between the time of root dieback from harvested trees and the establishment of stabilizing roots by incoming vegetation (Swanson and Dyrness, 1975). This period of time is considered to be from 3 to 15 years after clearcutting (Sidle and Wu, 2001). For example in the slide-prone Mapleton area of the Siuslaw National Forest in the Oregon Coast Range, Ketcheson and Froehlich (1978, in Sidle and others, 1985) found a 3.5 fold increase over a 15 year period in the volume of debris avalanches and torrents in clearcut areas versus forested areas.

More recently in Oregon, Robison and others (1999) reported on the erosional consequences of two very large storm events which occurred in February and November of 1996 in western Oregon. Both storms resulted in a large number of landslides, debris torrents, and altered stream channels. A three year monitoring project was undertaken to evaluate the effects of the storms. The majority of the identified landslides were not associated with roads, but were in clearcut units, with the highest hazard area for shallow rapid landslides occurring on slopes of over 70%. Data from this study indicated a higher incidence of landslides between 0 and 10 years after clearcut timber harvesting (Spittler and Cafferata 2004).

Response to Comment 28

The commenter is expressing an opinion regarding the extent of past impact, the level of impact associated with specific forms of stand management and timber yarding, and an associated period of time for which management should be confined to the specific form that he recommends. Further, the commenter has specified that only a single form of stand management should occur (thinning from below), while simultaneously specifying that selective logging and light touch forestry should occur. While selection logging may include some thinning from below, thinning from below is not synonymous with selective cutting, and "light touch forestry" is not a defined term. These comments represent over generalization that is not supported. The Board will not speculate as to why the commenter believes that future management should be limited as specified. In fact, the analysis performed for this EIR indicates that the watershed is in a state of active recovery from past impacts, and that this recovery will continue coincident with the

management that has been proposed. The proposed management includes a broad spectrum of individual stand management and timber yarding techniques, and each proposal to harvest timber will be accompanied by a site-specific analysis of potential cumulative effects.

The DFMP and Administrative Draft Final Forest Management Plan recognize the sensitivity of streams and riparian areas to potential management impacts and designate these as Special Concern Areas. As such, these areas have significant restrictions on management operations in WLPZ areas, as documented in number of the responses to comment above. Over time, the implementation of this plan should assist in the recovery of degraded channel conditions.

The JDSF DFMP, Administrative Draft Final Forest Management Plan, and DEIR, in part, use the results of the Stillwater-Sciences-produced watershed analysis work to identify approaches to reduce cumulative impacts to a level less than significant. Specifically, on-site impacts from individual and multiple projects will be reduced by a combination of the FPRs, added measures provided for in the DFMP, Administrative Draft Final Forest Management Plan, DEIR, and RDEIR, and site-specific measures added from the THP preparation process and Review Team agency review of THPs, as well as from pre-plan consultation with qualified experts. Repair of existing road-related sediment problems will be accomplished through the Additional Management Measure for an Accelerated Road Management Plan.

The rate of sediment production from new activities (i.e., from roads and harvest units) described in the DFMP is not expected to inhibit watershed recovery. The total amount of harvest-related sediment and the proportion of sediment production between harvest areas and roads vary depending on logging systems and road location, type, design, and use and with differences in planning watershed sensitivity. In general, there should be near recovery to original or new baseline suspended sediment conditions within approximately 10-20 years following harvest (Grant 2000). The hazard of sediment production from permanent roads can be considered as constant after about 10 years, although actual amounts will vary by road type and storm size–with less frequent, episodic inputs associated with large storms. Higher rates of surface erosion and failures due to poor design or execution are most likely during the first few years following construction.

Data provided in Table VIII.10 of the DEIR shows that the intensity of future harvesting on JDSF in the next 10 years will be less than has been tested in the North Fork of Caspar Creek, where approximately 45% of the watershed was clearcut harvested in three years. Research conducted in the North Fork of Caspar Creek watershed beginning in 1985 directly addressed cumulative watershed effects. Most of the logged units were cable yarded and new roads were built along the ridge lines. Nested watersheds with individual gaging stations measured sediment routing. None of the statistical tests performed on the sediment data revealed significant positive interactions that would indicate disproportionate disturbance effects at downstream gaging stations (Lewis 1998). In both pre and post-treatment, main stem gaging stations had higher unit area sediment loads than in the tributaries, which could reflect the greater availability of sediment stored in lower gradient reaches. The intensive level of timber management in the North Fork of Caspar Creek watershed also did not cause large changes in watershed physical or biological variables in this moderately stable geologic formation (Ziemer 1998, Lewis 1998, Cafferata and Spittler 1998, Nakamoto 1998, Bottorff and Knight 1996). The Caspar Creek results show that downstream water quality impacts of hydrologic changes resulting from timber operations can be prevented by the application of mitigation measures contained in the California Forest Practice Rules.

Also note that the anticipated amount and intensity of harvesting is less in the Administrative Draft Final Forest Management Plan than was proposed in Alternative C1. The Administrative Draft Final Forest Management Plan, or Alternative G, makes a smaller amount of the Forest available for evenaged management, designates over one-third of the Forest for development of late seral or older forest conditions, and places significant limitations on the acreage of evenaged management that can be conducted each decade.

Response to Comment 29
See Response to Comment 7.1, above. The Board examined the specific map cited here, Map Figure Z, Silvicultural Spatial Allocation Plan, in both the printed version of the DEIR and in the PDF version [as downloaded from the Board website (http://www.fire.ca.gov/php/rsrc-mgt_content/downloads/jdsf_deir_05/DEIR_Map_FigureZ_SilviculturalSpatialAllocation.pdf) and viewed on computer screen]. While the map colors could have been more distinct, we were able to reasonably easily discern the different silvicultural systems displayed in the printed version of the figure. The on-screen image was less clear, but still distinguishable.

In the DFMP, the same figure is provided as Figure 7, Timber Management Areas. The printed version of Figure 7 in the DFMP has very clear distinction between the colors. The electronic version of Figure 7, as provided to the public via the Board of Forestry and Fire Protection website (http://www.bof.fire.ca.gov/pdfs/fig7.pdf) and on CDs, is somewhat more easily distinguishable than the DEIR electronic version of Map Figure Z.

With respect to the expressed concern about Brandon Gulch being designated for short-rotation silviculture, we note that Map Figure Z clearly shows that Brandon Gulch is allocated to unevenaged management (to which the concept of rotation does not apply), plus a Special Concern Area. Further, it should be noted that the silvicultural allocations presented in Figure Z are general designations. Additional information on slope stability (such as that shown and Map Figures V and W) and on-the-ground determinations of slope stability made by a licensed engineering geologist will be used to develop the actual silvicultural treatments provided on any specific area.

In the RDEIR, Map Figure 1 provides the equivalent spatial information on silvicultural allocations for Alternative G, as does Map Figure 5 in the Administrative Draft Final Forest Management Plan. The color scheme in these map figures is very distinctive. Under Alternative G and the Administrative Draft Final Forest Management Plan, management in Brandon Gulch would continue to be unevenaged.

Response to Comment 30
Section 10.3.3 of the DEIR (p. VII.10-6 to -7) provides a discussion of the effects of timber harvest on flows, and Appendix 10 provides a lengthy and detailed discussion of this topic. The Aquatics section (VII.6.1) discusses the importance of flow as a habitat factor for fish.

The main body of the DEIR addresses roads and their effects on sediment detail in several places:

- Section VII.7.2.4 (p. VII.7-7 to -19);
- Section VII.10.4.2 (p. VII.10.-7 to -10);
- Section VIII.3.1 (p. VIII-15 to -17);
- Section VIII.3.3 (p. VIII-39 to -40.

In addition, Appendix 11 focuses solely on the issue of sediment and contains extensive discussion and data related to roads and sediment.

Quantitative information on roads and sediment can be found in a number of places in the DEIR. See the following tables or figures and the related discussion:

- Table VII.7.1
- Table VII.7.2
- Figure VII.7.1
- Table VIII.6b
- Table VIII.7 (documents projects implemented to reduce road-related sediment)

- Appendix 11: Figures 2, 4, 7, 8; Tables 2 plus 4 attached tables.

Matthew's sediment source area analysis work is discussed in the DEIR in Appendix 11. The DEIR analyzed the effects of roads on sediment yield. Sediment budget work completed by Stillwater Sciences for the draft HCP/SYP for JDSF was incorporated into the DEIR and is consistent with the work by Mathews in that they both recognize roads as a primary sediment source. Matthews's estimates of sediment yield from roads by time period are an office-based assessment with little or no field validation. Through field-based inventory and prioritization, the Road Management Plan proposed in the DFMP (or the Additional Management Measure for an Accelerated Road Management Plan) provides a practical, proven approach to reducing sediment loads. This approach also is included in the Administrative Draft Final Forest Management Plan.

Response to Comment 31
The BOF and CAL FIRE are committed to identify sediment sources from roads and decommissioning roads that are no longer needed or pose high environmental risk. However, there is unlikely to be a single road density threshold that is appropriate for all watersheds.

The Road Management Plan included in the DFMP and the Additional Management Measure for an Accelerated Road Management Plan provided in the DEIR are both indicative of the Board's and CAL FIRE's commitment to address road related impacts on ecosystems, including removal of roads. The Road Management Plan includes road abandonment as one of its elements (see DFMP Appendix VI). This approach also is included in the Administrative Draft Final Forest Management Plan.

Response to Comment 32
Appendix 12 of the DEIR discusses a range of variables that can potentially influence stream temperature. Previous modeling studies by Bartholow (2000) found that shading and stream width were the most influential variables in determining stream temperature. The results from Welsh et al. (2005) do suggest that groundwater can play an important role in regulating stream temperatures during the warm summer months. The role of groundwater in regulating stream temperatures across JDSF is not well understood. It may be a useful research or monitoring project to consider if future funding becomes available. JDSF currently uses a well distributed network of stream gauges to monitor stream temperature and where stream temperatures are of concern management prescriptions are adapted as needed.

With respect to the findings of Welsh et al. and their relevance to JDSF, it is important to note the following:

- Late seral stage vegetation types will be increased with implementation of the DFMP, in riparian areas in particular, and not decreased as occurred in the Mattole River basin cited by Welsh et al. Under the proposed Administrative Draft Final Forest Management Plan, over one-third of JDSF is designated for the development of late seral or older forest structure.
- Welsh et al. (2005) determined that the primary processes influencing faunal assemblage patterns were vegetation changes resulting from the harvesting of late-seral forests and the clearing of forest for pasture. With the implementation of the DFMP, no wide-spread conversion to early seral stages or clearing for pasture will occur. Late seral forest conditions on JDSF will be significantly increased under the Administrative Draft Final Forest Management Plan, not decreased.
- Welsh et al. (2005) stress the importance of appropriate microclimatic environments associated with late-seral forests. A detailed riparian microclimate study is currently being conducted on JDSF (and a control in Russian Gulch State Park) forest lands by the Department of Fish and Game (Chapman and others 2004). Summer (May through September) temperature gradients are being monitored along fifteen transects in stream riparian zones within four different watersheds. A minimum of seven stations are set along each transect. This study will provide quantitative information on riparian microclimate for pre- and post-harvest conditions. Based on the results of this study, adaptive management

will occur under the Administrative Draft Final Forest Management Plan if necessary to prevent significant adverse impacts to sensitive aquatic species.

The DEIR includes substantial information on current seral conditions and projected seral conditions. Current seral conditions are depicted using the Wildlife Habitat Relationship System classifications (Mayer and Laudenslayer 1988) in Map Figures J and K. Tabular information on current seral conditions are presented in Tables VII.6.6.1 and VII.6.6.2 in DEIR section VII.6.6.1 Wildlife and Wildlife Habitat. Summary bar graphs of seral classes are presented in Figures VII.6.6.1.1 and VII.6.6.1.2. The data developed by Warbington et al. (1988) and cited in the comment was one of the sources used in these compilations and analyses.

The DEIR includes extensive modeling to project seral conditions over time. See pages VII.6.6-131 through -208. This modeling included both JDSF and areas outside of JDSF within the cumulative effects assessment area.

Information based on Keithley (1999) is provided and discussed in the Cumulative Effects section of the DEIR (VIII-66 to -72). Information is not provided as charts, but the quantitative data is presented in tabular form.

Response to Comment 33
The cited change detection data is better suited for broad landscape level analysis. The mapping is done across geographic areas that are much larger than the DEIR planning area. CAL FIRE has very detailed management data in the form of timber harvest histories and inventory data that more specifically account for changes in land use than the change detection data. These changes are also reflected in the revised vegetation map for JDSF. It is unclear that the additional analysis would yield better information on current conditions.

The suggested analysis using the change detection data to assess the 1994-1998 change in riparian vegetation would push both the change detection data and the available stream location data beyond their levels of accuracy. The Board reviewed change detection data in preparing the DEIR, but determined that available field-based surveys of riparian areas on JDSF and adjoining Mendocino Redwood Company lands provided a more detailed and reliable set of information. In this case the change detection data had limited field checking and lacked a detailed description of the actions that caused a change in vegetation condition. Further, CAL FIRE has developed a very detailed GIS database that identifies timber harvesting and other management activities throughout the DEIR planning area. This kind of information is much more reliable when collected from aerial photographs or on the ground than from LANDSAT imagery. DEIR section VII.6.1 Aquatics includes information on streamside vegetation, including canopy cover (see, e.g., Table VII.6.1.4) and large woody debris.

Response to Comment 34
The analysis performed for the EIR clearly recognizes the relationships between past management and current conditions. The EIR includes very extensive discussion of the relationships between management and impacts associated with sediment, canopy reduction, and water temperature. The reader is encouraged to review Section V (Regional Setting) for a description of existing conditions and past effects, Section VII.6.1 (Aquatic Resources) for an analysis of potential impacts to aquatic resources, Section VII.10 (Hydrology and Water Quality) for an analysis of potential land management effects upon stream flow and water quality, and Section VIII for an assessment of potential cumulative effects. Appendix 12 includes a discussion of water temperature, clearly articulating the relationship between canopy and water temperature.

The DFMP does not set up the context for “a new wave of clearcutting” on JDSF. Table VII.6.3.4 (p. VII.6.3-28) provides information on the silvicultural allocation plan for the DFMP, and a short-term harvest schedule also is included in the DFMP. Similar information is provided in the Administrative Draft Final Forest Management Plan.

Under the Administrative Draft Final Forest Management Plan, the only areas of the Forest specifically designated as eligible to receive evenaged management total 26 percent of the Forest area; and these areas are designated to receive either evenaged or unevenaged management. The extent of clearcutting and other forms of evenaged management are strictly limited to no more than 2,700 acres per decade.

With respect to the two cited watersheds of concern, James Creek is designated to receive either older forest structure or unevenaged treatments; no clearcutting or other forms of evenaged management are anticipated under the Administrative Draft Final Forest Management Plan. Part of the Chamberlin Creek watershed is designated for older forest structure and part is designated for either evenaged of unevenaged prescriptions. The short-term harvest schedule presented in the Administrative Draft Final Forest Management Plan (Table 9) identifies only unevenaged management harvests for the Chamberlin Creek watershed. No harvests are identified for James Creek.

Finally, as discussed several times above, the DFMP, Administrative Draft Final Forest Management Plan, DEIR, and RDEIR provide numerous measures to ensure that significant adverse impacts of the type described in the comment do not occur. The DEIR and RDEIR conclude that taken as a whole, these measures will contribute to recovery of aquatic habitat conditions and salmonid populations.

Response to Comment 35
Almost all of the Class I streams within JDSF support coho salmon, including most of those with water temperature that exceeds preferred levels. The Administrative Draft Final Forest Management Plan will provide for the continued development of canopy and large woody debris, which will increase cover and result in lower water temperature.

Juvenile coho salmon require cool water to survive and grow and are susceptible to increased summer water temperatures because they rear in freshwater for at least a year. Temperatures below 16.8° C are in a range that is considered optimum for Coho. Temperatures beyond 16.8° C have been shown through numerous studies to introduce stress that inhibits growth and or avoidance among juvenile coho. There is not typically a single number that determines whether a stream supports coho. Rather, Appendix 12 of the DEIR discusses a range of thresholds for coho. The map is however instructive for highlighting areas where stream temperatures are potentially constraining the distribution of coho. Many of these areas have also been the focus of restoration activities to improve canopy cover and increase shading.

Response to Comment 36
Appendix 12 of DEIR provides a comprehensive evaluation of water temperature data and canopy cover throughout the assessment area. The report evaluates the historical record of water temperature and discloses locations where water temperature impairment is of concern. In addition, JDSF is committed to maintaining a robust water quality monitoring program that includes collecting water quality data. Further exploration of the relationship between water temperature and riparian habitat will be considered as part of the research program at JDSF, pending available funding. The Administrative Draft Final Forest Management Plan specifically designates three areas on the forest for testing these kinds of relationships.

In addition to examining current riparian conditions on JDSF and the anticipated results of the management proposed in the DFMP and the Administrative Draft Final Forest Management Plan, the DEIR explores riparian conditions on the other ownerships in the broader cumulative watershed effects assessment area. For example, the discussion notes that one of the major industrial landowners within the assessment area, Mendocino Redwood Company (manages about 25 percent of the cumulative watershed effects assessment area), has in place riparian management practices that go substantially beyond the Forest Practice Rules (see DEIR p. VIII-44).

Response to Comment 37
The Board agrees that some stream reaches within the assessment area contain water that is above the optimum temperature range for salmonids, and that canopy growth and development will eventually result in a reduction in stream temperature in many of these reaches. The DEIR recognizes that impaired water temperatures are by definition a cumulative effect and clearly states locations both on JDSF and throughout the Noyo and Big River where water temperatures are high and of potential concern. Detailed information on riparian trees and canopy conditions was provided and discussed for MRC lands. For other private lands within the Noyo and Big Rivers there was limited available information on which to base an analysis. Where the data were made available, the Board evaluated canopy cover for adjacent landowners. Further, Appendix 12, clearly address stream temperature issues that exist off JDSF lands, but within the Noyo and Big River watersheds. Chapter 5 Environmental Setting (p. V-14) shows a map that depicts the framework that was used for interpreting cumulative watershed effects that includes an evaluation of effects throughout the Noyo and Big Rivers, as well as four additional coastal drainages. The DEIR also discusses the management practices that MRC has in place to protect riparian habitat values.

Response to Comment 38
SHALSTAB was used by Stillwater Sciences in their watershed analysis work completed for the draft HCP/SYP for JDSF. This work was used in the DEIR development of the DFMP and Administrative Draft Final Forest Management Plan. Further, the California Geological Survey updated geologic and geomorphic maps for JDSF, Big River, and Noyo River watersheds. SHALSTAB was one of the data layers used to in developing maps of relative landslide potential. Tables VII.7.5 and VII.7.6 of the DEIR provide a summary of the extent of mass wasting features (debris flow, rock slide, earth flow, debris slide, etc.) across most of the assessment area (see p. VII.7-21 to-26). Also, this data layer is displayed graphically in DEIR Map Figures V and W.

The DFMP (p. 71-72) and the Administrative Draft Final Forest Management Plan describe the hillslope management procedures to be used in potentially unstable areas. This process involves office review (including the use of relative landslide potential maps), field review by a Registered Professional Forester using the 1999 “California Licensed Foresters Association (CLFA) Guide to Determining the Need for Input From a Licensed Geologist During the THP Preparation,” and CEG consultation as appropriate during the design phase of timber sale preparation work to address slope instability and erosion issues identified during office and field reviews. This process in intended to ensure that harvest units and road designs are proposed that adequately protect unstable areas and inner gorges.

The DEIR adds a further mitigation to the process to require:

> Use CGS-compiled landslide maps (Short and Spittler 2002a; Manson, Sowma-Bawcom, and Parker 2001; Manson and Bawcom 2001) and relative landslide potential maps [Short and Spittler 2002b; Manson, Sowma-Bawcom, and Parker 2001] to (a) identify areas of potential instability during THP preparation, road layout, and other construction activities, and (b) designate “shallow landslide potential areas” as Special Concern Areas.

JDSF currently has a half-time certified engineering geologist (CEG) on its staff. Duties of the CEG include field evaluation of projects (such as THPs) to identify and mitigate potential effects on slope stability.

Response to Comment 39
The management plan proposes to manage Class I and II riparian zones to develop late seral characteristics. Management to attain early seral stages within the riparian zone is not proposed. Water quality conditions for coho salmon and tailed frogs are comparable. The coho salmon and steelhead were used as the key aquatic species of concern in the DEIR given the greater

availability of historic as well as current information on their status from both a regional and local perspective.

It should also be noted that, as the result of past management practices, early seral stages are not characteristic of riparian areas on JDSF. The canopy information for JDSF streams alone is indicative of this fact (see Table VII.6.1.4 on p. VII.6.1-27 of the DEIR). The aerial-photo-based information on JDSF Class I and II streams in Table VII.6.1.4 indicates that, in 1996, 89 percent of the stream miles had 70 percent canopy closure or greater. Given the Forest Practice Rules, the Forest Practice Rule for Threatened and Impaired Watersheds, and management practices on JDSF, the level of canopy closure has in all likelihood increased since the time this analysis was conducted.

Response to Comment 40
The Board has determined in the DEIR that management of JDSF, as proposed, will result in continued recovery of aquatic habitat within the Forest. This habitat is expected to contribute to the recovery of salmonid populations. The DEIR emphasized habitat condition discussion over population parameters given the large degree of annual population variation and inconsistent effort and timing of data collection, particularly for adults and the youngest salmonid age classes (DEIR Page VII.6.1-61-64). Section VII.6.1.16 Project Impacts DEIR Pages VII.6.1-99-111 link habitat measures to expected impacts on fish populations. The conclusions of Brown et al. (1994) are noted on DEIR page VII.6.1-53 to -54 and in Tables VII.6.1.8 and VII.6.1.9 on DEIR pages VII.6.1-55 and 56, respectively.

Response to Comment 41
Aquatic habitat conditions regionally and within JDSF, including V*, are discussed at length in DEIR section VII.6.1 Aquatic Resources. JDSF-specific discussion of fish populations is found on DEIR pages VII.6.1-72 through -84. Regional and local salmonid population status and relationship to habitat conditions is detailed in DEIR pages VII.6.1-53 through -84.

Response to Comment 42
Section VII.6.1 of the DEIR contains extensive information on the presence and absence of salmonids on JDSF and within the cumulative effects assessment area. Map Figure E in the DEIR provides recent spatial information on coho and steelhead presence on JDSF and the rest of the cumulative effects assessment area. The Board considered a map of the historic spatial distribution of salmonids of concern. Illustrating spatially where coho and steelhead were located historically with regularity would be largely speculative due to the lack of systematic information. The DEIR notes that coho and steelhead likely occurred throughout JDSF where their movement was not restricted by barriers. Differences in survey timing and effort and transitory effectiveness of barriers are variables that would reduce the utility of a map based on presence/absence. Further, correlation of presence/absence with little or no stream habitat data would not be supportable. That the coho and steelhead distribution has retracted from historic levels is broadly recognized.

The issue of the importance of JDSF as regional refugia was discussed above.

Response to Comment 43
The DFMP and the DEIR recognize the issue of how thinning from below can be used as a tool to accelerate development of late seral stands and encourages the use of such management. The DFMP calls for this treatment to be applied, as appropriate, in Class I and Class II WLPZs to hasten the development of late seral habitat that is called for in the Special Concern Areas established in these areas. The DFMP describes such areas thus:

> Watercourse and lake protection zones (WLPZ) - 7,440 acres. Areas designated for special management to protect aquatic and riparian resources, maintain terrestrial habitat connectivity for wildlife, and promote development of late-successional forest stand conditions.

> Silviculture is limited to no harvest or special uneven-aged regimes designed to promote development of late-successional forest stand conditions. (DFMP p. 149, emphasis added)

The DFMP also suggests thinning from below for late seral development in the Woodlands Special Treatment Area:

> Late-successional forest characteristics will also be managed for in the Mendocino Woodlands Special Treatment Area (2,224 acres located in the Lower North Fork Big River planning watershed excluding the Railroad Gulch Research Area). Management in this area may include thinning from below and individual tree selection designed to emphasize development and retention of large trees. (DFMP p. 61, emphasis added)

The DEIR provides an Additional Management Measure for Large Woody Debris Survey, Placement, and Recruitment (see DFMP p. VII.6.1-97 to -98). This measure requires that all Class I and II streams be surveyed for large woody debris loading either programmatically or during THP preparation. Where debris loading falls short of the specified criteria, the called for treatments include "removal of codominant, intermediate, or suppressed trees to promote growth on the larger diameter dominant trees and improve LWD recruitment potential," i.e., thinning from below.

The Administrative Draft Final Forest Management Plan goes well beyond the DFMP to propose substantial additional areas for the development of late seral and older forest characteristics. Thinning from below and careful single tree harvest prescriptions will be essential tools to attaining these goals.

Response to Comment 44

While the future management of the Forest will provide for continued recovery, as concluded in the DEIR, existing science does not enable a prediction of either the slope of the recovery trajectory or the time necessary to achieve full recovery. Further, CEQA does not require that an EIR include a time table for recovery, nor does not achieving full recovery lead to a significant effect requiring mitigation,

The DFMP makes a commitment to continue monitoring efforts of many watershed parameters within the Caspar Creek Watershed Project area (see DFMP p. 109), and the Department has committed to a continuation of monitoring efforts in other areas. Please see Chapter 5 of the DFMP or the Administrative Draft Final Forest Management Plan for a detailed list of proposed monitoring efforts, including many that are widely recognized as appropriate for an assessment of water quality and aquatic habitat. Note that Casper Creek is the only forested long-term paired watershed study ongoing in California (Ziemer and Ryan 2000), with a commitment from the USFS-PSW and CAL FIRE to continue the project for 100 years.

The Administrative Draft Final Forest Management Plan makes a commitment to comply fully with all regulations of the North Coast Regional Water Quality Control Board, including TMDL requirements.

Response to Comment 45

The instream and hillslope monitoring to be implemented on JDSF is well described in Chapter 5 of the Draft Management Plan and the Administrative Draft Final Forest Management Plan. This monitoring will provide an indication of stream condition and attainment of water quality objectives. For instream channel conditions, the document states that "Parameters sampled will vary depending on the stream reach evaluated, but may include:

- LWD frequency by size class, with information on condition and placement

- Pool dimensions (including pool volume], residual pool depth, and useable rearing/holding/overwintering habitat)
- Pool frequency
- Gravel permeability, embeddedness and size distribution (including overall d_{50} of sampled reaches)
- Channel dimensions (measured using transects)
- Longitudinal profiles and cross sections
- Bank conditions and entrenchment
- Benthic macroinvertebrates"

These parameters have associated water quality targets for North Coast listed watersheds.

Further, JDSF will comply with water quality regulations such as the Porter-Cologne Water Quality Act and TMDL requirements, in part through the Waste Discharge Requirement process established by the North Coast Regional Water Quality Control Board. These regulatory measures are discussed in part VII.7.3 (starting at p. VII.7-27) of the DEIR.

Response to Comment 46

The BOF does not agree with the comment. The DEIR provides an extensive summary of data collected over time and for a variety of aquatic resource values. These provide a baseline for future comparative studies and monitoring efforts that under proposed management are expected to continue to exhibit improvements. The Caspar Creek Watershed study provides a scientific foundation that has and will continue to provide monitoring data across a broad spectrum of resources that effect aquatic resources.

There is a lack of scientific information to assess environmental conditions prior to 1948. However, there is a broad source of information on land management practices and the likely impacts associated with past management practices. This information is included in the DEIR. Further, information in the DEIR on timber inventory, wildlife, stream channel conditions are well developed and will continue to document a watershed recovery.

Response to Comment 47

The commenter misunderstands the point that the DEIR is trying to make here (quoted section is from p. VII-69 of the DEIR). The section is discussing priorities for restoration, not protection. As used in this context, "restoration" is referring to the taking of affirmative steps to improve stream conditions, such as removing roads from Watercourse and Lake Protection Zones, upgrading crossings, recruiting or placing large woody debris, removing migration barriers from streams, etc.

The argument being made is based on the fact that available resources for watershed restoration are limited. Thus, the approach to restoration that makes the most sense is:

- Protect watersheds that are in pristine condition and providing fully functioning aquatic and riparian habitat;
- Protect watershed that are in reasonable shape and recovering well on their own;
- Invest limited restoration resources in making improvements to watersheds that are moderately disturbed, where restoration investments will provide a fairly fast recovery response at a relatively low cost;
- Make restoration of heavily disturbed areas a lower priority because the cost of restoring these areas will be relatively high and the rate of recovery fairly low.

Response to Comment 48

The Board and CAL FIRE recognize (as does the DEIR) the biogeographic value of JDSF and more specifically the opportunity to contribute to recovery of these and other species. The responses to comments above discuss salmon recovery at some length. For Marbled Murrelet

specifically, the DEIR provides an Additional Management Measure for Contribution to Recovery of Marbled Murrelet Habitat (see DEIR p. VII.6.6-123 to -119). The Administrative Draft Final Forest Management Plan builds on the DFMP by providing an additional area of 1,500 acres specifically for the development of late seral habitat to provide Marbled Murrelet Habitat.

Response to Comment 49
As indicated in responses to many of the earlier comments in this letter, the proposed DFMP, additional measures provided in the DEIR, plus the additional research emphasis that the BOF has directed CAL FIRE to incorporate into the final management plan, will make substantial, direct progress toward the achievement of the goals enumerated in this comment. The proposed Administrative Draft Final Forest Management Plan goes even further toward such goals, in part through designating significantly greater areas of the Forest for the development of late seral and older forest characteristics.

The one item not specifically touched on in the responses thus far is recreation. The DFMP and Administrative Draft Final Forest Management Plan call for JDSF to conduct a recreation survey and, based on that, to adjust recreation opportunities. Further, these plans call for a number of specific measures to improve recreation (see DFMP p. 78 or Chapter 3 of the Administrative Draft Final Forest Management Plan). These include improvements to campsites and trails, development of route maps for equestrians and mountain bikes, restoring the Little Red School House and opening it to the public, and upgrading or roads heavily used by recreationists.

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